

COMPLIANCE REPORT

(MoEF & CC File No J-11011/371/2016-IAII (I) dated 29/08/2017)

For the period

October 2021 - March 2022

Submitted

To

MoEF&CC, Regional Office (ECZ), Ranchi

Ammonia Urea Fertilizer Plant


(2200MTPD Ammonia & 3850MTPD Urea)

Barauni

MAY 2022



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

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|  | <p align="center">Hindustan Urvarak & Rasayan Limited (A Joint Venture of NTPC, CIL, IOCL, FCIL & HFCL) Barauni Urvarak Nagar, Begusarai-851115</p> |
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Ref. No.: HURL/BR/ECZ/7

Date: 18/05/2022

To

Regional Office (Eastern Central Zone)

Ministry of Environment, Forest and Climate Change,
Bungalow No. A-2,
Shyamali Colony,
Ranchi – 834002.

Subject: Ammonia (2200 MTPD) Urea (3850 MTPD) Fertilizer Project at Barauni in District Begusarai, Bihar of M/s Hindustan Urvarak & Rasayan Limited (HURL)-Compliance Report for October- 2021 to March-2022.

Ref: (i) MOEF & CC, Environmental Clearance Letter No. J-11011/371/2016-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 October-2021 to March-2022.

For & on behalf of



Karanam Manoranjan Babu

V.P. (Technical & Production)

Hindustan Urvarak & Rasayan Ltd. (HURL)

Barauni Urvarak Nagar, Begusarai-851115

Encl: As above.

CC: Regional officer,

Bihar State Pollution Control Board

Barauni Industrial area

Begusarai

CC: Regional Directorate – KOTKATA

Central Pollution Control Board,

Ministry of Environment, Forest and Climate Change, Govt. of India,

'South end Conclave' Block-502, 5th & 6th Floor, 1582,

Razidanga, Main Road, Kolkata-700107

Karanam Manoranjan Babu
Vice President (Technical Services)
Hindustan Urvarak & Rasayan Ltd.
Urvarak Nagar, Barauni, Begusarai
(Bihar) 851115

| Sl. No. | EC Conditions | Compliance status |
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| (A) SPECIFIC CONDITIONS | | |
| 1. | Emissions limits for the pollutants from the DG sets and the stack height, shall be in conformity with the extant statutory regulations and/or the CPCB guidelines in this regard. | <p>The electricity is being supplied by NBPDCCL through dedicated 33KV line for construction purpose in the HURL Barauni.</p> <p>However, DG sets used at site are in conformity with the extant CPCB emission regulation. Evidence in the form of Emission reports are attached as annexure-II.</p> <p>The statutory emission norms shall be met by using New Generation EDG sets during operating phase of the Plant. Adequate stack height shall be provided to ensure to meet statutory regulation & guidelines.</p> |
| 2. | 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 NMQS. | <p>This has been addressed in the Feasibility Report of the project during design stage of the plant itself and shall be complied during operation phase.</p> <p>Design considerations include scrubbers, adequate height of prilling tower and other gas sensors/control measures in the proposed plant to meet emission norms as per NAAQS.</p> |
| 3. | <p>Fresh water requirement shall not exceed 5.36 cum/ton of Urea production.</p> <p>Fresh water shall be sourced from River Ganga 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> | <p>Fresh water supply will be sourced from river Ganga during plant operation & production phase. Requisite NOC has been accorded by Central Water Commission (CWC). Fresh water consumption will be as per given condition.</p> <p>For construction purpose, ground water is being used with prior NOC from Central Ground Water Authority vide NOC no: CGWA/NOC/IND/REN/2021/6445 Dated:-16/11/2021.</p> |
| 4. | 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. | Presently, construction activity is in progress. As the Project is based on Zero liquid discharge concept entire wastewater generated will be treated up to tertiary level in ETP inside the HURL complex and will be sent to RO process for further reuse. |

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| 5. | The project proponent shall develop greenbelt in an area of 33% i.e., nearly 116 acres out of 350 acres of plant area of the project. The green belt of 30 m width around periphery shall be provided. | Presently, construction activity is in progress and new peripheral boundary and internal roads are yet to be developed. Tree plantation around periphery will be complied as per the given condition after completion of roads and boundary wall work. A detailed proposal has been prepared as per budgetary offer obtained from State Forest Dept. for further approval from Competent Authority. An area of nearly 116 acres is marked within plant premises for the proposed green belt. Attached as annexure-III . |
| 6. | 5000 trees per year in 5 year shall be planted in nearby villages with the consultation of the villagers. Survival rate of plants shall be reported to RO, MEF&CC in 6 monthly compliance report. | A detailed proposal has been prepared as per the budgetary offer obtained from the State Forest dept and was approved by HURL. the work will be awarded to State Forest Department for execution at the specified selected locations. |
| 7. | All the commitments made during the Public Hearing/ Public Consultation meeting held on 29th April, 2017 shall be satisfactorily implemented and adequate budget provision shall be made accordingly. | All the commitments made during Public Hearing/Public Consultation meeting held on 27th April, 2017 shall be satisfactorily implemented by HURL-Barauni. |
| 8. | 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. | Enterprise Social Commitment (ESC) will be carried out as per laid down condition by the Project. Detail action plan along with budget have been taken up by HURL. |
| 9. | A regular environment manager having post graduate qualification in environmental sciences/ environmental engineering to be appointed for looking after the environmental management activities of the proposed plant. | The EC conditions relating to establishment of Environmental Cell have been complied and office order sent to your esteemed office. As far as qualification in environmental sciences/ environmental engineering is concerned, recruitment at HURL level is under process. |
| 10. | Continuous online (24x7) monitoring system for emissions and effluent generation shall be installed for flow/discharge measurement and the pollutants | Continuous online(24x7) monitoring system will be implemented during operation phase & production phase. At present manual display board for environment data (EC required data) |

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| | concentration within the plant. Data shall be uploaded on company's website and provided to the respective Ra of MOEF&CC, CPCB and SPCB. | display has been installed and data is being updated regularly. |
| 11. | 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. | This has been addressed in the Feasibility Report and RAR conducted for the Project and recommendation shall be complied with in the plant during operation phase & production phase. Proposed Plant is equipped with adequate measures for control of failures/ hazards. Firefighting facilities are implemented as per norms. |
| 12. | Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act. | Regular health check-up/monitoring of the construction laborers are being done and records have been maintained for the same. The same shall also be complied with in the plant during operation & production phase. All the construction workers are ensured to be equipped with PPEs such as helmets, hand gloves, boots etc. before entering into construction site. |
| 13. | Storage of hazardous raw material shall not exceed more than 7 days. | During plant operation and production stage, storage of raw materials addressed in the Feasibility Report and EIA (HAZID & ENVID) report of the Project, shall be complied with the stated condition. |
| 14. | Urea dust shall be controlled by prescribed standard technique. | This has been addressed in the Feasibility Report and EMP of the Project and shall be complied with during operation phase. The concerns are addressed while designing the prilling tower w.r.t height of UPT, gas sensors, PM monitors etc to control emission of urea dust and subsequent loss/ environmental pollution. |
| 15. | In Urea Plant, particulate emissions shall not exceed 50 mg/Nm ³ , Monitoring of Prilling Tower shall be carried out as per CPCB guidelines. | This has been addressed in the Feasibility Report and EMP of the Project and shall be complied with during operation phase. |
| 16. | The levels of PM ₁₀ (Urea dust), SO ₂ , NO _x , 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 shall simultaneously be sent to | Environmental Monitoring w.r.t. Air, Water and Noise during construction phase is being carried out by MoEF&CC recognized & NABL accredited environmental laboratory of the HUBERT Enviro, Chennai which is hired as a third party by Projects and Development India Ltd (PDIL), Noida. (Monitoring Report for |

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| | the regional office of MOEF&CC, the respective Zonal office of CPCB and the SPCB. | October 2021 to March 2022 attached as Annexure- I). Six monthly compliance reports with monitoring results are uploaded on HURL's website and its regular updating being done periodically. Simultaneously, every six-monthly compliance report is also being sent to the regional office of MOEF&CC, the respective Zonal office of MOEF&CC and BSPCB as per stated condition. |
| 17. | 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. | This has been addressed in the Feasibility Report and EMP of the Project and shall be complied with in the plant during operation and production stage. The water sprinkling is being done on regular basis for dust suppression in and around construction site. Air Quality is being monitored in work zone environment as per monitoring plan for assessment of pollution level during construction phase. |
| 18. | 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. | This has been addressed in the Feasibility Report and EMP of the Project and given condition shall be complied with before the plant becomes operational. The process for obtaining Authorization for collection, storage and disposal of hazardous waste under the Hazardous & other Waste (Management, Handling and Trans-Boundary Movement) Rules, 2016 and subsequent amendment for management of Hazardous wastes, has been initiated. |
| 19. | Provision shall be made for the housing for the construction labor 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, creche 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. | <ul style="list-style-type: none"> • For constructions workers, rest shed with necessary infrastructure such as toilets, drinking water has been provided at identified locations. • Canteen facilities have been provided by contractors near rest shed for workers. • M/s HURL has earmarked old buildings of HFCL in the township area for housing of laborers during construction phase. • Medical healthcare at construction site is being provided and dedicated |

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| | | ambulances have been kept at site for emergency requirement. |
| (B) GENERAL CONDITIONS | | |
| 1. | The project authorities shall strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority. | HURL shall strictly comply with the conditions laid by BSPCB, Bihar State Government and any other Statutory Authority during construction and operation phase of the plant. |
| 2. | No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any. | This condition will be complied with as stated. There has been no expansion/modification in the proposed plant other than approved ones by MoEF&CC. |
| 3. | 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. | The locations of ambient air quality monitoring have been decided in consultation with the Bihar State Pollution Control Board (BSPCB) and HURL officials for monitoring of Air Quality during construction phase. 06 Nos. of AAQMS have been installed in the project area, out of which one station is selected in up-wind (East) and one station is selected in down-wind (West) directions. |
| 4. | The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 18th November, 2009 shall be followed. | All efforts are being made to contain the PM10 & PM2.5 values within the standard limits at construction site. Measures include cordoning off the construction site, intermittent water sprinkling, allowing the construction vehicles with PUC certificate etc. This will also be complied with during operational phase. |
| 5. | 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). | Noise levels are being monitored at six locations and all recorded values are within the norms. (Data attached as annexure-1) New generation equipment meeting statutory w.r.t. noise and vibrations has been preferred for installation in the proposed plant. |
| 6. | The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to | Rain water harvesting system is provided to collect water from all the plant |

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| | recharge the ground water and use the same water for the process activities of the project to conserve fresh water. | buildings viz. admin, control rooms and laboratory as well as surface run off to ensure effective rain water harvesting and subsequent ground water recharge. As per envisaged plan, buildings like control room, operator room, maintenance building, canteen, laboratory building etc. will be having rain water harvesting facility. These are completed. |
| 7. | 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. | This condition will be complied with during plant operation and production phase. |
| 8. | 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 shall be implemented. | This condition will be complied in totality as stated. HURL has taken care of compliance with all the pollution control measured at every single step wherever suggested/possible at design stage itself. This includes provision of suitable UPT, scrubbers, stacks, ETP with ZLD, equipment's with acoustic enclosures, development of green belt/ green cover, rain water harvesting system etc. The effective implementation of all env. Pollution control measures have been ensured in the construction phase and shall be complied during operational phase as well. |
| 9. | The company shall undertake all relevant measures for improving the socioeconomic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration. | Once the plant becomes operational, CSR activities as per norms / Law will be undertaken by involving local villages and administration as per rule and government guidelines. Presently, HURL/ LSTK contractor has engaged skilled/ unskilled work force from the surrounding villages/ town for construction activities. |
| 10. | The company shall undertake all eco-developmental measures including community welfare measures for overall improvement of the environment. | Once the plant becomes operational, CSR activities as per norm / Law will be undertaken by involving local villages and administration as per rule and government guidelines. |

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| 11. | A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions. | Presently in construction phase, monitoring function of specified parameters are being done by MOEF&CC recognized environmental laboratory of Projects and Development India Ltd (PDIL), Noida. A fully-fledged quality control laboratory is under construction which shall be equipped with latest analytical facilities to ensure quality. |
| 12. | 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. | This stated condition will be complied by HURL. Proposed project cost: Rs.7043 crore Actual Project Cost as on date: Rs.8387.99 crore. Copy of EC letter has been submitted by HURL to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban local Body etc. |
| 13. | A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. | The same has been complied and receiving copy sent to your good office. |
| 14. | 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-mail) to the respective Regional Office of MOEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status reports shall be posted on the website of the company. | The same is being complied with Environmental monitoring work has commenced from May 2018 by M/s PDIL and the results of monitoring data from October, 2021 to March, 2022 have been provided in the Six-monthly compliance report, May 2022. |
| 15. | The environmental statement for each financial year ending 31st 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-mail. | The environmental statement for the financial year ending 31 st march 2021 in form-v has already been submitted and for this year will be submitted. Also, ensured to put the same on Company's website. |
| 16. | The project proponent shall inform the public that the project has been accorded' environmental | The advertisement was published in the newspapers dated 28 march 2017 to |

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| | <p>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 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.</p> | <p>inform the public about the environmental clearance granted to ammonia urea fertilizer project at HURL- Barauni. In addition to this EC letter is also uploaded to HURL'S website www.hurl.net.in and also seen at Website of the Ministry at http://moef.nic.in.</p> |
| 17. | <p>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.</p> | <p>Date of Financial Closure: 11.10.2018 Cabinet Committee on Economic Affairs (CCEA), Govt of India formally approved the revival of the Sindri, Gorakhpur & Barauni on 13.07.2016. Date of final approval of the Barauni Project: 16.07.2016 Date of Start of the project: 18.05.2018</p> |

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Compliance of EC conditions for the period of October 2021 - March 2022 for proposed Ammonia - Urea (2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar

ANNEXURE- I

This Compliance Report is the fulfillments of the condition of the Environmental Clearance (EC) vide File No. EC [IA/BR/IND2/61377/2016, J-11011/371/2016-IA II(I)] dated 29.08.2017 for the period of October 2021 to March 2022. 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 MoEF&CC recognized laboratory at PDIL, Noida under the strict supervision of the Government Analysts.

The proposed project is located at Barauni with the capacity of 2200MTPD Ammonia and 3850MTPD Urea in the District Begusarai in the State of Bihar.

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 (MoEF&CC). Rainwater Harvesting and Ground Water charging has been proposed as per Standard Guidelines:

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

The Environmental Monitoring report of 6 months w.r.t. Air, Water and Noise have been presented separately with the average values. 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, C₆H₆, Benzo(α)pyrene, CO, NH₃, O₃, Ni, As and Pb. 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 maximum eight nos. of physical parameters, thirteen nos. of chemical parameters, maximum ten nos. of heavy metals and three nos. of miscellaneous parameters. All the parameters are within the limits specified under Drinking Water Standard (IS:10500:2012). 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 October 2021 to March 2022.

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Compliance of EC conditions for the period of October 2021 - March 2022 for proposed Ammonia - Urea (2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar

HURL, BARAUNI, AIR QUALITY DATA (Year: 2021-2022)

ANNEXURE - I

| Period | Parameters | Admn. Building HURL (SA1) | Simariya Village (SA2) | Near HURL Township (SA3) | Mahna Village (SA4) | Chakiya Village (SA5) | Bihat Village (SA6) | NAAQ Standards Annual/24/8/1 Hly. Avg. |
|----------------------|-------------------------------|---------------------------|------------------------|--------------------------|---------------------|-----------------------|---------------------|--|
| Avg. (October 2021) | PM ₁₀ | 74.5 | 69.4 | 68.7 | 70.3 | 77.5 | 77.3 | 60/100 |
| | PM _{2.5} | 33.0 | 34.7 | 33.6 | 33.2 | 38.5 | 39.8 | 40/60 |
| | SO ₂ | 13.5 | 14.2 | 11.9 | 11.9 | 15.7 | 11.6 | 50/80 |
| | NO _x | 23.5 | 24.8 | 16.6 | 19.9 | 24.3 | 21.3 | 40/80 |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 |
| | Benzo (a)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 |
| | CO | 0.52 | 0.75 | 0.56 | 0.74 | 0.83 | 0.75 | 02/04 |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 |
| | O ₃ | 16.8 | 18.1 | 15.2 | 19.8 | 23.1 | 16.8 | 100/180 |
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 |
| Avg. (November 2021) | PM ₁₀ | 115.0 | 105.4 | 95.3 | 103.6 | 118.0 | 118.3 | 60/100 |
| | PM _{2.5} | 52.3 | 54.2 | 50.2 | 52.6 | 58.1 | 57.8 | 40/60 |
| | SO ₂ | 15.5 | 16.4 | 13.8 | 13.6 | 17.7 | 13.6 | 50/80 |
| | NO _x | 29.8 | 31.6 | 21.1 | 26.2 | 33.4 | 30.2 | 40/80 |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 |
| | Benzo (a)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 |
| | CO | 0.97 | 1.41 | 0.96 | 1.15 | 1.31 | 1.18 | 02/04 |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 |
| | O ₃ | 21.7 | 23.9 | 20.4 | 27.2 | 32.1 | 23.7 | 100/180 |
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 |
| Avg. (December 2021) | PM ₁₀ | 123.5 | 113.8 | 103.9 | 111.4 | 125.0 | 126.9 | 60/100 |
| | PM _{2.5} | 55.8 | 56.1 | 52.1 | 52.7 | 58.2 | 58.3 | 40/60 |
| | SO ₂ | 15.1 | 16.0 | 12.9 | 13.0 | 18.0 | 14.2 | 50/80 |
| | NO _x | 29.9 | 31.4 | 24.0 | 29.9 | 33.1 | 31.0 | 40/80 |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 |
| | Benzo (a)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 |
| | CO | 1.26 | 1.12 | 1.01 | 1.12 | 1.42 | 1.29 | 02/04 |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 |
| | O ₃ | 29.0 | 28.1 | 23.9 | 31.7 | 35.7 | 27.6 | 100/180 |
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 |
| Avg. (January 2022) | PM ₁₀ | 113.0 | 104.2 | 95.4 | 102.2 | 112.7 | 114.1 | 60/100 |
| | PM _{2.5} | 52.3 | 51.8 | 48.3 | 50.0 | 54.2 | 53.5 | 40/60 |
| | SO ₂ | 15.1 | 14.8 | 12.0 | 12.6 | 17.3 | 13.9 | 50/80 |
| | NO _x | 26.2 | 25.7 | 19.6 | 21.8 | 24.9 | 23.8 | 40/80 |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 |
| | Benzo (a)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 |
| | CO | 0.88 | 0.82 | 0.73 | 0.85 | 0.96 | 0.93 | 02/04 |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 |
| | O ₃ | 21.9 | 21.4 | 19.9 | 24.3 | 27.0 | 22.2 | 100/180 |
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 |
| Avg. (February 2022) | PM ₁₀ | 101.6 | 103.8 | 85.0 | 99.7 | 101.1 | 98.1 | 60/100 |
| | PM _{2.5} | 52.4 | 52.3 | 44.6 | 50.3 | 50.0 | 50.4 | 40/60 |
| | SO ₂ | 13.4 | 15.6 | 14.0 | 14.5 | 14.2 | 20.6 | 50/80 |
| | NO _x | 24.2 | 25.7 | 24.2 | 23.6 | 23.1 | 22.7 | 40/80 |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 |
| | Benzo (n)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 |
| | CO | 0.69 | 0.63 | 0.64 | 0.66 | 0.56 | 0.86 | 02/04 |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 |
| | O ₃ | 18.3 | 17.5 | 22.5 | 19.2 | 28.4 | 27.8 | 100/180 |

2 of 6

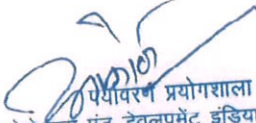
प्रियकरण प्रयोगशाला
 प्रोजेक्ट एंड डेवलपमेंट इंडिया लिमिटेड
 (भारत सरकार का उपक्रम)
 मिनी रत्ना-1 कंपनी
 पी.डी.आई.एल. भवन, ए-14,सेक्टर-1
 नोएडा-201301, (उ.प्र.), रात

Navenka

Compliance of EC conditions for the period of October 2021 - March 2022 for proposed Ammonia - Urea (2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar

| | | | | | | | | | |
|-------------------------------|--|-------------------|-------|-------|-------|-------|-------|---------|--------|
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 | |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 | |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 | |
| Avg. (March 2022) | PM ₁₀ | 88.7 | 94.5 | 86.5 | 97.5 | 99.9 | 96.9 | 60/100 | |
| | PM _{2.5} | 50.0 | 51.5 | 46.1 | 52.7 | 53.1 | 50.1 | 40/60 | |
| | SO ₂ | 14.2 | 15.2 | 11.5 | 12.9 | 15.3 | 14.1 | 50/80 | |
| | NO _x | 23.8 | 25.4 | 18.8 | 21.0 | 28.8 | 27.8 | 40/80 | |
| | C ₆ H ₆ | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 | |
| | Benzo (a)pyrene | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 | |
| | CO | 0.60 | 0.73 | 0.52 | 0.63 | 0.75 | 0.75 | 02/04 | |
| | NH ₃ | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 | |
| | O ₃ | 17.1 | 18.5 | 15.2 | 20.1 | 22.0 | 26.0 | 100/180 | |
| | Ni | BDL | BDL | BDL | BDL | BDL | BDL | 20 | |
| | As | BDL | BDL | BDL | BDL | BDL | BDL | 06 | |
| | Pb | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 | |
| | Average (October 2021 - March 2022) | PM ₁₀ | 102.7 | 98.5 | 89.1 | 97.5 | 105.7 | 105.3 | 60/100 |
| | | PM _{2.5} | 49.3 | 50.1 | 45.8 | 48.6 | 52.0 | 51.7 | 40/60 |
| SO ₂ | | 14.6 | 15.4 | 12.7 | 13.1 | 16.4 | 14.7 | 50/80 | |
| NO _x | | 26.2 | 27.4 | 20.7 | 23.7 | 27.9 | 26.1 | 40/80 | |
| C ₆ H ₆ | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 05 | |
| Benzo (a)pyrene | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 01 | |
| CO | | 0.82 | 0.91 | 0.74 | 0.86 | 0.97 | 0.96 | 02/04 | |
| NH ₃ | | BDL | BDL | BDL | BDL | BDL | BDL | 100/400 | |
| O ₃ | | 20.8 | 21.3 | 19.5 | 23.7 | 28.1 | 24.0 | 100/180 | |
| Ni | | BDL | BDL | BDL | BDL | BDL | BDL | 20 | |
| As | | BDL | BDL | BDL | BDL | BDL | BDL | 06 | |
| Pb | | BDL | BDL | BDL | BDL | BDL | BDL | 0.5/1.0 | |

NOTE: BDL = Below Detection Limit
 (µg/m³) = PM₁₀, PM_{2.5}, SO₂, NO_x, NH₃, O₃, C₆H₆, Benzo (a)pyrene
 (mg/m³) = CO
 (ng/m³) = Ni, As, Pb


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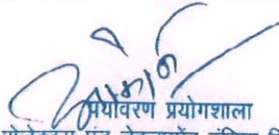
Narendra

HURL, BARAUNI, GROUND WATER QUALITY DATA (Year: 2021-2022)
AVG. (OCTOBER 2021 TO MARCH 2022)

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

| Sl. No. | Parameters | Analysis Results | | | Requirement (Acceptable/ Permissible Limits) (IS:10500:2012) |
|---------------------|--|--|---------------------------------|-----------------------------------|--|
| | | Hand Pump - Admn. Building of HURL (GW1) | Hand Pump - HURL Township (GW2) | Hand Pump - Chakiya Village (GW3) | |
| PHYSICAL | | | | | |
| 1 | pH | 7.30 | 7.33 | 7.27 | 6.5-8.5 |
| 2 | Temperature (°C) | 27.9 | 28.0 | 27.9 | - |
| 3 | Colour, HU | <5 | <5 | <5 | 5/15 |
| 4 | Odour | Agreeable | Agreeable | Agreeable | Agreeable |
| 5 | Taste | Agreeable | Agreeable | Agreeable | Agreeable |
| 6 | Turbidity (NTU) | <5 | <5 | <5 | 1/5 |
| 7 | Total Suspended Solids | NIL | NIL | NIL | - |
| 8 | Total Dissolved Solids | 611.3 | 546.5 | 553.3 | 500/2000 |
| CHEMICAL | | | | | |
| 1 | P- Alkalinity as CaCO ₃ | NIL | NIL | NIL | - |
| 2 | Total Alkalinity as CaCO ₃ | 395.7 | 392.3 | 356.0 | 200/600 |
| 3 | Chloride as Cl | 28.7 | 27.7 | 43.0 | 250/1000 |
| 4 | Sulphate as SO ₄ | 111.0 | 72.3 | 74.7 | 200/400 |
| 5 | Nitrate as NO ₃ | 1.6 | 1.8 | 1.4 | 45/NR |
| 6 | Fluoride as F | <0.4 | <0.4 | <0.4 | 1.0/1.5 |
| 7 | Total Hardness as CaCO ₃ | 377.0 | 422.7 | 400.3 | 200/600 |
| 8 | Ca. Hardness as CaCO ₃ | 224.0 | 278.7 | 250.3 | 75/200 |
| 9 | Mg. Hardness as CaCO ₃ | 153.0 | 144.0 | 150.0 | 30/100** |
| 10 | Sodium as Na | 75.3 | 36.5 | 40.7 | - |
| 11 | Potassium as K | 9.7 | 4.8 | 5.2 | - |
| 12 | Silica as SiO ₂ | 14.7 | 10.0 | 11.7 | - |
| 13 | Iron as Fe | 0.73 | 0.75 | 0.74 | 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 | 0.21 | 0.20 | 0.20 | 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 Compounds as C ₆ H ₅ OH | BDL | BDL | BDL | 0.001/0.002 |
| 3 | Coliform (MPN/100ml) | <100 | <100 | <100 | - |

Note: NR - No Relaxation, *Calcium as Ca & ** Magnesium as Mg


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(भारत सरकार का उपक्रम)
मिनी रत्ना-1कंपनी
पी.डी.आई.एल. भवन, ए-14, सेक्टर-1
नोएडा-201301, (उ.प्र.), रात



Compliance of EC conditions for the period of October 2021 - March 2022 for proposed Ammonia - Urea (2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar


ANNEXURE - I

HURL, BARAUNI, SURFACE WATER QUALITY DATA (Year: 2021-2022)
AVG. (OCTOBER 2021 TO MARCH 2022)

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

| Sl. No. | Parameters | Analysis Results | | | Requirement (Acceptable/ Permissible Limits) (IS:10500:2012) |
|---------------------|--|-------------------|----------------------------|-----------------|--|
| | | Ganga River (SW1) | Bihat Village (Pond) (SW2) | Baya Nala (SW3) | |
| PHYSICAL | | | | | |
| 1 | Temperature (°C) | 25.5 | 26.1 | 25.8 | - |
| 2 | Colour, HU | <5 | <5 | <5 | 5/15 |
| 3 | Turbidity (NTU) | 37.7 | 54.3 | 45.0 | 1/5 |
| 4 | pH | 7.13 | 7.40 | 7.35 | 6.5-8.5 |
| 5 | Total Dissolved Solids | 224.0 | 686.7 | 538.3 | 500/2000 |
| 6 | Total Suspended Solids | 93.7 | 117.3 | 106.3 | - |
| CHEMICAL | | | | | |
| 1 | Total Alkalinity as CaCO ₃ | 160.7 | 307.3 | 274.0 | 200/600 |
| 2 | Chloride as Cl | 19.3 | 132.0 | 123.3 | 250/1000 |
| 3 | Sulphate as SO ₄ | 18.3 | 101.0 | 39.0 | 200/400 |
| 4 | Nitrate as NO ₃ | 1.4 | 3.8 | 2.5 | 45/NR |
| 5 | Fluoride as F | <0.4 | <0.4 | <0.4 | 1.0/1.5 |
| 6 | Total Hardness as CaCO ₃ | 179.0 | 254.0 | 274.0 | 200/600 |
| 7 | Calcium Hardness as CaCO ₃ | 120.3 | 154.7 | 169.7 | 75/200* |
| 8 | Magnesium Hardness as CaCO ₃ | 58.7 | 99.3 | 99.3 | 30/100** |
| 9 | Dissolve Oxygen | 7.1 | 6.6 | 6.9 | - |
| 10 | COD | 8.3 | 12.1 | 9.8 | - |
| 11 | BOD _(5 days at 27°C) | 1.8 | 4.0 | 2.7 | - |
| 12 | Sodium as Na | 12.7 | 148.7 | 92.5 | - |
| 13 | Potassium as K | 1.5 | 19.0 | 11.8 | - |
| HEAVY METALS | | | | | |
| 1 | Iron as Fe | 0.09 | 0.16 | 0.13 | 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 | 0.23 | 0.31 | 0.25 | 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 | Absent | Absent | Absent | 0.5/NR |
| 2 | Phenolic Compounds as C ₆ H ₅ OH | BDL | BDL | BDL | 0.001/0.002 |
| 3 | Coliform Organisms (MPN/100ml) | 1305.0 | 1423.3 | 1430.0 | - |

Note: NR - No Relaxation, *Calcium as Ca & **Magnesium as Mg


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गोएडा-201301,(उ.प्र.) इत



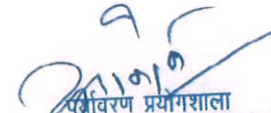
Compliance of EC conditions for the period of October 2021 - March 2022 for proposed Ammonia - Urea (2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar

ANNEXURE - I

HURL, BARAUNI, NOISE QUALITY DATA (Year: 2021-2022)

| Period | Parameters | Admn. Building HURL (SA1) | Simariya Village (SA2) | Near HURL Township (SA3) | Mahna Village (SA4) | Chakiya Village (SA5) | Bihat Village (SA6) | Prescribed Limits in dB(A) as per NAAQS |
|---------------|--|---------------------------|------------------------|--------------------------|---------------------|-----------------------|---------------------|---|
| October 2021 | 24-hrs Avg L _{eq} Value dB(A) | 51.8 | 49.8 | 51.5 | 46.9 | 49.9 | 48.1 | - |
| | Day time L _{eq} Value dB(A) | 56.6 | 53.8 | 57.5 | 53.3 | 56.4 | 54.1 | 75/55 |
| | Night time L _{eq} Value dB(A) | 46.9 | 45.8 | 45.4 | 40.5 | 43.3 | 42.1 | 70/45 |
| November 2021 | 24-hrs Avg L _{eq} Value dB(A) | 50.7 | 48.8 | 50.4 | 45.9 | 48.8 | 47.1 | - |
| | Day time L _{eq} Value dB(A) | 55.5 | 52.7 | 56.4 | 52.3 | 55.3 | 53.0 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.8 | 44.8 | 44.4 | 39.5 | 42.3 | 41.1 | 70/45 |
| December 2021 | 24-hrs Avg L _{eq} Value dB(A) | 50.8 | 48.9 | 50.5 | 46.6 | 48.2 | 46.2 | - |
| | Day time L _{eq} Value dB(A) | 55.6 | 52.8 | 56.0 | 51.9 | 53.8 | 51.7 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.9 | 44.9 | 44.9 | 41.2 | 42.6 | 40.7 | 70/45 |
| January 2022 | 24-hrs Avg L _{eq} Value dB(A) | 54.6 | 52.6 | 54.5 | 51.2 | 52.2 | 50.6 | - |
| | Day time L _{eq} Value dB(A) | 56.2 | 54.1 | 56.1 | 52.8 | 53.7 | 52.3 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.5 | 45.3 | 45.5 | 42.5 | 42.9 | 40.7 | 70/45 |
| February 2022 | 24-hrs Avg L _{eq} Value dB(A) | 54.5 | 53.1 | 54.6 | 50.8 | 51.4 | 50.9 | - |
| | Day time L _{eq} Value dB(A) | 56.0 | 54.7 | 56.1 | 52.4 | 53.0 | 52.5 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.7 | 44.6 | 45.8 | 43.2 | 42.5 | 41.6 | 70/45 |
| March 2022 | 24-hrs Avg L _{eq} Value dB(A) | 50.6 | 49.2 | 50.1 | 46.5 | 47.9 | 46.1 | - |
| | Day time L _{eq} Value dB(A) | 56.1 | 54.1 | 56.1 | 52.0 | 53.5 | 51.0 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.1 | 44.3 | 44.1 | 40.9 | 42.2 | 41.1 | 70/45 |

| | | | | | | | | |
|-------------------------------------|--|------|------|------|------|------|------|-------|
| Avg. (October 2021 - March 2022) | 24-hrs Avg L _{eq} Value dB(A) | 52.2 | 50.4 | 51.9 | 48.0 | 49.7 | 48.2 | - |
| | Day time L _{eq} Value dB(A) | 56.0 | 53.7 | 56.4 | 52.5 | 54.3 | 52.4 | 75/55 |
| | Night time L _{eq} Value dB(A) | 45.8 | 45.0 | 45.0 | 41.3 | 42.6 | 41.2 | 70/45 |


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 नोएडा-201301, (उ.प्र.) 6 016

Navendu

Environment statement for the financial year 2021-2022 for proposed Ammonia - Urea
(2200MTPD & 3850MTPD) Plants of HURL at Barauni, Bihar

ANNEXURE-I

Period of Monitoring: Financial Year: 2021-2022
Location: Admn. Building-HURL (Near Construction Site)

| PERIOD | No. of Observations | Parameters (Average Concentration) | | | | | |
|-----------------------------|---------------------|--|---|---|---|----------------------------|-------------------------------|
| | | PM ₁₀ (µg/m ³) | PM _{2.5} (µg/m ³) | SO ₂ (µg/m ³) | NO _x (µg/m ³) | CO (mg/m ³) | Ozone (µg/m ³) |
| NAAQ Standards | → | 60/100 | 40/60 | 50/80 | 40/80 | 02/04 | 100/180 |
| April 2021 | 08 | 94.7 | 58.5 | 14.1 | 25.8 | 0.76 | 16.3 |
| May 2021 | 08 | 84.0 | 47.1 | 13.5 | 22.6 | 0.49 | 15.3 |
| June 2021 | 08 | 75.8 | 42.5 | 12.2 | 20.4 | 0.46 | 14.1 |
| July 2021 | 09 | 46.8 | 23.8 | 10.6 | 13.1 | 0.30 | 13.8 |
| Aug. 2021 | 08 | 32.0 | 13.3 | 9.1 | 11.6 | 0.20 | 11.1 |
| Sept. 2021 | 08 | 63.0 | 27.0 | 10.7 | 22.8 | 0.39 | 13.6 |
| Oct. 2021 | 09 | 74.5 | 33.0 | 13.5 | 23.5 | 0.52 | 16.8 |
| Nov. 2021 | 09 | 115.0 | 52.3 | 15.5 | 29.8 | 0.97 | 21.7 |
| Dec. 2021 | 08 | 123.5 | 55.8 | 15.1 | 29.9 | 1.26 | 29.0 |
| Jan. 2022 | 08 | 113.0 | 52.3 | 15.1 | 26.2 | 0.88 | 21.9 |
| Feb. 2022 | 07 | 101.6 | 52.4 | 13.4 | 24.2 | 0.69 | 18.3 |
| March 2022 | 08 | 88.7 | 50.0 | 14.2 | 23.8 | 0.60 | 17.1 |
| Min. Conc. | | 32.0 | 13.3 | 9.1 | 11.6 | 0.20 | 11.1 |
| Max. Conc. | | 123.5 | 58.5 | 15.5 | 29.9 | 1.26 | 29.0 |
| Average | 98 | 84.4 | 42.3 | 13.1 | 22.8 | 0.63 | 17.4 |
| 98 th percentile | | 121.6 | 57.9 | 15.4 | 29.9 | 1.20 | 27.4 |

NOTE: BDL = Below Detection Limit

Ni, As, Pb (ng/m³) = BDL

C₆H₆ & Benzo(a)pyrene = <0.01 µg/m³
NH₃ (µg/m³) = BDL

प्रमाणित प्रयोगशाला
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नोएडा-201301, (उ.प्र.), इला





GLOBAL TESTING AND RESEARCH LABORATORY

House No.- 322/2, Ward No.-15, Near RPS More, Next to Capital Suzuki, Distt.-Patna (Bihar) - 801503

Office No.: 7667299840, Ph.: 9798697785 / 9334254100

E-mail : gtrapatna@gtrl.org.in, Visit us : www.gtrl.org.in

TESTING CERTIFICATE

Issued to:

Technip India Limited
HURL Project, Barauni
Bihar India - 851135

Date of Report:

25/11/2021

Report No:

221121/Civ/07980/i

Date of Field Testing:

23/11/2021

Period of Testing:

23/11/2021 To 24/11/2021

Job S. No.:

GTRL/221121/07915

Job Code No.:

Civ/221121/06924/i

Name of Customer:

M/s Technip India Ltd.

Customer Ref No. to GTRL :

Nil

Customer-Client Agreement No. :

Nil

Sample Description:

Stack Emission of DG Set; Make – RAPower, Id. No. – TFMC/DG/01

Environmental Condition During Sampling:

Temperature - 32^oc , RH – 34% , Weather – Clear

Sampling Time:

01:30 a.m.

Name of Work:

Environmental Monitoring Work

S. No.

Particular

Result

| | | |
|-----|---|-------------------------|
| 1. | Type of Fuel Used | High Speed Diesel (HSD) |
| 2. | Sampling Duration, min. | 40 KVA |
| 3.. | Stack Temperature, ^o C | 108 ^o c |
| 4.. | Capacity of DG | 62.5 KVA |
| 5. | Height of Stack from Ground Level | 06 meter |
| 6. | Diameter of Stack | 05 Inch |
| 7. | Average Flow Rate | 23.2 LPM |
| 8. | Stack Gas Velocity, m/s as Per IS :11255 (Part – 3) | 7.2 m/sec |

Concentration of Pollutants in Fuel Gas

| S. No. | Tests | Test Method | Requirement The Environmental (Protection) Rules, 1996 General Emission Standard – Part -D | Result |
|--------|---|-------------------------------------|---|--------|
| 1 | PM, mg/Nm ³ | IS 11255 (Part 1):1985 (RA 2019) | 150.00 | 62.40 |
| 2 | Sulphur Dioxide (SO ₂), mg/Nm ³ | IS 11255 (Part 2):1985 (RA 2014) | Not Specified | 53.2 |
| 3 | Oxides of | IS 11255 (Part 7):1985 | Not Specified | 61.7 |

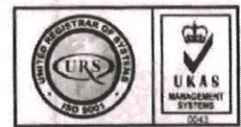
End of Report

Navendu



*SEE OVERLEAF FOR STATUTORY NOTE

AN ISO 9001 : 2015 & 45001 : 2018 (OHSAS) CERTIFIED LABORATORY



URS is member of Registrar of Standards (Ridings) Ltd.



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Office No.: 7667299840, Ph.: 9798697785 / 9334254100

E-mail : gtrlpatna@gtrl.org.in, Visit us : www.gtrl.org.in

TESTING CERTIFICATE

Issued to:
Technip India Limited
HURL Project, Barauni
Bihar India - 851135

Date of Report: 25/11/2021
Report No: 221121/Civ/07980/ii
Date of Field Testing: 23/11/2021
Period of Testing: 23/11/2021 To 24/11/2021
Job S. No.: GTRL/221121/07915
Job Code No.: Civ/250920/07924/ii

Name of Customer: M/s Technip India Ltd.
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description: Noise limit for DG Set
Environmental Condition During Sampling: Temperature - 32°C, RH - 34%, Weather - Clear
Sampling Time: 01:30 a.m.
Name of Work: Environmental Monitoring Work

Requirement

Environment (Protection) second Amendment Rules vide GSR 371(E), dated 17th May 2002 at serial no.94 and its amendments vide GSR No 520(E) dated 1st July 2003; GSR 448(E), dated 12th July 2004; GSR 315(E) dated 16th May 2005; GSR 464(E) dated 7th August 2006; GSR 566(E) dated 29th August 2007 and GSR 752(E) dated 24th October 2008; G.S.R. 215 (E), dated 15th March, 2011 under the Environment (Protection) Act, 1986)

| S. No. | Tests | Test Method | Requirement | Result | Conformity |
|--------|------------------------------------|-------------------------|--|--------|------------|
| 1 | Noise limit for Generator Set (dB) | IS 9989:1981: (RA 2014) | 75 dB(A) at 1 meter from the enclosure surface, Max. | 65.8 | Yes |

End of Report

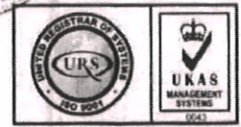
Navendu

AUTHORIZED SIGNATORY

Anuj Kumar
ANUJ KUMAR (TM)

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GLOBAL TESTING AND RESEARCH LABORATORY

House No.- 322/2, Ward No.-15, Near RPS More, Next to Capital Suzuki, Distt.-Patna (Bihar) - 801503
Office No.: 7667299840, Ph.: 9798697785 / 9334254100
E-mail : gtrtpatna@gtrl.org.in, Visit us : www.gtrl.org.in

TESTING CERTIFICATE

Issued to:
Kamlesh Kumar Singh Engineers Private Limited

Date of Report: 25/11/2021
Report No: 221121/Civ/07980/iii
Date of Field Testing: 23/11/2021
Period of Testing: 23/11/2021 To 24/11/2021
Job S. No.: GTRL/221121/07915
Job Code No.: Civ/221121/07924/iii

Name of Customer: M/s Kamlesh Kumar Singh Engineers Private Limited
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description: Stack Emission of DG Set; Make – Sudhir, Id. No. – KKS/DG/01
Environmental Condition During Sampling: Temperature – 32°C, RH – 35%, Weather – Clear
Sampling Time: 03:30 a.m.
Name of Work: Environmental Monitoring Work

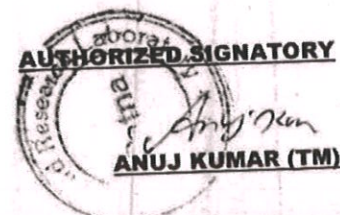
| S. No. | Particular | Result |
|--------|---|-------------------------|
| 1. | Type of Fuel Used | High Speed Diesel (HSD) |
| 2. | Sampling Duration, min. | 32 |
| 3. | Stack Height | 08 mtrs. |
| 4. | Stack Temperature, °C | 120°C |
| 5. | Capacity of DG | 250 KVA |
| 6. | Height of Stack from Ground Level | 08 meter |
| 7. | Diameter of Stack | 06 Inch |
| 8. | Average Flow Rate | 20.5 LPM |
| 9. | Stack Gas Velocity, m/s as Per IS :11255 (Part – 3) | 10.5 m/sec |

Concentration of Pollutants in Fuel Gas

| S. No. | Tests | Test Method | Requirement The Environmental (Protection) Rules, 1996 General Emission Standard – Part –D | Result |
|--------|--|-------------------------------------|--|--------|
| 1 | PM, mg/Nm ³ | IS 11255 (Part 1):1985 (RA 2019) | 150.00 | 60.58 |
| 2 | Sulphur Dioxide (SO ₂), mg/Nm ³ | IS 11255 (Part 2):1985 (RA 2014) | Not Specified | 52.8 |
| 3 | Oxides of Nitrogen(Nox), mg/Nm ³ | IS 11255 (Part 7):1985 (RA 2012) | Not Specified | 60.7 |

End of Report

Naranda



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E-mail : gtrlpatna@gtrl.org.in, Visit us : www.gtrl.org.in

TESTING CERTIFICATE

Issued to:
Kamlesh Kumar Singh Engineers Private Limited

Date of Report: 25/11/2021
Report No: 221121/Civ/07980/iv
Date of Field Testing: 23/11/2021
Period of Testing: 23/11/2021 To 24/11/2021
Job S. No.: GTRL/221121/07915
Job Code No.: Civ/221121/07924/iv

Name of Customer: M/s Kamlesh Kumar Singh Engineers Private Limited
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description: Noise limit for DG Set
Environmental Condition During Sampling: Temperature - 32^oc , RH - 35% , Weather - Clear
Sampling Time: 03:30 a.m.
Name of Work: Environmental Monitoring Work

| S. No. | Tests | Test Method | Requirement | Result | Conformity |
|--------|------------------------------------|-------------------------|---|--------|------------|
| 1 | Noise limit for Generator Set (dB) | IS 9989:1981: (RA 2014) | Environment (Protection) second Amendment Rules vide GSR 371(E), dated 17th May 2002 at serial no.94 and its amendments vide GSR No 520(E) dated 1st July 2003; GSR 448(E), dated 12th July 2004; GSR 315(E) dated 16th May 2005; GSR 464(E) dated 7th August 2006; GSR 566(E) dated 29th August 2007 and GSR 752(E) dated 24th October 2008; G.S.R. 215 (E), dated 15th March, 2011 under the Environment (Protection) Act, 1986 | 70.5 | Yes |

End of Report

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TESTING CERTIFICATE

Issued to:
B P Enterprises

Date of Report: 25/11/2021
Report No: 221121/Civ/07980/v
Date of Field Testing: 23/11/2021
Period of Testing: 23/11/2021 To 24/1/2021
Job S. No.: GTRL/221121/07915
Job Code No.: Civ/221121/07924/v

Name of Customer: M/s B P Enterprises
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description: Stack Emission of DG Set; Make – Genset India, Id. No. – BPE/DG/01
Environmental Condition During Sampling: Temperature - 30°C, RH – 48%, Weather – Clear
Sampling Time: 12:30 a.m.
Name of Work: Environmental Monitoring Work

| S. No. | Particular | Result |
|--------|---|-------------------------|
| 1. | Type of Fuel Used | High Speed Diesel (HSD) |
| 3. | Sampling Duration, min. | 30 |
| 4. | Stack Temperature, °C | 118°C |
| 5. | Capacity of DG | 62.5 KVA |
| 6. | Height of Stack from Ground Level | 05 meter |
| 7. | Diameter of Stack | 04 Inch |
| 8. | Average Flow Rate | 25.5 LPM |
| 9. | Stack Gas Velocity, m/s as Per IS :11255 (Part – 3) | 6.8 m/sec |

Concentration of Pollutants in Fuel Gas

| S. No. | Tests | Test Method | Requirement The Environmental (Protection) Rules, 1996 General Emission Standard – Part -D | Result |
|--------|--|-------------------------------------|--|--------|
| 1 | PM, mg/Nm ³ | IS 11255 (Part 1):1985 (RA 2019) | 150.00 | 70.82 |
| 2 | Sulphur Dioxide (SO ₂), mg/Nm ³ | IS 11255 (Part 2):1985 (RA 2014) | Not Specified | 62.2 |
| 3 | Oxides of Nitrogen(Nox), mg/Nm ³ | IS 11255 (Part 7):1985 (RA 2012) | Not Specified | 65.4 |

End of Report

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TESTING CERTIFICATE

Issued to:

B P Enterprises

Date of Report:

25/11/2021

Report No:

2211121/Civ/07980/vi

Date of Field Testing:

22/11/2021

Period of Testing:

23/11/2021 To 24/11/2021

Job S. No.:

GTRL/221121/07915

Job Code No.:

Civ/221121/07924/vi

Name of Customer:

M/s B P Enterprises

Customer Ref No. to GTRL :

Nil

Customer-Client Agreement No. :

Nil

Sample Description:

Noise limit for DG Set

Environmental Condition During Sampling:

Temperature - 30°C, RH - 48%, Weather - Clear

Sampling Time:

12:30 a.m.

Name of Work:

Environmental Monitoring Work

Requirement

Environment (Protection) second Amendment Rules vide GSR 371(E), dated 17th May 2002 at serial no.94 and its amendments vide GSR No 520(E) dated 1st July 2003; GSR 448(E), dated 12th July 2004; GSR 315(E) dated 16th May 2005; GSR 464(E) dated 7th August 2006; GSR 566(E) dated 29th August 2007 and GSR 752(E) dated 24th October 2008; G.S.R. 215 (E), dated 15th March, 2011 under the Environment (Protection) Act, 1986

S. No.

Tests

Test Method

Result

Conformity

1

Noise limit for Generator Set (dB)

IS 9989:1981: (RA 2014)

75 dB(A) at 1 meter from the enclosure surface, Max.

65.3

Yes

End of Report

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GREEN BELT DEVELOPMENT & PLANTATION OF TREES

The project proponent shall develop greenbelt in an area of 33% i.e., nearly 116 acres out of 350 acres plant area of the project. The greenbelt of 30m width around periphery shall be provided (Plate A)

5000 trees per year in 5 year shall be planted in nearby village with the consultation of the villagers. Survival rate of plants shall be reported to RO, MOEF&CC in 6 monthly compliance reports.

Purpose

Trees and plants are an essential component of healthy environment. In addition to maintaining the oxygen-carbon dioxide balance in the atmosphere through photosynthesis, trees and plants control air and noise pollution, control soil erosion, provide food and shelter to domestic and wild animals including birds and insects, and improve the aesthetic value of the environment. The utility of the green belt predominantly lies in its capacity to attenuate the fugitive emission and spillage. Thus, the objectives of the proposed green belt program are as follows:

- a) To control air pollution due to fugitive emissions and spillage.
- b) To attenuate noise generated by various machines.
- c) To attenuate the effect of accidental release of toxic gases.
- d) To reduce the effect to fire and explosion.
- e) To improve the general appearance and aesthetics of the area.
- f) To provide food and habitat for wildlife.
- g) To control soil erosion.
- h) To obscure the proposed facilities from general view.

Areas to be afforested

Barauni Fertilizer plant shall be established in existing 350 acres of land in the battery limit of HFCL. Green-belt development program shall be undertaken in 33% of the plant area including 30 m wide green belt around the battery limit of the plant. There exists a thick green belt around the existing abandoned fertilizer plant. The existing township is well planned with a proper forestation. While preparing the layout plan for locating the different facilities, extreme care has been exercised to preserve the existing plantation to the extent possible. Trees, lawns and gardens shall be developed within the premises to cover all the vacant areas. Extreme care shall be taken to utilize all available areas for forestation.

Scheme and Species for Green Belt

The general approach for selection of species for green belt development is their potential for attenuation of fugitive emissions and noise, diversity of vegetation, introduction of species attracting birds and

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animals, and to create a natural habitat. It is proposed to develop trees of different heights so as to provide cover from ground level up to the canopy of tall tree species. Further, trees with big foliage and those known to prosper well in the area will be developed. Preference will be given to fruit bearing trees so as to provide food and shelter to birds and insects.

The plan for development of green belt is as given below:

- a) The distance between two plants should not be less than 3.0 m so that a 30 m width green belt will have ten rows of plantations. Thus a 30 m width green belt will have a plant boundary of 1.0 km will have 3330 plants.
- b) A pit of 45 cm x 45 cm x 45 cm must be dug for plantation of saplings which are at least 6 months old.
- c) Saplings must be planted at the onset of monsoon.

Different species in the green belt suggested to have dense stratified 3 to 5 layer canopy so as to form a visible barrier and wind breaker

- a) On the outer ring of the green belt facing fugitive emissions from the open surface and roads close plantation of 2 to 3 rows of evergreen *Alstoniascholaris* intermixed with *FicusCunea* and Babul.
- b) Behind the outer layer, fast growing evergreen plants having good fugitive emission removing capacity like evergreen *MahuaIndica* and *Derris Indica*, Sagwan, Gambhar and Putranjiya.
- c) Middle layer may be planted with Silver Oak which is tall, hardy and evergreen.
- d) In the next layer some typical hard and fast growing plants like *Leucaena*, *Acacia auri-culiformis*, *Cassia fistula*, *C. Siamea*, *Inga ducis* may also be considered.
- e) In the inner periphery *Bougainvillia* may be planted as it has high capacity for absorbing toxic gases.
- f) Some plants having good timber value like *Dalbergiasissoo*, *Albizialebbek*, *Azadiractaindica*, *Tectonsgrandis* along with fruit trees like Ber, Guava, Jamun, Jack fruit and Bel may also be planted to attract birds.
- g) For fencing purpose plants from *Asclepiadaceae* and *Apocynaceae* families like *AlstoniaCalotropis* which are resistant to grazing may be considered.
- h) The entire green belt may be interspersed with climbers.

Efforts would be made by M/s HURL in collaboration with State Forest Department to explore mutual areas of interest in the area of identifying trees/plants to maintain/enhance the current biodiversity index.



Government of India
Ministry of Environment, Forests and Climate Change (MoEF&CC)
Regional Office – Ranchi

MONITORING REPORT

PART I

DATA SHEET

File No

| | | | |
|---|---|---|--|
| 1 | | Project Type | Industrial (Ammonia & Urea production) |
| 2 | | Name of the project | Ammonia-Urea Fertilizer Project Hindustan Urvarak & Rasayan Limited, Barauni |
| 3 | | Clearance letters/Om No. and dated | J-11011/371/2016-IA II(I) |
| 4 | | Locations | Barauni |
| | a | Taluk(S) District | Barauni Begusarai |
| | b | State(S) | Bihar |
| | c | Latitudes/Longitudes | Location Longitude Latitude Elevation (m) NE Boundary, 86°2'11.00"E, 25°24'58.76"N, 48 Northern Boundary, 86°1'48.52"E, 25°25'0.64"N, 47 NW Boundary, 86°1'32.62"E, 25°25'1.39"N, 47 Centre of HFC Plant, 86°1'43.32"E, 25°24'46.89"N, 48 Eastern Boundary, 86°2'7.44"E, 25°24'42.87"N, 47 Western Boundary, 86°1'18.59"E, 25°24'49.95"N, 48 Southern Boundary, 86°1'37.34"E, 25°24'34.42"N, 47 South-West Boundary, 86°1'13.77"E, 25°24'37.87"N, 48 South-East Boundary, 86°2'5.80"E, 25°24'30.65"N, 46 Source: GPS |
| 5 | | Address for correspondence | |
| | a | Address of concerned Project Chief Engineer (with Pin Code & Telephone/Telex/fax nos) | Sh. Goutam Deb CGM & BUH Hindustan Urvarak & Rasayan Limited (HURL) Barauni Urvarak Nagar, Begusarai-851115 BIHAR |

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| | | | |
|---|---|---|--|
| | b | Address of Executive Project Engineer (with Pin Code/fax numbers) | Sh. Karanam Manoranjan Babu V.P. (Technical & Production) Hindustan Urvarak & Rasayan Limited (HURL) Barauni Urvarak Nagar, Begusarai-851115 BIHAR |
| 6 | | Salient Features | |
| | a | Salient features of the project | <p>The Ammonia and Urea plants shall be one of the latest mega capacity plants (2200 MTPD for Ammonia and 3850 MTPD for Urea). The technology suppliers shall consider the latest technological features with an objective to have lowest energy consumption & high reliability of plant having state of the art technology with latest technological features. Ammonia and Urea plants planned shutdown shall be once in two years. One blast proof central control room for location of control & monitoring of operation of all Ammonia/Urea/Offsite & utility plants shall be provided by LSTK Contractor.</p> <p>The ETP facility shall treat all effluents, continuous, intermittent or emergency discharges from ammonia/urea plants. All liquid treated effluent from various sections of the plants shall be collected in final effluent pond made of RCC. The treated effluent shall be pre-treated with chemicals to make it Suitable for feeding to RO plant. The RO plant shall be two stage RO systems. The treated water from RO shall be recycled back to filtered water tank in WTP. The final reject waste water from RO units shall be further treated in thermal evaporation unit using low pressure steam to achieve zero liquid discharge from ETP plant.</p> <p>All Liquid & gaseous effluents generated from various plans & facilities shall be treated before final discharge to meet the requirements of Central/State pollution control board.</p> |
| | b | Of the environmental management plans. | <p>An Environmental Management Plan (EMP) has been prepared keeping in view all possible strategies oriented towards the impact minimization. The EMP for the proposed project is divided into three phases i.e. Planning, Construction and Operational phase.</p> <p>During the planning stage, Energy efficient machines with 5star rating shall be utilized along with LED street lights and use of solar energy. Ultra low NOx burners shall be integrated into the system to reduce NOx emissions. All piping and instrumentation diagrams and plant layout shall be reviewed as a part</p> |

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| | | | | |
|---|---|--|--|-------|
| | | | <p>of HAZOP/HAZAN studies to assess the risks involved. Noise suppression measures such as enclosures and buffers will be used to limit noise levels in areas frequented by personnel to below 85 dB(A).</p> <p>The overall impact of the pollution on the environment during construction phase is localised in nature and is for a short period at all sites. In order to develop effective mitigation plan, all the construction activities shall be undertaken, controlled and managed by LST/Non-LSTK contractor under the guidance of PMC. It is mandatory for these contractors to develop site/project specific HSE Policy, HSE Plan, HSE management system.</p> <p>The environmental management plan during the operational phase of the plant shall be directed towards the following:</p> <ul style="list-style-type: none"> • Ensuring the operation of various process units as per specified operating guidelines/operating manuals. • Strict adherence to maintenance schedule for various machinery/equipment. • Good Housekeeping practices. • Post project environmental monitoring. | |
| 7 | | Breakup of the project area | | |
| | a | Project area | 349.79 acres | |
| 8 | | Breakup of project affected population with enumeration of those losing house/dwelling units only, agriculture land only, both dwelling units and agriculture land and landless labours/artisans | No Project Affected Persons are involved as there is no displacement of population. The project is coming up in old plant complex of HFC, Barauni. | |
| | a | SC, ST/Adivasis | NA | |
| | b | Others | NA | |
| 9 | | Financial Details | | |
| | a | Project cost as originally planned. | Rs. 7043 crore | |
| | b | Allocation made for environmental management plans with item wise and year wise breakup | It is included in the project cost. | |
| | c | Benefit cost ratio/internal rate of return and the years of assessment | Debt Service Coverage Ratio* | 1.68 |
| | | | Internal rate of Return* | 11.85 |
| | | | *As per Project Feasibility Report | |
| | d | Whether © includes the cost of environmental management as shown in (b) above | Yes | |

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| | | | |
|----|---|---|--|
| | e | Total expenditure on the Project so far | Rs. 5619.91 crore |
| | f | Actual expenditure incurred on the environmental management plans so far | Rs. 3.2 Crore (for environmental monitoring job at HURL Barauni) |
| 10 | | Forest land requirement | No Forest Land is involved |
| | a | The status of approval for a diversion of forest land for non-forestry use | NA |
| | b | The status of compensatory afforestation, if any | NA |
| | c | The status of clear felling | NA |
| | d | Comments on the viability and sustainability of compensatory afforestation in the light of actual field experience so far | NA |
| 11 | | The status of clear felling in no-forest area (such as submergence area of reservoir, approach road) if any with quantitative information | NA |
| 12 | | Status of Construction | Plant is under Construction. Overall progress of the project is around 95% up to 31th March 2022. |
| | a | Date of commencement | 1st April 2018 |
| | b | Date of completion (actual and / or planned) | 52 months from 1st April 2018 |
| 13 | | Reasons for the delay if the project is yet to start | NA |
| 14 | | Date of site visit | |
| | a | The dates on which the project was monitored by the Regional Office on previous occasions, if any | Project site was visited by Regional office on 09.01.2019. |
| | b | Date of site visit for this monitoring report | PDIL's environmental monitoring team visits the monitoring locations as per schedule of monitoring and construction site is regularly visited by designated Nodal Officer. |

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