

COMPLIANCE REPORT

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

For the period

October 2018 - March 2019

Submitted

To

MoEF&CC, Regional Office (ECZ), Ranchi

Ammonia Urea Fertilizer Plant

(2200MTPD Ammonia & 3850MTPD Urea)

Barauni

May 2019



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

**HINDUSTAN URVARAK & RASAYAN LIMITED**

(A JV of NTPC, CIL, IOCL, FCIL & HFCL)

Barauni Urvarak Nagar, Begusarai-851115

Ref. No.: HURL/BR/ECZ/02

Date: 10/05/2019

To,
Regional Office (Eastern Central Zone),
Ministry of Environment 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-18 to March-19

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-18- March -19.

Thanking you.

For & on behalf of
HURL, Barauni.

Bodeep Kr. Sin
(P.K SINGH) 10/05/19

Sr. Manager

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 – KOLKATA
Central Pollution Control Board,
Ministry of Environment & Forests, Govt. of India,
'South end Conclave' Block-502, 5th & 6th Floor, 1582,
Razidanga, Main Road, Kolkata-700107

Sl. No.	EC Conditions	Compliance status
(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.	Power is being supplied by NBPDCCL through dedicated 33KV line for construction purpose in HURL Barauni. However DG sets used at site are in conformity with the extant CPCB emission regulation. Latest emission reports attached as annexure-II .
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.	This has been addressed in the design stage of the plant itself and shall be complied during operation phase.
3.	Fresh water requirement shall not exceed 5.36 cum/ton of Urea production. 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.	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. For construction purpose, ground water is being used with prior NOC from Central Ground Water Authority vide NOC no: CGWA/NOC/IND/ORIG/2018/3333 dated:-22/03/2018.
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.	The Project is based on Zero liquid discharge concept. All effluents are to be treated in ETP inside the plant and reused.
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 road is yet to be developed. Tree plantation around periphery will be complied as per given condition after completion road and wall work. The job for wall and road will start soon.
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, MoEF&CC in 6 monthly compliance reports.	We are in the advance stage of lining up of Forest department Bihar for tree plantation in nearby village & we are hopeful that the plantation would start before monsoon. Survival of plant/sapling is more important than its plantation & as suggested, plantation just before monsoon will give us better

P. Bodeep *Kr. S/N*

		survival results.
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 27 th 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 will be provided once the plant becomes operational.
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 HO level will be done before start of plant operation.
10.	Continuous online (24x7) 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 Ra of MoEF&CC, CPCB and SPCB.	This will be implemented during operation & production phase.
11.	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.	This has been addressed in the Feasibility Report and RRA conducted for the Project and recommendation shall be complied with in the plant during operation & production phase.
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 labourers are being done and records are being maintained for the same. The same shall also be complied with in the plant during operation 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.	The hazardous material required in construction activities are being stored in the designated place away from the construction area. During plant operation and production stage, storage of raw materials has been addressed in the Feasibility Report and

Budh K. Singh

		EIA (HAZID & ENVID) report of the Project and 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 in the plant during operation.
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 in the plant during operation & production.
16.	The levels of PM10 (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 the Regional office of MoEF&CC, the respective Zonal office of CPCB and the SPCB.	Environmental Monitoring w.r.t. Air, Water and Noise during construction phase is being carried out by the CPCB recognized environmental Laboratory of Projects and Development India Ltd (PDIL) (<i>Monitoring Report for Oct-18 to March-19 attached as Annexure- I</i>) since 15 th May 2018. The first six monthly compliance report with monitoring results uploaded on HURL's website and its regular updation will be done periodically. Simultaneously, every six monthly compliance report will also be 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.
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	1. For constructions workers rest shed with necessary infrastructure such as toilets, drinking water has been

Badeep K...

	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.	<p>provided at identified locations.</p> <p>2. Canteen facilities have been provided by contractors near rest shed for workers.</p> <p>3. M/s HURL has earmarked old buildings of HFCL in the Township area for housing of labourers during construction phase.</p> <p>4. Medical healthcare at construction site is being provided and dedicated ambulances have been kept at site for emergency requirement.</p>
(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.
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. 6Nos. 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 value within the standard limits at construction site. As advised the frequency of Water sprinkling have been increased for which dedicated water sprinkler vehicles have been engaged to maintain the value within limit.
5.	The overall noise levels in and around the plant area shall be kept well within the standards by providing	Noise levels are being monitored at six locations and all recorded values are

Radeep K...

	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).	within the norms. (Data attached as annexure-I)
6.	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.	As per envisaged plan buildings like control room, operator room, maintenance building, canteen, laboratory building etc. will be having rain water harvesting facility. These will be realized after construction of such buildings. This condition will be complied with as given in <i>Annexure III</i> .
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.	Condition will be complied in totality as stated.
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 will be undertaken by involving local villages and administration as per rule and government guidelines.
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 will be undertaken by involving local villages and administration as per rule and government guidelines.
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 laboratory of PDIL, recognized under the Environment (Protection) Act, 1986. However the stated point is addressed in the Feasibility Report of the Project and suitable facility will be developed to carry out the Environmental Management and Monitoring functions.
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	This stated condition will be complied by HURL.

Boodeep Kr. S.M.

	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.	
13.	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.	The same has been complied and receiving copy sent to regional office. (ECZ)
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.
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 same will be complied with.
16.	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 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.	Environment Clearance granted by Ministry vide MoEF&CC letter no J-11011/371/2016-IA II (I) DATED 29/08/2017 has already been uploaded on Company website hurl.net.in . The same was also advertised on 16/09/2017 on Hindustan (Hindi) and page 12 in Hindustan times (English) published from 16/09/2017 Bihar and submitted with first six monthly compliance report.
17.	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.	The same has been sent to regional office. (ECZ)

Pradeep K.S. Sh

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 15th September 2018 to 14th March 2019. 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 Sindri under the strict supervision of the Government Analyst namely Ms. Gyanlata Deshmukh and Mr. Akosh Chhoker.

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 area falls in the agricultural belt of the 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. 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 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 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. 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 15th September 2018 to 14th March 2019.

P. S. Deep K. S. S. P.

HURL, BARAUNI, AIR QUALITY DATA (2018-2019)

Period	Parameters	Admn. Building HURL (SA1)	Simariya Village (SA2)	HURL Township (SA3)	Mahna Village (SA4)	Chakiya Village (SA5)	Bihat Village (SA6)	NAAQ Standards Annual/24/8/1 Hly. Avg.
15 th September to 14 th October 2018	PM ₁₀	80.3	77.6	74.8	59.5	74.1	67.8	60/100
	PM _{2.5}	40.5	39.5	38.4	37.8	40.4	39.4	40/60
	SO ₂	10.2	9	8.8	9.8	8.6	10.1	50/80
	NO _x	19.9	19.3	18.1	18	18.5	19.5	40/80
	CO	0.49	0.47	0.57	0.44	0.46	0.45	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	NMHC	2.47	2.3	2.39	1.81	1.56	1.43	-
	MHC	3.42	3.71	3.16	2.21	2.43	1.67	-
VOC	2.79	2.87	2.72	2.06	2.44	1.94	-	
15 th October to 14 th November 2018	PM ₁₀	84.9	83.3	83.8	86.5	88.8	98.6	60/100
	PM _{2.5}	46.8	43.4	43.9	48.4	51	55.4	40/60
	SO ₂	16.7	15.6	17	19.4	23.8	25.8	50/80
	NO _x	26.7	27	23.4	28.9	30.1	33.5	40/80
	CO	0.56	0.51	0.62	0.48	0.48	0.49	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	NMHC	1.92	2.37	1.64	1.89	1.69	1.49	-
	MHC	2.9	3.03	2.35	2.34	2.62	1.77	-
VOC	2.8	2.92	2.79	2.12	2.63	1.99	-	
15 th November to 14 th December 2018	PM ₁₀	90.1	86.1	89.8	105.3	101.4	126.1	60/100
	PM _{2.5}	51.0	45.0	51.0	60.8	60.3	62.4	40/60
	SO ₂	16.6	14.3	17	20.6	24.9	24.1	50/80
	NO _x	28.2	26.6	27.3	31.3	32.1	36.9	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	0.63	0.5	0.64	0.75	0.57	0.62	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	O ₃	20.1	19.3	17.0	19.0	19.2	20.7	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	
15 th December 2018 to 14 th January 2019	PM ₁₀	93.5	88.0	90.4	106.4	104.3	139.1	60/100
	PM _{2.5}	52.9	50.3	49.6	60.4	57.9	68.5	40/60
	SO ₂	20.1	19.1	17.4	18.3	21.6	23.3	50/80
	NO _x	28.7	28.4	27.4	27.5	33.4	33.8	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	0.68	0.79	0.65	0.73	0.83	0.82	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	O ₃	20.2	19.0	19.2	21.7	20.2	21.6	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	
15 th January to 14 th February 2019	PM ₁₀	95.5	87.3	92.8	102.3	102.9	140.0	60/100
	PM _{2.5}	50.8	45.8	47.9	59.5	59.9	71.1	40/60
	SO ₂	16.3	18.7	17.2	18.2	22.0	23.2	50/80
	NO _x	25.5	25.4	25.5	27.1	34.0	35.2	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	0.65	0.81	0.66	0.74	0.83	0.89	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	O ₃	17.9	17.5	20.3	22.6	21.2	21.9	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	

B. K. Singh
 सरकारी विश्लेषक
 प्रयोगशाला-305
 निबंधन विभाग
 प्रदूषण नियंत्रण बोर्ड
 बाराली

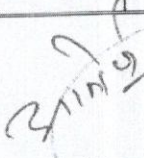
15 th February to 14 th March 2019	PM ₁₀	84.3	87.3	98.5	101.5	94.8	126.4	60/100
	PM _{2.5}	45.4	45.8	57.6	60.0	53.9	66.6	40/60
	SO ₂	12.6	18.7	17.5	17.0	18.0	23.3	50/80
	NO _x	22.3	25.4	26.9	24.6	25.9	33.8	40/80
	C ₆ H ₆	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	05
	Benzo (a) pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	01
	CO	0.61	0.81	0.66	0.71	0.79	0.87	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	O ₃	18.6	17.5	22.0	22.4	20.8	21.6	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. 15 th Sep. 2018 to 14 th March 2019	PM ₁₀	88.1	84.9	88.4	93.6	94.4	116.3	60/100
	PM _{2.5}	47.9	45.0	48.1	54.5	53.9	60.6	40/60
	SO ₂	15.4	15.9	15.8	17.2	19.8	21.6	50/80
	NO _x	25.2	25.4	24.8	26.2	29.0	32.1	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	0.60	0.65	0.63	0.64	0.66	0.69	02/04
	NH ₃	BDL	BDL	BDL	BDL	BDL	BDL	100/400
	O ₃	19.2	18.3	19.6	21.4	20.4	21.5	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
	NMHC	2.20	2.34	2.02	1.85	1.63	1.46	-
	MHC	3.16	3.37	2.76	2.28	2.53	1.72	-
	VOC	2.80	2.90	2.76	2.09	2.54	1.97	-

NOTE: BDL = Below Detection Limit
 ($\mu\text{g}/\text{m}^3$) = PM₁₀, PM_{2.5}, SO₂, NO_x, NH₃, O₃, C₆H₆, Benzo (a)pyrene
 (ppm) = NMHC, MHC
 (mg/m^3) = CO, VOC
 (ng/m^3) = Ni, As, Pb

25/10/19
 साकोश छोकर
 सरकारी विश्लेषक
 पर्यावरणीय प्रयोगशाला-306
 (राज्यीय प्रदूषण नियंत्रण बोर्ड)
 पर्यावरण संरक्षण विभाग, महाराष्ट्र शासन, मुंबई.
 (विभाग, प्रदूषण नियंत्रण बोर्ड, मुंबई)

HURL, Barauni, NOISE QUALITY DATA (2018-2019)

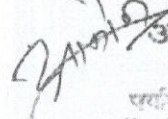
Period	Parameters	Admn. Building HURL (SA1)	Simariya Village (SA2)	HURL Township (SA3)	Mahna Village (SA4)	Chakiya Village (SA5)	Bihat Village (SA6)	Prescribed Limits in dB(A) as per NAAQS
15 th September to 14 th October 2018	24-hrs Avg L _{eq} Value dB(A)	61.1	49.4	48.4	47.3	48.2	49.5	-
	Day time L _{eq} Value dB(A)	62.6	50.6	49.5	48.3	49.4	50.8	75/55
	Night time L _{eq} Value dB(A)	53.6	45.6	44.4	44.5	43.5	43.8	70/45
15 th October to 14 th November 2018	24-hrs Avg L _{eq} Value dB(A)	59.4	49.0	48.1	47.9	47.3	50.8	-
	Day time L _{eq} Value dB(A)	60.6	50.2	49.4	49.0	48.3	52.2	75/55
	Night time L _{eq} Value dB(A)	54.6	44.7	43.4	43.8	43.7	44.4	70/45
15 th November to 14 th December 2018	24-hrs Avg L _{eq} Value dB(A)	59.4	48.7	49.1	48.2	49.7	50.8	-
	Day time L _{eq} Value dB(A)	60.5	49.9	50.2	49.3	50.9	51.9	75/55
	Night time L _{eq} Value dB(A)	55.0	44.3	45.6	44.5	44.7	47.4	70/45
15 th December 2018 to 14 th January 2019	24-hrs Avg L _{eq} Value dB(A)	56.9	48.7	48.6	47.9	48.0	49.5	-
	Day time L _{eq} Value dB(A)	58.2	49.8	49.7	49.0	49.2	50.8	75/55
	Night time L _{eq} Value dB(A)	50.7	44.9	44.8	43.8	43.9	43.8	70/45
15 th January to 14 th February 2019	24-hrs Avg L _{eq} Value dB(A)	57.4	49.6	52.7	48.2	48.0	51.5	-
	Day time L _{eq} Value dB(A)	58.7	50.8	53.9	49.4	49.2	52.9	75/55
	Night time L _{eq} Value dB(A)	52.1	45.0	48.3	43.6	43.9	44.7	70/45
15 th February to 14 th March 2019	24-hrs Avg L _{eq} Value dB(A)	55.6	50.6	54.8	48.7	49.1	54.0	-
	Day time L _{eq} Value dB(A)	56.6	51.8	56.3	50.0	50.2	55.6	75/55
	Night time L _{eq} Value dB(A)	52.1	45.4	47.7	43.4	45.1	44.5	70/45
AVG. 15 th Sep. 18 to 14 th March 2019	24-hrs L _{eq} Value dB(A)	58.3	49.3	50.3	48.0	48.4	51.0	-
	Day time L _{eq} Value dB(A)	59.5	50.5	51.5	49.2	49.5	52.4	75/55
	Night time L _{eq} Value dB(A)	53.0	45.0	45.7	43.9	44.1	44.8	70/45


 आकाश झाकर
 सहायक निरीक्षक
 प्राथमिक प्रयोगशाला-305
 (विश्वविद्यालय, दरभंगा-801 005)
 बिहार प्रदूषण नियंत्रण बोर्ड
 (राजधानी, दरभंगा-801 005)

HURL, BARAUNI, GROUND WATER QUALITY DATA (2018-2019)
AVG. (15th SEPTEMBER 2018 TO 14th MARCH 2019)

(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 - Chakitya Village(GW3)	
PHYSICAL					
1	pH	7.4	7.4	7.4	6.5-8.5
2	Temperature (°C)	25.9	26.3	26.3	-
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	8.5	5.25	5	-
8	Total Dissolved Solids	400.8	411.3	424.7	500/2000
CHEMICAL					
1	P- Alkalinity as CaCO ₃	NIL	NIL	NIL	-
2	Total Alkalinity as CaCO ₃	234.3	216.7	221.3	200/600
3	Chloride as Cl	33.0	39.7	51.7	250/1000
4	Sulphate as SO ₄	65.7	76.7	69.3	200/400
5	Nitrate as NO ₃	4.0	4.1	3.8	45/NR
6	Fluoride as F	0.7	0.7	0.6	1.0/1.5
7	Total Hardness as CaCO ₃	314.3	305.7	309.7	200/600
8	Ca. Hardness as CaCO ₃	196.0	189.0	190.3	75/200
9	Mg. Hardness as CaCO ₃	118.3	116.7	119.3	30/100**
10	Sodium as Na	15.8	20.7	24.7	-
11	Potassium as K	3.0	3.9	4.7	-
12	Silica as SiO ₂	16.8	16.5	16.3	-
13	Iron as Fe	1.2	0.7	0.5	0.3/NR
HEAVY METALS					
1	Manganese as Mn	<0.05	<0.05	<0.05	0.1/0.3
2	Total Chromium as Cr	<0.01	<0.01	<0.01	0.05/NR
3	Lead as Pb	<0.01	<0.01	<0.01	0.01/NR
4	Zinc as Zn	0.29	0.29	0.28	5.0/15
5	Cadmium as Cd	<0.003	<0.003	<0.003	0.003/NR
6	Copper as Cu	<0.01	<0.01	<0.01	0.05/1.5
7	Nickel as Ni	<0.01	<0.01	<0.01	0.02/NR
8	Arsenic as As	<0.01	<0.01	<0.01	0.01/0.05
9	Selenium as Se	<0.01	<0.01	<0.01	0.01/NR
OTHERS					
1	Mineral oil	<0.01	<0.01	<0.01	0.5/NR
2	Phenolic Compounds as C ₆ H ₅ OH	<0.001	<0.001	<0.001	0.001/0.002
3	Coliform (MPN/100ml)	66.7	66.7	56.7	-


आकोश छोकर
 सरकारी विश्लेषक
 पर्यावरणीय प्रयोगशाला-305
 (राज्यीय प्रदूषण नियंत्रण बोर्ड)
 पोलोवारा एरर डेवेलपमेंट इण्डिया सिडि.
 नया दिल्ली



GLOBAL TESTING AND RESEARCH LABORATORY
 Murlichak, Jagdeo Path, P.O.-B.V.College, P.S. Patna Airport, Dist. - Patna (800014)
 Ph.: 09798697785/09608008051/9334254100, E-mail: gtrapatna@gtrl.org.in,
 Visit us: www.gtrl.org.in



Page 8 i of ii

Issued to:
Nasim Ahsan Construction Pvt. Ltd.

Date of Report: 08/05/2019
 Report No: 030519/Civ/05214/i
 Date of Sample Receipt: 03/05/2019
 Period of Testing: 03/05/2019 To 07/05/2019
 Job S. No.: GTRL/030519/05152
 Job Code No.: Civ/030519/05160/i

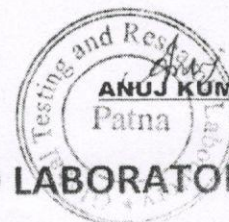
Name of Client: M/s Nasim Ahsan Construction Pvt. Ltd.
 Customer Ref No. to GTRL : Nil
 Customer-Client Agreement No. : Nil
 Sample Description : DG set; Capacity (KV) – 40, Location – Ammonia Plant at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101
 Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

Requirement

MOEF Notification (11 December 2013)

S. No.	Tests	Test Method	Requirement			Result	Conformity
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.1	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.11	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.08	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.19	YES
3	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.1	YES

End of Report

AUTHORIZED SIGNATORY

ANUJ KUMAR (TM)

Patna

AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 1

Boddeep K. Sill



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O.-E.V.College, P.S. Patna Airport, Dist.- Patna (800014)

Ph.: 09798697785/09608008051/9334254100, E-mail: gtrlpatna@gtrl.org.in,

Visit us: www.gtrl.org.in



Page 8 ii of ii

Issued to:
Nasim Ahsan Construction Pvt. Ltd.

Date of Report: 08/05/2019
Report No: 030519/Civ/05213/ii
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05151
Job Code No.: Civ/030519/05159/ii

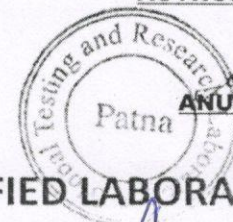
Name of Client: M/s Nasim Ahsan Construction Pvt. Ltd.
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description : DG set; Capacity (KV) – 125, Location – Urea Plant at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101

Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

S. No.	Tests	Test Method	Requirement			Result	Conformity
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.09	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.08	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.06	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.14	YES
3	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.05	YES

End of Report

AUTHORIZED SIGNATORY



Anuj Kumar
ANUJ KUMAR (TM)

AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 2

Pradeep Kr. Singh



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O.-B.V. College, P.S. Patna Airport, Dist. - Patna (800014)
Ph.: 09798697785/09608008051/9334254100, E-mail: gtrlpatna@gtrl.org.in,
Visit us: www.gtrl.org.in



Page 8 i of ii

Issued to:
Bygging India Ltd.

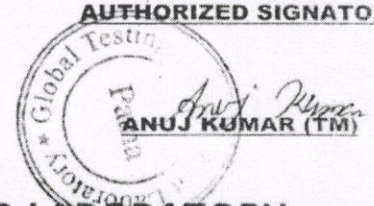
Date of Report: 08/05/2019
Report No: 030519/Civ/05213/i
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05151
Job Code No.: Civ/030519/05159/i

Name of Client: M/s Bygging India Ltd.
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description : DG set; Capacity (KV) – 125, Location – Prilling Tower at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101
Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

S. No.	Tests	Test Method	Requirement			Result	Conformity
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.08	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.08	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.04	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.12	YES
3	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.09	YES

End of Report

AUTHORIZED SIGNATORY



AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 1

Bodeep Kr. S.



GLOBAL TESTING AND RESEARCH LABORATORY
 Murlichak, Jagdeo Path, P.O.-B.V.College, P.S. Patna Airport, Dist.- Patna (800014)
 Ph.: 09798697785/09608008051/9334254100, E-mail: gtrlpatna@gtrl.org.in
 Visit us: www.gtrl.org.in



Page 8 ii of ii

Issued to:
Bygging India Ltd.

Date of Report: 08/05/2019
 Report No: 030519/Civ/05213/ii
 Date of Sample Receipt: 03/05/2019
 Period of Testing: 03/05/2019 To 07/05/2019
 Job S. No.: GTRL/030519/05151
 Job Code No.: Civ/030519/05159/ii

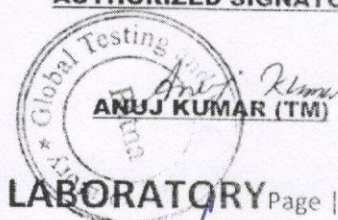
Name of Client: M/s Bygging India Ltd.
 Customer Ref No. to GTRL: Nil
 Customer-Client Agreement No.: Nil
 Sample Description: DG set; Capacity (KV) – 125, Location – Batching Plant at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101
 Name of Work: LOA for Environmental monitoring Work at HURL Barauni Project

Requirement

MOEF Notification (11 December 2013)

S. No.	Tests	Test Method	Requirement			Result	Conformity
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.1	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.09	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.07	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.16	YES
3	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.1	YES

End of Report

AUTHORIZED SIGNATORY

AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 2

Pradeep Kr. Singh



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O.-B.V.College, P.S. Patna Airport, Dist.- Patna (800014)

Ph.: 09798697785/09608008051/9334254100, E-mail: gtrapatna@gtrl.org.in,

Visit us: www.gtrl.org.in



Page 8 i of iv

Issued to:
Brodway Link Pvt. Ltd.

Date of Report: 08/05/2019
Report No: 030519/Civ/05211/i
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05148
Job Code No.: Civ/030519/05157/i

Name of Client: M/s Brodway Link Pvt. Ltd.

Customer Ref No. to GTRL: Nil

Customer-Client Agreement No.: Nil

Sample Description: DG set; Capacity (KV) – 125, Location – – Batching Plant at HURL Barauni, Dist. –Begusarai, Bihar, PIN – 851101

Name of Work: LOA for Environmental monitoring Work at HURL Barauni Project

Requirement

MOEF Notification (11 December 2013)

S. No.	Tests	Test Method	Requirement			Result	Conformity
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.07	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.08	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.06	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.14	YES
5	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.08	YES

End of Report

AUTHORIZED SIGNATORY

Anand Kumar
ANAND KUMAR (TM)
Boddep K. S.

AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 1



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O - B.V.College, P.S. Patna Airport, Dist. - Patna (800014)
Ph.: 09798697785/09608008051/9334254100, E-mail: gtrlpatna@gtrl.org.in,
Visit us: www.gtrl.org.in



Page 8 ii of iv

Issued to: Brodway Link Pvt. Ltd.
Date of Report: 08/05/2019
Report No: 030519/Civ/05211/ii
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05148
Job Code No.: Civ/030519/05157/ii

Name of Client: M/s Brodway Link Pvt. Ltd.
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description : DG set; Capacity (KV) – 63, Location – Batching Plant at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101
Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

S. No.	Tests	Test Method	Requirement			Result	Conformity
			MOEF Notification (11 December 2013)				
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.14	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.11	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.08	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.19	YES
5	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	1.1	YES

End of Report

AUTHORIZED SIGNATORY

Danu
DANUJ KUMAR (TM)
Signature

AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 2

Brodeep
Brodeep Ks.gh



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O.-B.V.College, P.S. Patna Airport, Dist.- Patna (800014)

Ph.: 09798697785/09608008051/9334254100, E-mail: gtrlpatna@gtrl.org.in,

Visit us: www.gtrl.org.in



Issued to:
Brodway Link Pvt. Ltd.

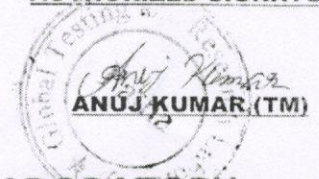
Date of Report: 08/05/2019
Report No: 030519/Civ/05211/iii
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05148
Job Code No.: Civ/030519/05157/iii

Name of Client: M/s Brodway Link Pvt. Ltd.
Customer Ref No. to GTRL : Nil
Customer-Client Agreement No. : Nil
Sample Description : DG set; Capacity (KV) – 20, Location – Urea Plant at HURL Barauni, Dist. – Begusarai, Bihar, PIN – 851101
Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

S. No.	Tests	Test Method	Requirement			Result	Conformity
			MOEF Notification (11 December 2013)				
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.1	YES
2	NO _x (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.09	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.08	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.17	YES
5	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.09	YES

End of Report

AUTHORIZED SIGNATORY



AN ISO 9001:2008 & 17025:2005 CERTIFIED LABORATORY Page | 3

Brodway Link Pvt. Ltd.



GLOBAL TESTING AND RESEARCH LABORATORY

Murlichak, Jagdeo Path, P.O. B.V.College, P.S. Patna Airport, Dist.- Patna (800014)
Ph.: 09798697785/09608008051/9334254100, E. mail: gtrlpatna@gtrl.org.in,
Visit us: www.gtrl.org.in



Issued to:
Brodway Link Pvt. Ltd.

Date of Report: 08/05/2019
Report No: 030519/Civ/05211/iv
Date of Sample Receipt: 03/05/2019
Period of Testing: 03/05/2019 To 07/05/2019
Job S. No.: GTRL/030519/05148
Job Code No.: Civ/030519/05157/iv

Name of Client: M/s Brodway Link Pvt. Ltd.

Customer Ref No. to GTRL : Nil

Customer-Client Agreement No. : Nil

Sample Description : DG set; Capacity (KV) – 30, Location - Sub – station area at HURL Barauni, Dist. Begusaraj, Bihar, PIN – 851101

Name of Work : LOA for Environmental monitoring Work at HURL Barauni Project

S. No.	Tests	Test Method	Requirement			Result	Conformity
			MOEF Notification (11 December 2013)				
			Upto 19 KW	More than 19 KW Upto 75 KW	More than 75 KW Upto 800 KW		
1	PM, (g/Kw-hr)	IS 11255 (Part 1):1985 (RA 2014)	≤0.3	≤0.3	≤0.2	0.09	YES
2	NO _x , (g/Kw-hr)	IS 11255 (Part 7):1985 (RA 2012)	--	--	--	0.08	YES
3	HC, (g/Kw-hr)	CPCB GUIDELINE	--	--	--	0.05	YES
4	NO _x +HC, (g/Kw-hr)	By Calculation	≤4.7	≤3.5	≤0.3	0.13	YES
5	CO, (g/Kw-hr)	Draeger Detection Tube	≤4.0	≤3.5	≤0.2	0.05	YES

End of Report

AUTHORIZED SIGNATORY

ANUJ KUMAR (TM)

Brodway Link Pvt. Ltd.

RAINWATER HARVESTING

The rain water collected from the roof of the permanent buildings shall be harvested for ground water recharge as a compensation to meet the requirement due to loss of permeable area promoting ground water recharge, maintenance of existing hydro-dynamic pattern of the area and to conserve the salinity of ground water in the area. The excess rainwater shall be sent to the trap through storm water drain and attempts shall be made not to mix any process waste with the storm water. The trap shall have two compartments, one consisting of sized boulders and the other, sized hard coke. The excess water from sized hard coke shall be collected in another tank before discharge in to natural drainage system. The drainage system of project area shall be aligned as per the existing natural drainage pattern of the area.

Rain water harvesting and recharging system shall be installed as per the relevant the central ground water board guidelines applicable for the area. The rain water harvesting/aquifer recharging system have been proposed as water conservation measure. The systems shall be installed at such location of the project area close to the Administrative building so as to facilitate collection of most of the rain water from the roofs of the building in the project area. Similarly, same system of rain water harvesting shall be implemented in the township.

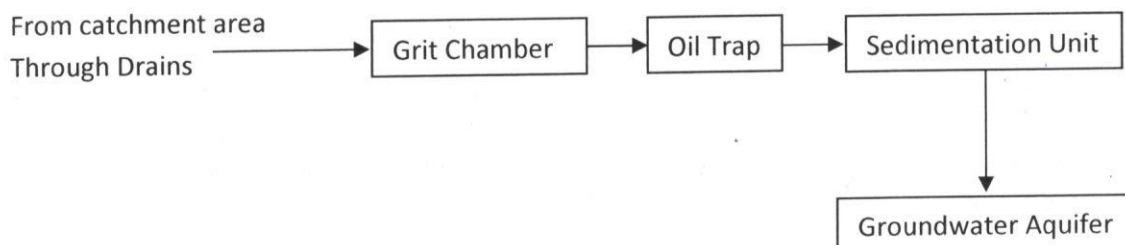
The bores shall be provided within 3 m deep enclosures, which will comprise layers of boulders, gravel and coarse sand so as to separate suspended matter from the rainwater. Three nos. of ground water recharging systems have been proposed to be developed in the township area and three nos. in the factory area. Rainwater harvesting system will consist of the following units:

1. Rainwater Collection System
2. Rainwater Filtration System
3. Rainwater Recharging Pond including an active well of depth 20m and dia 100-150mm.

The system will be cleaned during dry season and will be made ready to collect water for harvesting from its command area during monsoon. Provision shall also be made in the rainwater harvesting system for Chlorination/disinfection especially during the first phase of monsoon. The system shall be designed as per the guidelines for rainwater harvesting prepared by Central Ground Water Board (Ministry of Water Resources).

The scheme of rain water harvesting and aquifer recharging is presented below:

Block Diagram for Proposed Rain Water Harvesting / Aquifer Recharging System



Boddep K. S. Pillai

The rainwater harvesting system for the fertilizer plant will follow the guidelines laid out by different Departments/Ministries as far as possible.

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

The sizing of the rain water collection drain and sub-units including the harvesting pond shall be calculated depending upon the maximum rain intensity within 50 years and roof area of the building after finalization of the building design.

Badeep K.S.S.

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 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

Pradeep K. S.

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 having 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 *MahualIndica* 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 auriculiformis*, *Cassia fistula*, *C. Siamea*, *Inga ducis* may also be considered.
- e) In the inner periphery *Bougainvillea* 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.

Budh K. S.

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)	Chief General Manager Hindustan Urvarak & Rasayan Limited (HURL) Barauni Urvarak Nagar, Begusarai-851115 BIHAR
	b	Address of Executive Project Engineer (with Pin Code/fax numbers)	Deputy General Manager Hindustan Urvarak & Rasayan Limited (HURL) Barauni Urvarak Nagar, Begusarai-851115 BIHAR
6		Salient Features	
	a	Salient features of the project	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.

Brodip K. J.

			<p>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 utilised 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 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

Bradeep K. J.

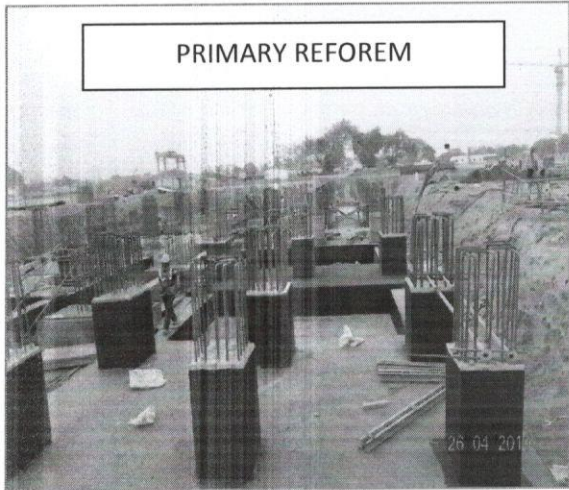
			<p>units as per specified operating guidelines/operating manuals.</p> <ul style="list-style-type: none"> • Strict adherence to maintenance schedule for various machinery/equipment. • Good Housekeeping practices. • Post project environmental monitoring.
7		Breakup of the project area	
	a	Project area	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 and subsequent revised estimates and the years of price reference	Rs. 6317 crore (Feb' 2017) Revised Estimate : Rs. 6977.01 crore (Nov 2018)
	b	Allocation made for environmental management plans with item wise and year wise breakup.	It is included in the project cost. Actual cost will be furnished after finalization of engineering details.
	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
	e	Total expenditure on the Project so far	Rs. 455.00 crore
	f	Actual expenditure incurred on the environmental management plans so far	Rs. 90 lakh
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

Badeep Kr. Sr.

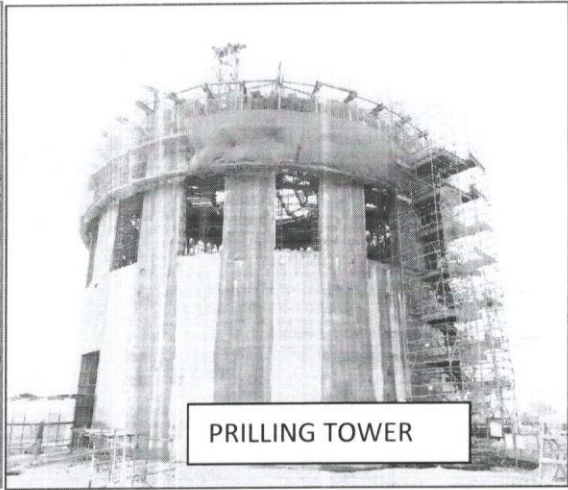
12		Status of Construction	Construction job in progress. Overall progress of the project is around 23.3 % up to March-19 (latest photos of actual construction site attached)
	a	Date of commencement	1st April 2018
	b	Date of completion (actual and / or planned)	36 months from 1st April 2018
13		Reasons 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/ Environmental Manager of HURL.

Pradeep K. S.

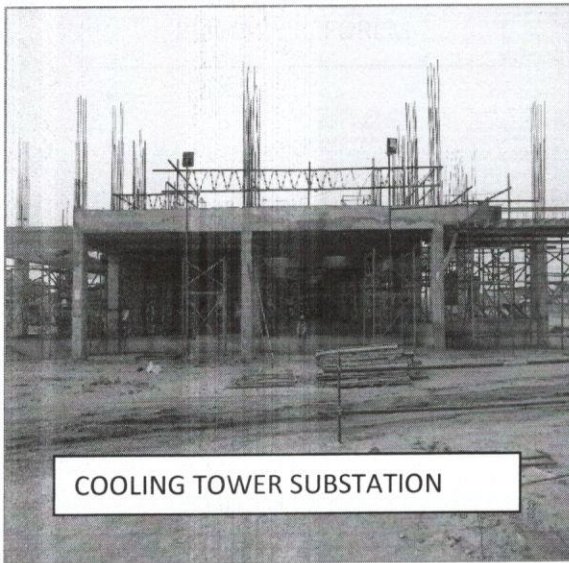
RECENT SITE PHOTOGRAPHS OF HURL BARAUNI



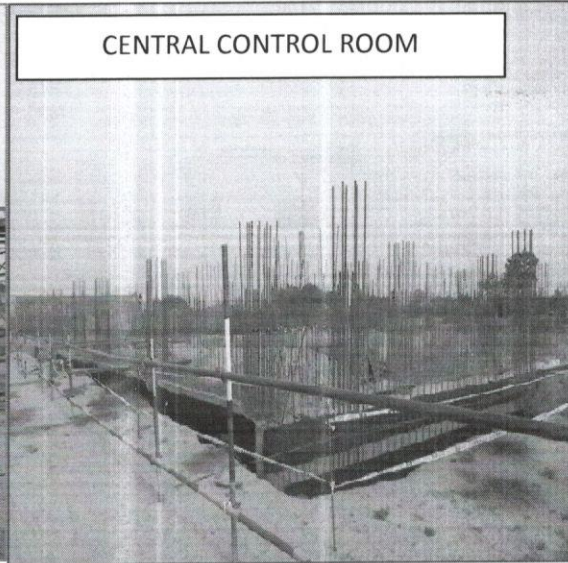
PRIMARY REFORM



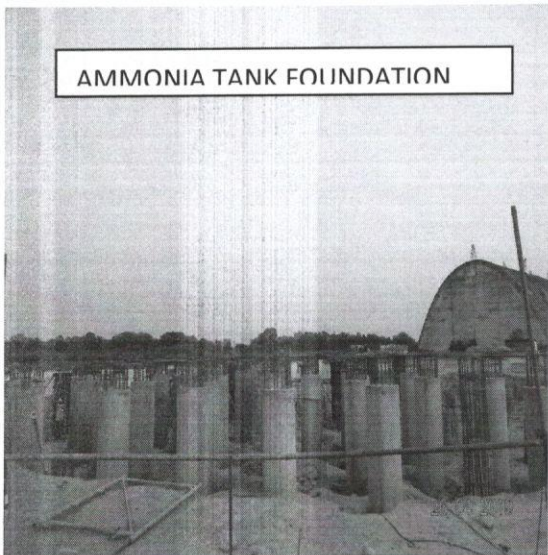
PRILLING TOWER



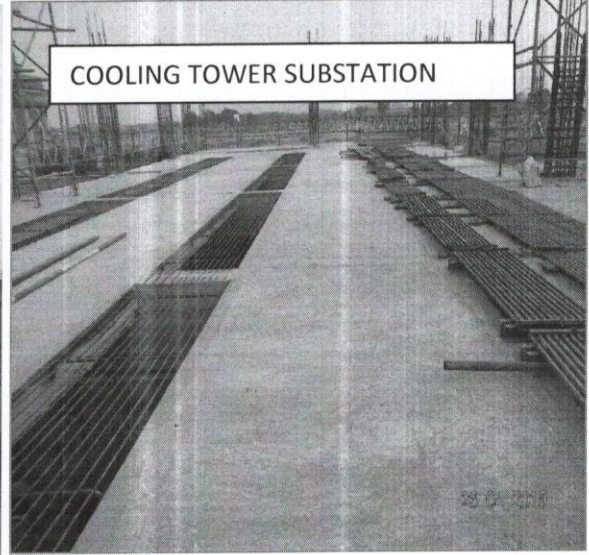
COOLING TOWER SUBSTATION



CENTRAL CONTROL ROOM



AMMONIA TANK FOUNDATION



COOLING TOWER SUBSTATION

Boopathy K. Srinivasan