ADITYA BIRLA

EMIL

Ref. No. A/ 495 /2024-25

Dated–01.12.2024
(By e-mail)

To

The Director,
Ministry of Environment, Forests & Climate Change
3rd Floor, Vayu Wing, Indira Paryavaran Bhavan
Jor Bagh Road, New Delhi - 110 003
INDIA (diriapolicy-moefcc@gov.in; s.kerketta66@gov.in)

Sub: Submission of half-yearly EC compliance status for the period April-2024 to September-2024 in respect of 1 MTPA Iron Ore Pelletization Plant at Village-Basantapur, Tehsil-Jhumpura, District-Keonjhar of Essel Mining & Industries Limited.

Ref: 1. Environment Clearance (EC) Vide letter F. No. J-11011/424/2011-IA-11 (I) dated 17.03.2022.
2. S.O. 5845(E), dated the 26th November, 2018

Sir,

With reference to the letters and on the subject cited above, we are submitting herewith the half-yearly EC compliance status along with environmental monitoring report and other relevant documents in respect of 1 MTPA Iron Ore Pelletization Plant at Village-Basantapur, Tehsil-Jhumpura, District-Keonjhar for the period of **April-2024 to September-2024.**

This is for favour of your kind perusal.

Thanking you,

Yours Faithfully,
For **ESSEL MINING & INDUSTRIES LTD.**

Pavan Kumar Kakani
Joint President
Head - Iron Ore, Beneficiation & Pelletization

Encl: As above.

Cc: 1. Ministry of Env., Forest and Climate Change, Eastern Regional Office, Bhubaneswar, e-mail: roez.bsr-mef@nic.in
2. The Member Secretary, State Pollution Control Board, Odisha. e-mail: membersecretary@ospcboard.org
3. Regional Director, Central Pollution Control Board, Kolkata. e-mail: zokolkatta.cpcb@nic.in, mkbiswas.cpcb@nic.in

Essel Mining & Industries Ltd.
P.O. Barbil, Dist. – Keonjhar,
Odisha – 758035, India
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Website: www.esselmining.com
CIN: U51109WB1950PLC018728
Ph. No: +91 8895585550(EPBX) / +91 8895888244

Essel Mining & Industries Ltd.
Iron Ore Beneficiation & Pelletization Division,
Plot No. 7/43, Khata No. 224/122, At/Po: Basantpur,
Dist. – Keonjhar, Odisha – 758034, India

HALF YEARLY COMPLIANCE REPORT OF ENVIRONMENTAL CLEARANCE CONDITIONS

Name of the Project: Compliances to the conditions of the Environmental Clearance for the proposed upward integration of existing Beneficiation Plant with additional 1 MTPA Iron Ore Pelletization Plant within existing Beneficiation Plant premises at Village – Basantpur, Sub-division – Champua, Tehsil- Jhumpura, District – Keonjhar, Odisha of Essel Mining & Ind. Ltd.

EC Approval Letter: F. No. J-11011/424/2011-IA-II (I) on dated 18.04.2012 (Original), F. No. J-11011/424/2011-IA-II (I) on dated 17.03.2022 (Transfer of EC in favour of EMIL)

Period of Compliance Report: April-2024 to September-2024

Sl. No.	Conditions	Compliance
	Specific conditions	
(i)	Compliance to all the specific and general conditions stipulated for the existing plant by the Central/ State Government should be ensured and regular reports submitted to the Ministry and its Regional Office at Bhubaneswar.	The conditions stipulated in the environmental clearance order accorded by MoEF & CC as well as the consent to establish & consent to operate granted by SPCB, Odisha in respect of 1.0 MTPA Iron Ore Pellet Plant are being complied. The compliance status reports for the same are being submitted to the respective authorities. Consent to Establish (NOC) obtained from OSPCB vide letter no- 20851/Ind-11-NOC-5445 dated on 01.10.2012 and renewal of Consent to Operate obtained from OSPCB vide letter no-4828/IND-I-CON-6459 dated 31.03.2024 valid up to 31.03.2025.
(ii)	Efforts shall be made to reduce particular emissions in the ambient air and a time bound action plan should be submitted. Continuous stack monitoring facilities for the stacks should be provided and sufficient air pollution control devices Viz., Electrostatic Precipitator (ESP), bag house, bag filters etc. should be provided to keep the emission levels below 50 mg/ Nm^3 and installing energy efficient technology. No charcoal should be used as raw material.	All mitigation and control measures are being taken to reduce particular emissions in the construction and operation phase. Fixed water sprinklers have been installed along the haulage roads. Also, 4 nos. of mobile water tankers have been deployed for water sprinkling activity. The haulage roads are being made cement concrete. Adequate pollution control measures with proper management procedures are adopted. The required pollution controls infrastructures (Viz: Electrostatic Precipitator (ESP), bag house, bag filters, Water Sprinklers etc.) for the 1.0 MTPA Pellet Plant are operated efficiently. No Charcoal is used as raw material in the process.

Sl. No.	Conditions	Compliance
(iii)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R.No.826(E) dated 16th November, 2009 should be followed.	Ambient Air Quality (AAQ) monitoring is being carried out at 4 locations covering core and buffer zone. The AAQ confirms to the National Ambient Air Quality Emission Standards (NAAQ).
(iv)	Gaseous emission levels including secondary fugitive emissions from all the sources should be controlled within the latest permissible limits issued by the CPCB should be followed. New Standards for the sponge iron plant issued by the Ministry vide G.S.R.414 (E) dated 30th May 2008 should be followed.	The gaseous emissions including secondary fugitive emissions have been kept under permissible limits as stipulated by CPCB.
(v)	Vehicular pollution due to transportation of raw material and finished product should be controlled. Proper arrangements should also be made to control dust emissions during loading and unloading of the raw material and finished product.	During transportation of raw material and finished product, proper care is being taken to avoid unwanted spillage of material on roads. Steps are taken to transport the material by covering the vehicle with tarpaulin sheet to avoid fugitive dust emission. Vehicles having valid pollution certificate are deployed for the transportation work. Moreover, the internal roads of the plant are being made Cement Concrete. Also fixed sprinkler has been installed alongside the haulage road of the plant to avoid emission of dust during transportation. Further, care is being taken to ensure that road ways and vehicle wheels are kept clean during transportation. During loading and unloading of raw materials/finished products, proper care is being taken to avoid dropping of the materials from height and the material is moistened by sprinkling water. The raw material & finished product handling area is provided with fixed sprinkling system to effectively supress the dust.
(vi)	Prior Permission for the drawl of 75 m^3/day water from River Baitarani from the concerned department should be obtained. Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir shall be enhanced to meet the maximum water requirement. Only balance	Drawal of 746 m^3/day water from river Baitarani for meeting the requirement of Iron Ore Beneficiation Plant & pellet has been allocated by the DoWR, Govt. of Odisha To meet the water requirement during the lean season, one reservoir having total holding capacity of 212250 m^3 has been constructed to store the rain / surface run-off water. The Surface runoff water of the plant area during rain

Sl. No.	Conditions	Compliance
	water requirement should be met from other sources.	is being stored in these reservoirs for meeting the water requirement.
(vii)	Regular monitoring of influent and effluent surface, sub-surface and ground water should be ensured and treated wastewater should meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act, 1986 whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.	Ground water sample is being collected from the nearby village, inside the plant premises and will be tested to ensure the pollutants concentration remaining within the norms prescribed by OSPCB/CPCB. There is no generation of wastewater from pellet process as water will be consumed in raw material grinding, mixing and green ball formation. The pellet plant area is properly levelled. During rain, the storm water of the area flows with the natural slope and mix with the storm water drain connecting to Garland drain around the plant premises. Garland drain has been connected to settling tank to arrest suspended solids then clean water is being sent to Rain water harvesting Reservoir for further use. Moreover, the plant (i.e.; both existing Beneficiation Plant and Pellet Plant) is designed with Zero discharge concept. The process generated water is being recycled and reuse within the Plant after proper treatment. No water is being discharged outside the plant premises.
(viii)	'Zero' effluent discharge shall be strictly followed and no wastewater should be discharged outside the plant premises.	No wastewater is generated from the process as water is fully consumed in raw material grinding, mixing and green ball formation during pellet making. Thus there is zero effluent discharge beyond the plant premises.
(ix)	Proper handling, storage, utilization and disposal of all the solid waste should be ensured and regular report regarding toxic metal content in the waste material and its com position, end use of solid/ hazardous waste should be submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB	**Solid Waste:** No Solid waste generated from the process. The iron ore rejects and dust collected (containing Iron) are re-utilized in the pellet manufacturing. Broken Pellets are recycled through grinding plant. The STP sludge will be used as manure. **Hazardous Waste:** All the oily waste collected shall be properly stored under sheds and subsequently disposed as per the provisions of the Hazardous Waste (Management, Handling & Transboundary Movement) Rules 2016 and amendments thereafter. Lubricating waste oil is collected from the site properly and stored separately in sealed

Sl. No.	Conditions	Compliance
		drums and is handed over to authorized agencies for reprocessing. Hazardous waste return in the prescribed format (Form-4) is being submitted to OSPCB and MoEF, Regional Office, Bhubaneswar, Odisha.
(x)	A Disaster Management plan should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, OSPCB and CPCB within 3 months of issue of environmental clearance letter	Keonjhar district lies in the Seismic Zone II (i.e. low damage risk zone) as per seismic zoning map prepared by BIS. For over the years, there is no occurrence of earthquake in Keonjhar District. So the chance of earthquake in the project site is ruled out. Maximum HFL (i.e. High Flood Level) of Baitarani near Plant site: 481m AMSL Minimum elevation of the site: 492m AMSL. So the project site is in safe height from the High flood level of the river. Since the project area comprises of almost plane area with slight undulation, Possibility of land slide is not anticipated. No Disaster Management Plan is required as of now.
(xi)	All the recommendation made in the Chapter on Corporate Responsibility for Environmental Protection (CREP) for the Steel plants should be implemented.	The Corporate Responsibility is being implemented as per requirement.
(xii)	Green belt shall be developed in at least 33% of plant area as per the CPCB guide lines in consultation with the DFO.	Total project area of our integrated plant is at present 79.77 Acre. So 33% of total area which is 26.32-acre area needs to be covered as green belt area which has already been complied. The major plantation area is all along the boundary of the plant premise.
(xiii)	At least 5% of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.	EMIL is committed to spend 5% of total project cost towards CSR.
(xiv)	The company shall provide housing for construction labour within the	Local workers are coming from their own house from nearby villages.

Sl. No.	Conditions	Compliance
	site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of tern porary structures to be removed after the completion of the project.	However, infrastructure facilities such as temporary housing/shelter room, toilets, fuel for cooking, drinking water, healthcare facility etc. have been provided for the outside workers during the construction as well as operation phase.
General Conditions		
(i)	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the state government.	The conditions mentioned in the Consent to Establish and Consent to Operate issued from Odisha State Pollution Control Board is being followed regularly.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of Ministry of Environment & Forests.	Any expansion or modifications in the plant shall be carried out with prior approval of MoEF&CC.
(iii)	The gaseous emissions from various process units shall conform to the load/ mass based standard notified by this Ministry on 19th May 1993 and standards prescribed from time to time. The state Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	The gaseous emissions from various process units conform to the prescribed standard as is evident from the attached monitoring report.
(iv)	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of PM10, SO_2 and NOx are anticipated in consultation with SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/ CPCB once in six months.	Ambient Air Quality (AAQ) monitoring has been carried out in 4 locations in the core as well as buffer zone in consultation with regional office of OSPCB. Considering the predominant wind direction one AAQ monitoring station has been established within 500 m of the project site (i.e. in Nediguth Village situated nearby). AAQ monitoring data is being submitted to MoEF Regional Office, Bhubaneswar and OSPCB/CPCB in regular interval of time as prescribed. Environmental monitoring report is given in **Annexure-A.**
(v)	Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 € dated 19h May 1993 and 31st December 1993 or as amended from time to time. The	There is no wastewater generation from the process as the water is completely utilized in the process. Total water is consumed in raw material grinding, mixing and green ball formation.

Sl. No.	Conditions	Compliance
	treated waste water shall be utilized for plantation purpose.	The plant is designed with zero discharge concepts with recycle & reuse of the waste water generated during the process.
(vi)	The overall noise levels in and around the plant area shall be kept well within the standards (86 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz., 75 dBA (daytime) and 70 dBA (night time).	Adequate noise prevention measures are being taken at all noise generating sources to limit the noise level well within prescribed standard of MoEF&CC /CPCB. All the plant machineries have been designed as per industrial specification to control the noise level within the limit. The noise monitoring report is given in **Annexure-A.**
(vii)	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Pre-employment medical check-up and regular health check-up in regular interval for all the employees and workers are being carried out & records are being maintained following the Factories Act.
(viii)	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	One reservoir having holding capacity of 212250 m^3 have been constructed. The rain water and surface runoff water of the plant area during rainy season is collected here for lean season use. The reservoir so constructed serves the dual purpose of storage and ground water recharge.
(ix)	The project proponent shall also com ply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	All environmental protection measures recommended in the EIA/EMP report are being strictly adhered to for the socio-economic development of the locality covering community development, education, drinking water supply, health care, communication etc.
(x)	Requisite amount shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted	An amount of 13.5 Crores is allocated as capital cost and 2.7 Crores is allocated as recurring cost towards implementation of the conditions stipulated by the Ministry of Environment and Forests and the State Government. 1. Which includes necessary infrastructures required to control air pollution, water pollution, noise pollution. 2. Implement all the pollution control measures mentioned in Environmental Clearance and OSPCB Consent Order.

Sl. No.	Conditions	Compliance
	to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	3. Monitoring is carried out to ensure the pollution level within the prescribed limit of MoEF&CC and OSPCB/CPCB.
(xi)	A copy of clearance letter shall be sent by the proponent to the concerned Panchayat, Zila Parishad/ Municipal corporation, Urban Local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Advertisement has been given in the local newspapers (both in English and Oriya) regarding grant of environment clearance.
(xii)	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at BBSR. The respective Zonal office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, $S0_2$, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The updated status of compliance of the environmental clearance conditions, including results of monitored data are being uploaded in our company's website. The compliance report is being submitted to the MoEF Office, Bhubaneswar and MoEF, Delhi, Zonal Office of CPCB, Kolkata and SPCB, Odisha in regular interval. The AAQ monitoring is being carried out in 4 locations within the core and buffer zone. A LED type electronic display Board has been installed at the main gate of the plant for displaying monitoring data
(xiii)	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard Copies as well as by email) to the Regional Office of this Ministry at Bhubaneswar/ CPCB/ SPCB shall monitor the stipulated conditions.	The six monthly compliance report to the conditions mentioned in the Environment Clearance order with results of monitoring data is being submitted in due interval of time to MoEF Office at Delhi and Regional Office at Bhubaneswar, CPCB Zonal Office, Kolkata and SPCB, Odisha.
(xiv)	The environment statement for each financial year ending at 31st March in Form-V as it mandated to be submitted by the project proponent	Environment Statement Report (Form-V prescribed under Environment (Protection) Rules, 1986) is being submitted to the State

Sl. No.	Conditions	Compliance
	to the concerned State Pollution Control Board as prescribed under the Environment Protection) Rule, 1986 as amended subsequently shall also be put in the website of the company along with the status of the compliance of the environment conditions and shall also be sent to the respective regional office of MoEF, Bhubaneswar by email.	Pollution Control Board by 30th September every year for the previous financial year. It is also being submitted to the regional office, Bhubaneswar by email.
(xv)	The project proponent shall inform to the public that the project has been accorded environmental clearance by the ministry and the copies of the clearance letter are available with the SPCB and may also be seen in the web site of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue clearance letter, at least in two local newspaper that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and the copy of the same should be forwarded to the Regional Office at Bhubaneswar.	Advertisement was given in the local newspapers (both English and Oriya) regarding grant of Clearance within 7 days from the date of issuance of Environmental Clearance. A copy of the said Environmental Clearance was also sent to the MoEF, Regional Office, Bhubaneswar.
(xvi)	The project authority shall inform to the Regional Officer as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and date of commencing the land development work.	The Consent to Establish from State Pollution Control Board, Bhubaneswar has been obtained on 1st October 2012 and the construction activities commenced following such CTE order. The commercial production started on obtaining the consent to operate order from OSPCB.

Pavan Kumar Kakani
Joint President
Head - Iron Ore, Beneficiation & Pelletization

ORECTIC CONSULTING PVT. LTD.

ENVIRONMENTAL MONITORING REPORT

April 2024

M/S ESSEL MINING & INDUSTRIES LTD.

AT-BASANTPUR,
TEHSIL- JHUMPURA,KEONJHAR, ODISHA

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Chandrasekharpur,
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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF APRIL -2024

Chandrasekharpur,
Bhubaneswar-751024, Odisha
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Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i NearECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/4/2024	19	Near Admin Building	15/4/2024
2	Near Canteen	1/4/2024	20	Nedigutha Village	16/4/2024
3	Near Admin Building	1/4/2024	21	Near ECR-1	19/4/2024
4	Nedigutha Village	2/4/2024	22	Near Canteen	19/4/2024
5	Near ECR-1	5/4/2024	23	Near Admin Building	19/4/2024
6	Near Canteen	5/4/2024	24	Nedigutha Village	20/4/2024
7	Near Admin Building	5/4/2024	25	Near ECR-1	22/4/2024
8	Nedigutha Village	6/4/2024	26	Near Canteen	22/4/2024
9	Near ECR-1	8/4/2024	27	Near Admin Building	22/4/2024
10	Near Canteen	8/4/2024	28	Nedigutha Village	23/4/2024
11	Near Admin Building	8/4/2024	29	Near ECR-1	26/4/2024
12	Nedigutha Village	9/4/2024	30	Near Canteen	26/4/2024
13	Near ECR-1	12/4/2024	31	Near Admin Building	26/4/2024
14	Near Canteen	12/4/2024	32	Nedigutha Village	27/4/2024
15	Near Admin Building	12/4/2024	33	Near ECR-1	29/4/2024
16	Nedigutha Village	13/4/2024	34	Near Canteen	29/4/2024
17	Near ECR-1	15/4/2024	35	Near Admin Building	29/4/2024
18	Near Canteen	15/4/2024	36	Nedigutha Village	30/4/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.04.2024	25.6	22.6	68.9	52.3	ND	ND	158.2	15.3	ND	ND	ND	ND
05.04.2024	33.2	22.5	68	55.3	ND	ND	155.2	14.9	ND	ND	ND	ND
08.04.2024	25.2	21.8	65.2	58.2	ND	ND	158.7	15.7	ND	ND	ND	ND
12.04.2024	26.7	23.2	67.3	48.9	ND	ND	155.6	15.1	ND	ND	ND	ND
15.04.2024	26.8	22.3	65	51.3	ND	ND	159.1	15.5	ND	ND	ND	ND
19.04.2024	29.3	21.3	63.8	52.6	ND	ND	164.2	14.6	ND	ND	ND	ND
22.04.2024	32.6	25.6	67.3	55.4	ND	ND	158.3	16.3	ND	ND	ND	ND
26.04.2024	29.5	22.1	65.3	58.2	ND	ND	155.5	14.8	ND	ND	ND	ND
29.04.2024	23.1	21.8	62.3	49.2	ND	ND	156.4	15.3	ND	ND	ND	ND
Avg. Con.	28	22.58	65.9	53.49	ND	ND	157.91	15.28	ND	ND	ND	ND
Location: Near Canteen												
01.04.2024	28.6	21.3	67.3	48.9	ND	ND	155.6	15.1	ND	ND	ND	ND
05.04.2024	25.6	22.6	65	51.3	ND	ND	159.1	15.5	ND	ND	ND	ND
08.04.2024	29.3	22.8	63.8	52.6	ND	ND	164.2	14.6	ND	ND	ND	ND
12.04.2024	31.2	23.5	67.3	55.4	ND	ND	158.3	16.3	ND	ND	ND	ND
15.04.2024	25.8	21.9	68.9	58.2	ND	ND	158.2	14.8	ND	ND	ND	ND
19.04.2024	33.2	22.6	68	52.3	ND	ND	155.2	15.3	ND	ND	ND	ND
22.04.2024	30.5	22.4	65.2	55.3	ND	ND	158.7	14.9	ND	ND	ND	ND
26.04.2024	29.6	23.5	67.3	58.2	ND	ND	155.6	15.7	ND	ND	ND	ND
29.04.2024	29.1	23.6	65	48.9	ND	ND	156.3	15.1	ND	ND	ND	ND
Avg. Con.	29.21	22.69	66.42	53.46	ND	ND	157.91	15.26	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.04.2024	29.3	22.8	63.8	51.3	ND	ND	158.3	14.6	ND	ND	ND	ND
05.04.2024	31.2	23.5	67.3	52.6	ND	ND	158.2	16.3	ND	ND	ND	ND
08.04.2024	25.8	21.9	68.9	55.4	ND	ND	155.2	14.8	ND	ND	ND	ND
12.04.2024	33.2	22.6	68	58.2	ND	ND	158.7	15.3	ND	ND	ND	ND
15.04.2024	30.5	22.4	65.2	52.3	ND	ND	155.6	14.9	ND	ND	ND	ND
19.04.2024	29.6	21.3	65	48.9	ND	ND	155.6	15.3	ND	ND	ND	ND
22.04.2024	28.6	22.6	63.8	51.3	ND	ND	159.1	14.9	ND	ND	ND	ND
26.04.2024	25.6	22.8	67.3	52.6	ND	ND	164.2	15.7	ND	ND	ND	ND
29.04.2024	29.3	23.5	65.3	55.4	ND	ND	158.3	14.5	ND	ND	ND	ND
Avg. Con.	29.2	22.6	66.1	53.1	ND	ND	158.1	15.1	ND	ND	ND	ND
Location: Nadiguth Village												
02.04.2024	22.6	21.9	68.9	55.4	ND	ND	158.7	16.3	ND	ND	ND	ND
06.04.2024	23.5	22.6	68	58.2	ND	ND	155.6	14.8	ND	ND	ND	ND
09.04.2024	23.4	22.4	65.2	52.3	ND	ND	155.6	14.6	ND	ND	ND	ND
13.04.2024	22.2	21.3	65	48.9	ND	ND	159.1	16.3	ND	ND	ND	ND
16.04.2024	24.5	22.6	63.8	51.3	ND	ND	158.3	15.8	ND	ND	ND	ND
20.04.2024	23.9	22.8	65.2	52.6	ND	ND	158.2	15.3	ND	ND	ND	ND
23.04.2024	22.6	23.5	65	58.2	ND	ND	155.2	14.9	ND	ND	ND	ND
27.04.2024	23.5	21.9	63.8	52.1	ND	ND	158.7	15.1	ND	ND	ND	ND
30.04.2024	24.1	22.6	67.3	48.7	ND	ND	155.3	14.6	ND	ND	ND	ND
Avg. Con.	23.4	22.4	65.8	53.1	ND	ND	157.2	15.3	ND	ND	ND	ND

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF APRIL -2024

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Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/4/2024	19	Near Pellet Plant Area	15/4/2024
2	Near Back Gate Area	1/4/2024	20	Near IOBP Area	15/4/2024
3	Near Pellet Plant Area	1/4/2024	21	Near Main Gate Area	19/4/2024
4	Near IOBP Area	1/4/2024	22	Near Back Gate Area	19/4/2024
5	Near Main Gate Area	5/4/2024	23	Near Pellet Plant Area	19/4/2024
6	Near Back Gate Area	5/4/2024	24	Near IOBP Area	19/4/2024
7	Near Pellet Plant Area	5/4/2024	25	Near Main Gate Area	22/4/2024
8	Near IOBP Area	5/4/2024	26	Near Back Gate Area	22/4/2024
9	Near Main Gate Area	8/4/2024	27	Near Pellet Plant Area	22/4/2024
10	Near Back Gate Area	8/4/2024	28	Near IOBP Area	22/4/2024
11	Near Pellet Plant Area	8/4/2024	29	Near Main Gate Area	26/4/2024
12	Near IOBP Area	8/4/2024	30	Near Back Gate Area	26/4/2024
13	Near Main Gate Area	12/4/2024	31	Near Pellet Plant Area	26/4/2024
14	Near Back Gate Area	12/4/2024	32	Near IOBP Area	26/4/2024
15	Near Pellet Plant Area	12/4/2024	33	Near Main Gate Area	29/4/2024
16	Near IOBP Area	12/4/2024	34	Near Back Gate Area	29/4/2024
17	Near Main Gate Area	15/4/2024	35	Near Pellet Plant Area	29/4/2024
18	Near Back Gate Area	15/4/2024	36	Near IOBP Area	29/4/2024

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	01.04.2024					05.04.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	51.3	58.2	52.1	50.3	35.6	49.3	59.2	55.3	48.2	33.2
Near Back Gate Area	48.6	60.2	51.3	45.6	33.2	47.2	61.2	54.2	45.2	31.2
Near Pellet Plant Area	52.6	55.8	50.3	48.5	35.7	51.6	55.3	51.2	44.3	29.5
Near IOBP Area	50.2	56.3	53.2	44.6	33.5	55.2	57.2	50.9	44.2	33.5
	08.04.2024					**12.04.2024**				
Near Main Gate Area	55.3	62.5	53.2	48.9	33.2	53.2	58.1	55.2	48.5	35.6
Near Back Gate Area	51.2	60.2	50.4	44.6	31.6	55.6	55.9	48.5	44.6	33.2
Near Pellet Plant Area	49.5	60.4	49.6	49.2	38.2	54.3	54.9	51.3	49.5	30.5
Near IOBP Area	55.3	55.9	53.5	45.2	35.2	55.8	55.2	49.7	48.2	29.5
	15.04.2024					**19.04.2024**				
Near Main Gate Area	59.3	61.5	55.3	45.9	28.9	55.8	61.5	55.8	42.5	29.6
Near Back Gate Area	55.2	62.3	52.9	44.6	32.5	55.2	60.2	52.6	44.9	32.5
Near Pellet Plant Area	54.9	60.3	50.8	48.5	33.6	55.6	55.3	48.9	45.9	35.6
Near IOBP Area	58.2	55.9	45.8	45.2	33.2	50.3	59.2	45.8	44.8	33.2
	22.04.2024					**26.04.2024**				
Near Main Gate Area	51.2	62.5	48.5	45.6	32.5	55.2	62.5	59.6	48.6	29.5
Near Back Gate Area	49.5	60.2	51.3	48.5	33.2	53.6	66.5	54.7	45.3	33.5
Near Pellet Plant Area	52.9	62.3	55.2	44.6	31.6	52.3	65.3	55.2	44.2	31.2
Near IOBP Area	50.8	60.3	54.9	48.5	32.8	54.8	60.3	51.9	45.9	30.9
	29.04.2024									
Near Main Gate Area	55.2	62.5	55.3	48.6	32.5					
Near Back Gate Area	53.2	59.8	52.9	44.5	33.5					
Near Pellet Plant Area	51.9	64.5	54.9	41.9	33.1					
Near IOBP Area	50.8	62.8	55.8	48.5	30.2					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF APRIL -2024

Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.04.2024
2	Baitarani River (Near Plant Area)	08.04.2024
3	Reservoir Pond (Inside Plant)	08.04.2024
4	Dalki Nala Near Plant	08.04.2024
5	Nadiguth Village	08.04.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35.8	36.5	34.5	38.2	36.8
4.	pH	7.1	7.2	7.2	7.1	7.2
5.	Total Suspended Solids (mg/L)	15.6	19.5	25.8	14.9	18.6
6.	Total Dissolved Solid (mg/L)	582	671	612	554	649
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.2	4.2	6.8	3.8	3.1
8.	Chemical Oxygen Demand(mg/L)	1.08	1.16	4.2	1.5	1.4
9.	Total Residual Chlorine(mg/L)	0.46	0.38	2.4	0.52	0.8
10.	Alkalinity(mg/L)	68.2	44.2	62.6	38.5	41.8
11.	Calcium(mg/L)	44.2	32.6	46.5	29.4	31.6
12.	Magnesium(mg/L)	35.2	29.8	42.6	38.4	36.6
13.	Total Hardness as CaCO3(mg/L)	38	36.2	82.4	30.4	32.1
14.	Electrical Conductivity (µs/cm)	92.4	60.2	124.6	86.8	106.2
15.	Turbidity (NTU)	14.8	18.4	47.6	28	21.4
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	0.14	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	<0.02	ND	ND
20.	Zinc as Zn (µg/L)	0.02	0.14	<0.05	0.26	0.04
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	9.2	11.4	34.4	7.5	8.2
23.	Nitrate (mg/L)	1.04	3.12	5.62	2.44	2.64
24.	Sodium as Na (mg/L)	1.32	2.14	14.6	2.08	1.42
25.	Potassium as K (mg/L)	1.4	0.68	4.65	2.04	1.35
26.	Sulfate (mg/L)	1.12	<0.01	4.08	3.9	0.04
27.	Nitrate as NO3 (mg/L)	2.1	2.4	4.8	2.86	1.84
28.	Total Silica as SiO2 (mg/L)	4.2	2.5	9.6	1.8	1.06

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF APRIL -2024

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Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- April -2024	OCPL/GW/01/04/24
2.	Sample02	NEDIGUTH	10- April -2024	OCPL/GW/02/04/24
3.	Sample03	TALASAHI	10- April -2024	OCPL/GW/03/04/24
4.	Sample04	PLANT-1(Near Canteen)	10- April -2024	OCPL/GW/04/04/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- April -2024	OCPL/GW/05/04/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.0	1.0	1.2	1.2	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.1	28.8	28.2	27.7	28.2		
4	pH	-	6.7	7.0	7.1	6.8	7.2	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.1	58	55.3	58	58.6	300	600

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6	Calcium	mg/L	8.8	8.1	11.3	12.0	8.8	75	200
7	Magnesium	mg/L	1.3	3	3.8	3	1.5	30	No relaxation
8	Chloride	mg/L	15	15.3	15.8	14.2	18.3	250	1000
9	Alkalinity	mg/L	18.3	16.1	18.3	10.4	19.1	200	600
10	Electrical Conductivity	µs/cm	75.2	63.3	65	69.1	78.3	--	--
11	Arsenic as As	µg/L	0.03	ND	0.03	ND	0.05	10	No relaxation
12	Lead as Pb	µg/L	ND	0.37	0.31	0.24	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.2	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92.3	93.2	77.2	77.3	98.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15.5	15.7	25.6	35.6	35.3	300	1000
18	Nitrate	mg/L	1.5	1.4	1.0	1.0	1.1	45	100

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19	Sodium as Na	mg/L	2.5	3	3.8	4.2	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.1	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.4	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.6	ND	0.7	--	--
23	Total suspended Solid	mg/L	0.11	1.1	1.13	0.25	1.3	--	--
24	Total dissolved Solid	mg/L	85.3	75.7	72.1	95.2	88.7	250	2000
25	Turbidity	NTU	0.4	0.4	0.5	0.7	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF APRIL -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- April -2024	OCPL/GWL/01/04/24
2	Sample02	NEDIGUTH	12- April -2024	OCPL/GWL/02/04/24
3	Sample03	TALASAHI	12- April -2024	OCPL/GWL/03/04/24
4	Sample04	PLANT-1(Near Canteen)	12- April -2024	OCPL/GWL/04/04/24
5	Sample05	PLANT-2(SLIMEPOND)	12- April -2024	OCPL/GWL/05/04/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.83	8.12	9.3	--
2	NEDIGUTH	Dug well	1.22	9.44	10.3	--
3	TALASAHI	Dug well	1.0	8.6	10.1	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	65	15.5	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	61	42.2	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF APRIL – 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.04.2024
2	DG Stack-2	08.04.2024
3	Stack-1(Pellet Plant Process Stack)	09.04.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.04.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission								
	Parameters	**DG Stack-1**	**DG Stack-2**		**Parameters**	**Pellet Plant Process Stack**	**Pellet Plant Dedusting Stack**	**Limit**
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	75	82.8	--	Temperature of Emission(oC)	95.3	94.3	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	284	325	--	Emission (M3/Hr.)	7165	6560	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	12.5	35	--	Velocity (NM3/Hr)	35678	36482	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	655	1625	--	PM Concentration Mg/nm3 PM10	135	142	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	130	129	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.2	8.3	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.3	26.2	--	Carbon monoxide (CO) Mg/nm3	<0.2	<0.2	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.5	12.3	--	Carbon dioxide (CO2) %v/v	8.2	7.8	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	125	166	600	Concentration of Sulphur Dioxide(mg/Nm3)	188	176	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.2	75.2	300	Concentration of Nitrogen Dioxide (mg/Nm3	85	79	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	34.5	35.3	50	--	--	--	--

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ENVIRONMENTAL MONITORING REPORT

May 2024

M/S ESSEL MINING & INDUSTRIES LTD.

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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF MAY -2024

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Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i NearECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/5/2024	19	Near Admin Building	15/5/2024
2	Near Canteen	1/5/2024	20	Nedigutha Village	16/5/2024
3	Near Admin Building	1/5/2024	21	Near ECR-1	19/5/2024
4	Nedigutha Village	2/5/2024	22	Near Canteen	19/5/2024
5	Near ECR-1	5/5/2024	23	Near Admin Building	19/5/2024
6	Near Canteen	5/5/2024	24	Nedigutha Village	20/5/2024
7	Near Admin Building	5/5/2024	25	Near ECR-1	22/5/2024
8	Nedigutha Village	6/5/2024	26	Near Canteen	22/5/2024
9	Near ECR-1	8/5/2024	27	Near Admin Building	22/5/2024
10	Near Canteen	8/5/2024	28	Nedigutha Village	23/5/2024
11	Near Admin Building	8/5/2024	29	Near ECR-1	26/5/2024
12	Nedigutha Village	9/5/2024	30	Near Canteen	26/5/2024
13	Near ECR-1	12/5/2024	31	Near Admin Building	26/5/2024
14	Near Canteen	12/5/2024	32	Nedigutha Village	27/5/2024
15	Near Admin Building	12/5/2024	33	Near ECR-1	29/5/2024
16	Nedigutha Village	13/5/2024	34	Near Canteen	29/5/2024
17	Near ECR-1	15/5/2024	35	Near Admin Building	29/5/2024
18	Near Canteen	15/5/2024	36	Nedigutha Village	30/5/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.05.2024	25.2	23.2	63.2	52.3	ND	ND	158.7	14.6	ND	ND	ND	ND
05.05.2024	29.3	22.3	67.3	55.3	ND	ND	155.6	16.3	ND	ND	ND	ND
08.05.2024	25.2	21.2	65.3	58.2	ND	ND	159.1	14.2	ND	ND	ND	ND
12.05.2024	29.3	23.2	67.3	48.9	ND	ND	155.6	14.6	ND	ND	ND	ND
15.05.2024	32.6	22.3	65	51.3	ND	ND	159.1	15.5	ND	ND	ND	ND
19.05.2024	29.5	21.3	63.2	52.6	ND	ND	164.2	14.6	ND	ND	ND	ND
22.05.2024	25.2	23.2	67.3	55.2	ND	ND	158.3	16.3	ND	ND	ND	ND
26.05.2024	29.3	22.3	65.3	58.2	ND	ND	155.5	14.2	ND	ND	ND	ND
29.05.2024	23.1	21.2	62.3	49.2	ND	ND	156.2	15.3	ND	ND	ND	ND
Location: Near Canteen												
01.05.2024	28.6	21.3	65.2	52.6	ND	ND	155.6	16.3	ND	ND	ND	ND
05.05.2024	25.6	22.6	67.3	55.2	ND	ND	158.2	14.2	ND	ND	ND	ND
08.05.2024	29.3	22.2	65	58.2	ND	ND	155.2	15.3	ND	ND	ND	ND
12.05.2024	31.2	23.5	67.2	52.3	ND	ND	158.7	16.3	ND	ND	ND	ND
15.05.2024	25.2	21.9	67.3	58.2	ND	ND	158.2	14.2	ND	ND	ND	ND
19.05.2024	33.2	22.6	68	52.3	ND	ND	155.2	15.3	ND	ND	ND	ND
22.05.2024	30.5	22.2	65.2	55.3	ND	ND	158.7	14.9	ND	ND	ND	ND
26.05.2024	29.6	23.5	67.3	58.2	ND	ND	155.6	15.7	ND	ND	ND	ND
29.05.2024	29.1	23.6	65	48.9	ND	ND	156.3	15.1	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.05.2024	30.5	22.2	65.2	52.3	ND	ND	155.6	14.9	ND	ND	ND	ND
05.05.2024	29.6	23.5	65	48.9	ND	ND	155.6	15.3	ND	ND	ND	ND
08.05.2024	28.6	21.9	63.2	55.2	ND	ND	159.1	14.2	ND	ND	ND	ND
12.05.2024	33.2	22.6	68	58.2	ND	ND	158.7	15.3	ND	ND	ND	ND
15.05.2024	30.5	22.2	65.2	52.3	ND	ND	155.6	14.9	ND	ND	ND	ND
19.05.2024	29.6	21.3	65	48.9	ND	ND	155.6	15.3	ND	ND	ND	ND
22.05.2024	28.6	22.2	63.2	51.3	ND	ND	159.1	14.9	ND	ND	ND	ND
26.05.2024	25.6	23.5	67.3	52.3	ND	ND	164.2	15.7	ND	ND	ND	ND
29.05.2024	29.3	21.9	65.3	48.9	ND	ND	158.3	14.5	ND	ND	ND	ND
Location: Nadiguth Village												
02.05.2024	24.5	22.2	63.2	55.2	ND	ND	155.6	16.3	ND	ND	ND	ND
06.05.2024	23.9	22.2	65.2	58.2	ND	ND	159.1	14.2	ND	ND	ND	ND
09.05.2024	22.6	21.3	66	52.3	ND	ND	158.3	14.6	ND	ND	ND	ND
13.05.2024	23.5	22.6	65	48.9	ND	ND	158.2	16.3	ND	ND	ND	ND
16.05.2024	24.5	22.9	63.2	51.3	ND	ND	155.6	15.2	ND	ND	ND	ND
20.05.2024	23.9	21.3	65.2	52.6	ND	ND	159.1	15.3	ND	ND	ND	ND
23.05.2024	22.6	22.6	66	58.2	ND	ND	155.2	14.9	ND	ND	ND	ND
27.05.2024	24.5	22.2	62.2	52.1	ND	ND	158.7	15.1	ND	ND	ND	ND
30.05.2024	23.9	22.2	67.3	48.7	ND	ND	155.3	14.6	ND	ND	ND	ND

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF MAY -2024

Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/5/2024	19	Near Pellet Plant Area	15/5/2024
2	Near Back Gate Area	1/5/2024	20	Near IOBP Area	15/5/2024
3	Near Pellet Plant Area	1/5/2024	21	Near Main Gate Area	19/5/2024
4	Near IOBP Area	1/5/2024	22	Near Back Gate Area	19/5/2024
5	Near Main Gate Area	5/5/2024	23	Near Pellet Plant Area	19/5/2024
6	Near Back Gate Area	5/5/2024	24	Near IOBP Area	19/5/2024
7	Near Pellet Plant Area	5/5/2024	25	Near Main Gate Area	22/5/2024
8	Near IOBP Area	5/5/2024	26	Near Back Gate Area	22/5/2024
9	Near Main Gate Area	8/5/2024	27	Near Pellet Plant Area	22/5/2024
10	Near Back Gate Area	8/5/2024	28	Near IOBP Area	22/5/2024
11	Near Pellet Plant Area	8/5/2024	29	Near Main Gate Area	26/5/2024
12	Near IOBP Area	8/5/2024	30	Near Back Gate Area	26/5/2024
13	Near Main Gate Area	12/5/2024	31	Near Pellet Plant Area	26/5/2024
14	Near Back Gate Area	12/5/2024	32	Near IOBP Area	26/5/2024
15	Near Pellet Plant Area	12/5/2024	33	Near Main Gate Area	29/5/2024
16	Near IOBP Area	12/5/2024	34	Near Back Gate Area	29/5/2024
17	Near Main Gate Area	15/5/2024	35	Near Pellet Plant Area	29/5/2024
18	Near Back Gate Area	15/5/2024	36	Near IOBP Area	29/5/2024

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	01.05.2024					05.05.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	50.3	55.2	52.2	52.3	35.7	49.3	59.2	55.3	48.2	33.2
Near Back Gate Area	48.2	60.2	51.3	45.6	33.2	47.2	61.2	54.2	45.2	31.2
Near Pellet Plant Area	52.6	59.2	50.3	48.2	36.7	51.6	55.3	51.2	44.3	29.5
Near IOBP Area	50.3	56.3	53.2	44.6	33.5	55.2	57.2	50.9	44.2	33.5
	08.05.2024					**12.05.2024**				
Near Main Gate Area	55.3	62.5	53.2	48.9	33.2	53.2	58.1	55.2	48.5	35.6
Near Back Gate Area	51.2	60.2	50.2	44.6	31.6	55.6	55.9	48.5	44.6	33.2
Near Pellet Plant Area	49.5	60.2	49.6	49.2	38.2	54.3	54.9	51.3	49.5	30.5
Near IOBP Area	55.3	55.9	53.5	45.2	35.2	55.2	55.2	49.7	48.2	29.5
	15.05.2024					**19.05.2024**				
Near Main Gate Area	59.3	61.5	55.3	45.9	28.9	55.2	61.5	55.2	42.5	29.6
Near Back Gate Area	55.2	62.3	52.9	44.6	32.5	55.2	60.2	52.6	44.9	32.5
Near Pellet Plant Area	54.9	60.3	50.2	48.5	33.6	55.6	55.3	48.9	45.9	35.6
Near IOBP Area	58.2	55.9	45.2	45.2	33.2	50.3	59.2	45.2	44.2	33.2
	22.05.2024					**26.05.2024**				
Near Main Gate Area	51.2	62.5	48.5	45.6	32.5	55.2	62.5	59.6	48.6	29.5
Near Back Gate Area	49.5	60.2	51.3	48.5	33.2	53.6	66.5	54.7	45.3	33.5
Near Pellet Plant Area	52.9	62.3	55.2	44.6	31.6	52.3	65.3	55.2	44.2	31.2
Near IOBP Area	50.2	60.3	54.9	48.5	32.2	54.2	60.3	51.9	45.9	30.9
	29.05.2024									
Near Main Gate Area	55.2	62.5	55.3	48.6	32.5					
Near Back Gate Area	53.2	59.2	52.9	44.5	33.5					
Near Pellet Plant Area	51.9	64.5	54.9	41.9	33.1					
Near IOBP Area	50.2	62.2	55.2	48.5	30.2					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF MAY -2024

Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.05.2024
2	Baitarani River (Near Plant Area)	08.05.2024
3	Reservoir Pond (Inside Plant)	08.05.2024
4	Dalki Nala Near Plant	08.05.2024
5	Nadiguth Village	08.05.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35.2	35.5	34.5	37.2	36.2
4.	pH	7	7.2	7	7.1	7.2
5.	Total Suspended Solids (mg/L)	15.6	19.5	25.2	14.9	18.6
6.	Total Dissolved Solid (mg/L)	580	650	610	654	549
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.1	4.8	6.2	3.2	3
8.	Chemical Oxygen Demand(mg/L)	1.08	1.16	4.2	1.5	1.2
9.	Total Residual Chlorine(mg/L)	0.26	0.38	2.2	0.52	0.2
10.	Alkalinity(mg/L)	68.2	44.2	62.6	38.5	41.2
11.	Calcium(mg/L)	44.2	32.6	46.5	29.2	31.6
12.	Magnesium(mg/L)	35.2	29.2	42.6	38.2	36.6
13.	Total Hardness as CaCO3(mg/L)	38	36.2	82.2	30.2	32.1
14.	Electrical Conductivity (µs/cm)	92.2	60.2	124.6	86.2	106.2
15.	Turbidity (NTU)	14.2	18.2	47.6	28	21.2
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	0.14	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	<0.02	ND	ND
20.	Zinc as Zn (µg/L)	0.02	0.14	<0.05	0.26	0.04
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	9.2	11.2	34.2	7.5	8.2
23.	Nitrate (mg/L)	1.04	3.12	5.62	2.24	2.64
24.	Sodium as Na (mg/L)	1.32	2.14	14.6	2.08	1.22
25.	Potassium as K (mg/L)	1.2	0.68	4.65	2.04	1.35
26.	Sulfate (mg/L)	1.12	<0.01	4.08	3.9	0.04
27.	Nitrate as NO3 (mg/L)	2.1	2.2	4.2	2.26	1.24
28.	Total Silica as SiO2 (mg/L)	4.2	2.5	9.6	1.2	1.06

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF MAY -2024

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Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- May -2024	OCPL/GW/01/05/24
2.	Sample02	NEDIGUTH	10- May -2024	OCPL/GW/02/05/24
3.	Sample03	TALASAHI	10- May -2024	OCPL/GW/03/05/24
4.	Sample04	PLANT-1(Near Canteen)	10- May -2024	OCPL/GW/04/05/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- May -2024	OCPL/GW/05/05/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.0	1.0	1.2	1.2	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.1	28.2	28.2	27.7	28.2		
4	pH	-	6.7	7.0	7.1	6.2	7.2	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.1	58	55.3	58	58.6	300	600

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6	Calcium	mg/L	8.2	8.1	11.3	12.0	8.2	75	200
7	Magnesium	mg/L	1.3	3	3.2	3	1.5	30	No relaxation
8	Chloride	mg/L	15	15.3	15.2	14.2	18.3	250	1000
9	Alkalinity	mg/L	18.3	16.1	18.3	10.2	19.1	200	600
10	Electrical Conductivity	µs/cm	75.2	63.3	65	69.1	78.3	--	--
11	Arsenic as As	µg/L	0.03	ND	0.03	ND	0.05	10	No relaxation
12	Lead as Pb	µg/L	ND	0.37	0.31	0.24	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.2	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92.3	93.2	77.2	77.3	98.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15.5	15.7	25.6	35.6	35.3	300	1000
18	Nitrate	mg/L	1.5	1.2	1.0	1.0	1.1	45	100

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19	Sodium as Na	mg/L	2.5	3	3.2	4.2	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.1	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.2	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.6	ND	0.7	--	--
23	Total suspended Solid	mg/L	0.11	1.1	1.13	0.25	1.3	--	--
24	Total dissolved Solid	mg/L	85.3	75.7	72.1	95.2	88.7	250	2000
25	Turbidity	NTU	0.2	0.2	0.5	0.7	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF MAY -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- May -2024	OCPL/GWL/01/05/24
2	Sample02	NEDIGUTH	12- May -2024	OCPL/GWL/02/05/24
3	Sample03	TALASAHI	12- May -2024	OCPL/GWL/03/05/24
4	Sample04	PLANT-1(Near Canteen)	12- May -2024	OCPL/GWL/04/05/24
5	Sample05	PLANT-2(SLIMEPOND)	12- May -2024	OCPL/GWL/05/05/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.2	8.12	9.3	--
2	NEDIGUTH	Dug well	1.22	9.24	10.1	--
3	TALASAHI	Dug well	1.0	8.7	10.1	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	65	12.1	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	60	41.2	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF MAY – 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.05.2024
2	DG Stack-2	08.05.2024
3	Stack-1(Pellet Plant Process Stack)	09.05.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.05.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission								
	Parameters	**DG Stack-1**	**DG Stack-2**		**Parameters**	**Pellet Plant Process Stack**	**Pellet Plant Dedusting Stack**	**Limit**
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	74.8	84.3	--	Temperature of Emission(oC)	95.3	94.3	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	280	332	--	Emission (M3/Hr.)	7256	6563	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	11.5	34	--	Velocity (NM3/Hr)	35677	36480	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	654	1645	--	PM Concentration Mg/nm3 PM10	132	140	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	135	122	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.1	8.3	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.3	25.4	--	Carbon monoxide (CO) Mg/nm3	<0.2	<0.2	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.5	12	--	Carbon dioxide (CO2) %v/v	8.1	7.2	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	128	165	600	Concentration of Sulphur Dioxide(mg/Nm3)	183	186	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.4	75	300	Concentration of Nitrogen Dioxide (mg/Nm3	84	82	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	34	35.2	50	--	--	--	--

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ENVIRONMENTAL MONITORING REPORT

June 2024

M/S ESSEL MINING & INDUSTRIES LTD.

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TEHSIL- JHUMPURA,KEONJHAR, ODISHA

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Engineering Management Consulting Firm
CIN: U74140OR2015PTC019233, GSTIN: 21AACCO1891Q1Z4

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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF JUNE -2024

Chandrasekharpur,
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Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i NearECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/6/2024	19	Near Admin Building	15/6/2024
2	Near Canteen	1/6/2024	20	Nedigutha Village	16/6/2024
3	Near Admin Building	1/6/2024	21	Near ECR-1	19/6/2024
4	Nedigutha Village	2/6/2024	22	Near Canteen	19/6/2024
5	Near ECR-1	5/6/2024	23	Near Admin Building	19/6/2024
6	Near Canteen	5/6/2024	24	Nedigutha Village	20/6/2024
7	Near Admin Building	5/6/2024	25	Near ECR-1	22/6/2024
8	Nedigutha Village	6/6/2024	26	Near Canteen	22/6/2024
9	Near ECR-1	8/6/2024	27	Near Admin Building	22/6/2024
10	Near Canteen	8/6/2024	28	Nedigutha Village	23/6/2024
11	Near Admin Building	8/6/2024	29	Near ECR-1	26/6/2024
12	Nedigutha Village	9/6/2024	30	Near Canteen	26/6/2024
13	Near ECR-1	12/6/2024	31	Near Admin Building	26/6/2024
14	Near Canteen	12/6/2024	32	Nedigutha Village	27/6/2024
15	Near Admin Building	12/6/2024	33	Near ECR-1	29/6/2024
16	Nedigutha Village	13/6/2024	34	Near Canteen	29/6/2024
17	Near ECR-1	15/6/2024	35	Near Admin Building	29/6/2024
18	Near Canteen	15/6/2024	36	Nedigutha Village	30/6/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.06.2024	25.7	23.7	63.7	52.6	ND	ND	158.7	14.6	ND	ND	ND	ND
05.06.2024	29.6	22.6	67.6	55.6	ND	ND	155.6	16.6	ND	ND	ND	ND
08.06.2024	25.7	21.7	65.6	58.7	ND	ND	159.1	14.7	ND	ND	ND	ND
12.06.2024	29.6	23.7	67.6	48.9	ND	ND	155.6	14.6	ND	ND	ND	ND
15.06.2024	32.6	22.6	65	51.6	ND	ND	159.1	15.5	ND	ND	ND	ND
19.06.2024	29.5	21.6	63.7	52.6	ND	ND	164.7	14.6	ND	ND	ND	ND
22.06.2024	25.7	23.7	67.6	55.7	ND	ND	158.6	16.6	ND	ND	ND	ND
26.06.2024	29.6	22.6	65.6	58.7	ND	ND	155.5	14.7	ND	ND	ND	ND
29.06.2024	23.1	21.7	62.6	49.7	ND	ND	156.7	15.6	ND	ND	ND	ND
Location: Near Canteen												
01.06.2024	28.6	21.6	65.7	52.6	ND	ND	155.6	16.6	ND	ND	ND	ND
05.06.2024	25.6	22.6	67.6	55.7	ND	ND	158.7	14.7	ND	ND	ND	ND
08.06.2024	29.6	22.7	65	58.7	ND	ND	155.7	15.6	ND	ND	ND	ND
12.06.2024	31.7	23.5	67.7	52.6	ND	ND	158.7	16.6	ND	ND	ND	ND
15.06.2024	25.7	21.9	67.6	58.7	ND	ND	158.7	14.7	ND	ND	ND	ND
19.06.2024	33.7	22.6	68	52.6	ND	ND	155.7	15.6	ND	ND	ND	ND
22.06.2024	30.5	22.7	65.7	55.6	ND	ND	158.7	14.9	ND	ND	ND	ND
26.06.2024	29.6	23.5	67.6	58.7	ND	ND	155.6	15.7	ND	ND	ND	ND
29.06.2024	29.1	23.6	65	48.9	ND	ND	156.6	15.1	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.06.2024	30.5	22.7	65.7	52.6	ND	ND	155.6	14.9	ND	ND	ND	ND
05.06.2024	29.6	23.5	65	48.9	ND	ND	155.6	15.6	ND	ND	ND	ND
08.06.2024	28.6	21.9	63.7	55.7	ND	ND	159.1	14.7	ND	ND	ND	ND
12.06.2024	33.7	22.6	68	58.7	ND	ND	158.7	15.6	ND	ND	ND	ND
15.06.2024	30.5	22.7	65.7	52.6	ND	ND	155.6	14.9	ND	ND	ND	ND
19.06.2024	29.6	21.6	65	48.9	ND	ND	155.6	15.6	ND	ND	ND	ND
22.06.2024	28.6	22.7	63.7	51.6	ND	ND	159.1	14.9	ND	ND	ND	ND
26.06.2024	25.6	23.5	67.6	52.6	ND	ND	164.7	15.7	ND	ND	ND	ND
29.06.2024	29.6	21.9	65.6	48.9	ND	ND	158.6	14.5	ND	ND	ND	ND
Location: Nadiguth Village												
02.06.2024	24.5	22.7	63.7	55.7	ND	ND	155.6	16.6	ND	ND	ND	ND
06.06.2024	23.9	22.7	65.7	58.7	ND	ND	159.1	14.7	ND	ND	ND	ND
09.06.2024	22.6	21.6	66	52.6	ND	ND	158.6	14.6	ND	ND	ND	ND
13.06.2024	23.5	22.6	65	48.9	ND	ND	158.7	16.6	ND	ND	ND	ND
16.06.2024	24.5	22.9	63.7	51.6	ND	ND	155.6	15.7	ND	ND	ND	ND
20.06.2024	23.9	21.6	65.7	52.6	ND	ND	159.1	15.6	ND	ND	ND	ND
23.06.2024	22.6	22.6	66	58.7	ND	ND	155.7	14.9	ND	ND	ND	ND
27.06.2024	24.5	22.7	62.7	52.1	ND	ND	158.7	15.1	ND	ND	ND	ND
30.06.2024	23.9	22.7	67.6	48.7	ND	ND	155.6	14.6	ND	ND	ND	ND

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF JUNE -2024

Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/6/2024	19	Near Pellet Plant Area	15/6/2024
2	Near Back Gate Area	1/6/2024	20	Near IOBP Area	15/6/2024
3	Near Pellet Plant Area	1/6/2024	21	Near Main Gate Area	19/6/2024
4	Near IOBP Area	1/6/2024	22	Near Back Gate Area	19/6/2024
5	Near Main Gate Area	5/6/2024	23	Near Pellet Plant Area	19/6/2024
6	Near Back Gate Area	5/6/2024	24	Near IOBP Area	19/6/2024
7	Near Pellet Plant Area	5/6/2024	25	Near Main Gate Area	22/6/2024
8	Near IOBP Area	5/6/2024	26	Near Back Gate Area	22/6/2024
9	Near Main Gate Area	8/6/2024	27	Near Pellet Plant Area	22/6/2024
10	Near Back Gate Area	8/6/2024	28	Near IOBP Area	22/6/2024
11	Near Pellet Plant Area	8/6/2024	29	Near Main Gate Area	26/6/2024
12	Near IOBP Area	8/6/2024	30	Near Back Gate Area	26/6/2024
13	Near Main Gate Area	12/6/2024	31	Near Pellet Plant Area	26/6/2024
14	Near Back Gate Area	12/6/2024	32	Near IOBP Area	26/6/2024
15	Near Pellet Plant Area	12/6/2024	33	Near Main Gate Area	29/6/2024
16	Near IOBP Area	12/6/2024	34	Near Back Gate Area	29/6/2024
17	Near Main Gate Area	15/6/2024	35	Near Pellet Plant Area	29/6/2024
18	Near Back Gate Area	15/6/2024	36	Near IOBP Area	29/6/2024

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	01.06.2024					05.06.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	50.6	55.7	52.7	52.6	35.7	49.6	59.7	55.6	48.7	33.7
Near Back Gate Area	48.7	60.7	51.6	45.6	33.7	47.7	61.7	54.7	45.7	31.7
Near Pellet Plant Area	52.6	59.7	50.6	48.7	36.7	51.6	55.6	51.7	44.6	29.5
Near IOBP Area	50.6	56.6	53.7	44.6	33.5	55.7	57.7	50.9	44.7	33.5
	08.06.2024					**12.06.2024**				
Near Main Gate Area	55.6	62.5	53.7	48.9	33.7	53.7	58.1	55.7	48.5	35.6
Near Back Gate Area	51.7	60.7	50.7	44.6	31.6	55.6	55.9	48.5	44.6	33.7
Near Pellet Plant Area	49.5	60.7	49.6	49.7	38.7	54.6	54.9	51.6	49.5	30.5
Near IOBP Area	55.6	55.9	53.5	45.7	35.7	55.7	55.7	49.7	48.7	29.5
	15.06.2024					**19.06.2024**				
Near Main Gate Area	59.6	61.5	55.6	45.9	28.9	55.7	61.5	55.7	42.5	29.6
Near Back Gate Area	55.7	62.6	52.9	44.6	32.5	55.7	60.7	52.6	44.9	32.5
Near Pellet Plant Area	54.9	60.6	50.7	48.5	33.6	55.6	55.6	48.9	45.9	35.6
Near IOBP Area	58.7	55.9	45.7	45.7	33.7	50.6	59.7	45.7	44.7	33.7
	22.06.2024					**26.06.2024**				
Near Main Gate Area	51.7	62.5	48.5	45.6	32.5	55.7	62.5	59.6	48.6	29.5
Near Back Gate Area	49.5	60.7	51.6	48.5	33.7	53.6	66.5	54.7	45.6	33.5
Near Pellet Plant Area	52.9	62.6	55.7	44.6	31.6	52.6	65.6	55.7	44.7	31.7
Near IOBP Area	50.7	60.6	54.9	48.5	32.7	54.7	60.6	51.9	45.9	30.9
	29.06.2024									
Near Main Gate Area	55.7	62.5	55.6	48.6	32.5					
Near Back Gate Area	53.7	59.7	52.9	44.5	33.5					
Near Pellet Plant Area	51.9	64.5	54.9	41.9	33.1					
Near IOBP Area	50.7	62.7	55.7	48.5	30.7					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF JUNE -2024

Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.06.2024
2	Baitarani River (Near Plant Area)	08.06.2024
3	Reservoir Pond (Inside Plant)	08.06.2024
4	Dalki Nala Near Plant	08.06.2024
5	Nadiguth Village	08.06.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35	35.8	34	37.2	36
4.	pH	7	7.7	7	7.1	7.7
5.	Total Suspended Solids (mg/L)	15.6	19.5	25.7	14.9	18.6
6.	Total Dissolved Solid (mg/L)	580	650	610	654	549
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.1	4.8	6.7	3.7	3
8.	Chemical Oxygen Demand(mg/L)	1.08	1.16	4.7	1.5	1.7
9.	Total Residual Chlorine(mg/L)	0.76	0.68	2.7	0.52	0.7
10.	Alkalinity(mg/L)	68.7	44.7	62.6	38.5	41.7
11.	Calcium(mg/L)	44.7	32.6	46.5	29.7	31.6
12.	Magnesium(mg/L)	35.7	29.7	42.6	38.7	36.6
13.	Total Hardness as CaCO3(mg/L)	38	36.7	82.7	30.7	32.1
14.	Electrical Conductivity (µs/cm)	92.7	60.7	124.6	86.7	106.7
15.	Turbidity (NTU)	14.7	18.7	47.6	28	21.7
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	0.14	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	<0.02	ND	ND
20.	Zinc as Zn (µg/L)	0.02	0.14	<0.05	0.76	0.04
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	9.7	11.7	34.7	7.5	8.7
23.	Nitrate (mg/L)	1.04	3.12	5.62	2.74	2.64
24.	Sodium as Na (mg/L)	1.62	2.14	14.6	2.08	1.72
25.	Potassium as K (mg/L)	1.7	0.68	4.65	2.04	1.65
26.	Sulfate (mg/L)	1.12	<0.01	4.08	3.9	0.04
27.	Nitrate as NO3 (mg/L)	2.1	2.7	4.7	2.76	1.74
28.	Total Silica as SiO2 (mg/L)	4.7	2.5	9.6	1.7	1.06

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF JUNE -2024

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Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- June -2024	OCPL/GW/01/06/24
2.	Sample02	NEDIGUTH	10- June -2024	OCPL/GW/02/06/24
3.	Sample03	TALASAHI	10- June -2024	OCPL/GW/03/06/24
4.	Sample04	PLANT-1(Near Canteen)	10- June -2024	OCPL/GW/04/06/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- June -2024	OCPL/GW/05/06/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.0	1.0	1.7	1.7	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.1	28.7	28.7	27.7	28.7		
4	pH	-	6.7	7.0	7.1	6.7	7.7	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.1	58	55.6	58	58.6	300	600

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6	Calcium	mg/L	8.7	8.1	11.6	12.0	8.7	75	200
7	Magnesium	mg/L	1.6	3	3.7	3	1.5	30	No relaxation
8	Chloride	mg/L	15	15.6	15.7	14.7	18.6	250	1000
9	Alkalinity	mg/L	18.6	16.1	18.6	10.7	19.1	200	600
10	Electrical Conductivity	µs/cm	75.7	63.6	65	69.1	78.6	--	--
11	Arsenic as As	µg/L	0.03	ND	0.03	ND	0.05	10	No relaxation
12	Lead as Pb	µg/L	ND	0.67	0.61	0.74	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.7	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92.6	93.7	77.7	77.6	98.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15.5	15.7	25.6	35.6	35.6	300	1000
18	Nitrate	mg/L	1.5	1.7	1.0	1.0	1.1	45	100

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19	Sodium as Na	mg/L	2.5	3	3.7	4.7	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.1	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.7	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.6	ND	0.7	--	--
23	Total suspended Solid	mg/L	0.11	1.1	1.13	0.75	1.6	--	--
24	Total dissolved Solid	mg/L	85.6	75.7	72.1	95.7	88.7	250	2000
25	Turbidity	NTU	0.7	0.7	0.5	0.7	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF JUNE -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- June -2024	OCPL/GWL/01/06/24
2	Sample02	NEDIGUTH	12- June -2024	OCPL/GWL/02/06/24
3	Sample03	TALASAHI	12- June -2024	OCPL/GWL/03/06/24
4	Sample04	PLANT-1(Near Canteen)	12- June -2024	OCPL/GWL/04/06/24
5	Sample05	PLANT-2(SLIMEPOND)	12- June -2024	OCPL/GWL/05/06/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.7	9.1	9.6	--
2	NEDIGUTH	Dug well	1.72	9.5	10	--
3	TALASAHI	Dug well	1.0	8.7	9.8	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	62	11.1	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	60	44.7	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF JUNE – 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.06.2024
2	DG Stack-2	08.06.2024
3	Stack-1(Pellet Plant Process Stack)	09.06.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.06.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission								
	Parameters	**DG Stack-1**	**DG Stack-2**		**Parameters**	**Pellet Plant Process Stack**	**Pellet Plant Dedusting Stack**	**Limit**
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	74.4	84.5	--	Temperature of Emission(oC)	95.2	94.4	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	280	332	--	Emission (M3/Hr.)	7250	6553	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	11.5	34	--	Velocity (NM3/Hr)	35672	36490	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	652	1675	--	PM Concentration Mg/nm3 PM10	131	140	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	133	128	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.1	8.6	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.4	25.4	--	Carbon monoxide (CO) Mg/nm3	<0.7	<0.7	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.5	12.8	--	Carbon dioxide (CO2) %v/v	8	7.7	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	122	161	600	Concentration of Sulphur Dioxide(mg/Nm3)	184	182	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.4	75.9	300	Concentration of Nitrogen Dioxide (mg/Nm3	81	82	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	34.2	35.7	50	--	--	--	--

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ENVIRONMENTAL MONITORING REPORT

July 2024

M/S ESSEL MINING & INDUSTRIES LTD.

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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF JULY -2024

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Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i NearECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/7/2024	19	Near Admin Building	15/7/2024
2	Near Canteen	1/7/2024	20	Nedigutha Village	16/7/2024
3	Near Admin Building	1/7/2024	21	Near ECR-1	19/7/2024
4	Nedigutha Village	2/7/2024	22	Near Canteen	19/7/2024
5	Near ECR-1	5/7/2024	23	Near Admin Building	19/7/2024
6	Near Canteen	5/7/2024	24	Nedigutha Village	20/7/2024
7	Near Admin Building	5/7/2024	25	Near ECR-1	22/7/2024
8	Nedigutha Village	6/7/2024	26	Near Canteen	22/7/2024
9	Near ECR-1	8/7/2024	27	Near Admin Building	22/7/2024
10	Near Canteen	8/7/2024	28	Nedigutha Village	23/7/2024
11	Near Admin Building	8/7/2024	29	Near ECR-1	26/7/2024
12	Nedigutha Village	9/7/2024	30	Near Canteen	26/7/2024
13	Near ECR-1	12/7/2024	31	Near Admin Building	26/7/2024
14	Near Canteen	12/7/2024	32	Nedigutha Village	27/7/2024
15	Near Admin Building	12/7/2024	33	Near ECR-1	29/7/2024
16	Nedigutha Village	13/7/2024	34	Near Canteen	29/7/2024
17	Near ECR-1	15/7/2024	35	Near Admin Building	29/7/2024
18	Near Canteen	15/7/2024	36	Nedigutha Village	30/7/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.07.2024	25.5	23.5	63.5	52.1	ND	ND	158.5	14.1	ND	ND	ND	ND
05.07.2024	29.1	22.1	67.1	55.1	ND	ND	155.1	16.1	ND	ND	ND	ND
08.07.2024	25.5	21.5	65.1	58.5	ND	ND	159.1	14.5	ND	ND	ND	ND
12.07.2024	29.1	23.5	67.1	48.9	ND	ND	155.1	14.1	ND	ND	ND	ND
15.07.2024	32.1	22.1	65	51.1	ND	ND	159.1	15.5	ND	ND	ND	ND
19.07.2024	29.5	21.1	63.5	52.1	ND	ND	164.5	14.1	ND	ND	ND	ND
22.07.2024	25.5	23.5	67.1	55.5	ND	ND	158.1	16.1	ND	ND	ND	ND
26.07.2024	29.1	22.1	65.1	58.5	ND	ND	155.5	14.5	ND	ND	ND	ND
29.07.2024	23.1	21.5	62.1	49.5	ND	ND	156.5	15.1	ND	ND	ND	ND
Location: Near Canteen												
01.07.2024	28.1	21.1	65.5	52.1	ND	ND	155.1	16.1	ND	ND	ND	ND
05.07.2024	25.1	22.1	67.1	55.5	ND	ND	158.5	14.5	ND	ND	ND	ND
08.07.2024	29.1	22.5	65	58.5	ND	ND	155.5	15.1	ND	ND	ND	ND
12.07.2024	31.5	23.5	67.5	52.1	ND	ND	158.5	16.1	ND	ND	ND	ND
15.07.2024	25.5	21.9	67.1	58.5	ND	ND	158.5	14.5	ND	ND	ND	ND
19.07.2024	33.5	22.1	68	52.1	ND	ND	155.5	15.1	ND	ND	ND	ND
22.07.2024	30.5	22.5	65.5	55.1	ND	ND	158.5	14.9	ND	ND	ND	ND
26.07.2024	29.1	23.5	67.1	58.5	ND	ND	155.1	15.5	ND	ND	ND	ND
29.07.2024	29.1	23.1	65	48.9	ND	ND	156.1	15.1	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.07.2024	30.5	22.5	65.5	52.1	ND	ND	155.1	14.9	ND	ND	ND	ND
05.07.2024	29.1	23.5	65	48.9	ND	ND	155.1	15.1	ND	ND	ND	ND
08.07.2024	28.1	21.9	63.5	55.5	ND	ND	159.1	14.5	ND	ND	ND	ND
12.07.2024	33.5	22.1	68	58.5	ND	ND	158.5	15.1	ND	ND	ND	ND
15.07.2024	30.5	22.5	65.5	52.1	ND	ND	155.1	14.9	ND	ND	ND	ND
19.07.2024	29.1	21.1	65	48.9	ND	ND	155.1	15.1	ND	ND	ND	ND
22.07.2024	28.1	22.5	63.5	51.1	ND	ND	159.1	14.9	ND	ND	ND	ND
26.07.2024	25.1	23.5	67.1	52.1	ND	ND	164.5	15.5	ND	ND	ND	ND
29.07.2024	29.1	21.9	65.1	48.9	ND	ND	158.1	14.5	ND	ND	ND	ND
Location: Nadiguth Village												
02.07.2024	24.5	22.5	63.5	55.5	ND	ND	155.1	16.1	ND	ND	ND	ND
06.07.2024	23.9	22.5	65.5	58.5	ND	ND	159.1	14.5	ND	ND	ND	ND
09.07.2024	22.1	21.1	66	52.1	ND	ND	158.1	14.1	ND	ND	ND	ND
13.07.2024	23.5	22.1	65	48.9	ND	ND	158.5	16.1	ND	ND	ND	ND
16.07.2024	24.5	22.9	63.5	51.1	ND	ND	155.1	15.5	ND	ND	ND	ND
20.07.2024	23.9	21.1	65.5	52.1	ND	ND	159.1	15.1	ND	ND	ND	ND
23.07.2024	22.1	22.1	66	58.5	ND	ND	155.5	14.9	ND	ND	ND	ND
27.07.2024	24.5	22.5	62.5	52.1	ND	ND	158.5	15.1	ND	ND	ND	ND
30.07.2024	23.9	22.5	67.1	48.5	ND	ND	155.1	14.1	ND	ND	ND	ND

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF JULY-2024

Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/7/2024	19	Near Pellet Plant Area	15/7/2024
2	Near Back Gate Area	1/7/2024	20	Near IOBP Area	15/7/2024
3	Near Pellet Plant Area	1/7/2024	21	Near Main Gate Area	19/7/2024
4	Near IOBP Area	1/7/2024	22	Near Back Gate Area	19/7/2024
5	Near Main Gate Area	5/7/2024	23	Near Pellet Plant Area	19/7/2024
6	Near Back Gate Area	5/7/2024	24	Near IOBP Area	19/7/2024
7	Near Pellet Plant Area	5/7/2024	25	Near Main Gate Area	22/7/2024
8	Near IOBP Area	5/7/2024	26	Near Back Gate Area	22/7/2024
9	Near Main Gate Area	8/7/2024	27	Near Pellet Plant Area	22/7/2024
10	Near Back Gate Area	8/7/2024	28	Near IOBP Area	22/7/2024
11	Near Pellet Plant Area	8/7/2024	29	Near Main Gate Area	26/7/2024
12	Near IOBP Area	8/7/2024	30	Near Back Gate Area	26/7/2024
13	Near Main Gate Area	12/7/2024	31	Near Pellet Plant Area	26/7/2024
14	Near Back Gate Area	12/7/2024	32	Near IOBP Area	26/7/2024
15	Near Pellet Plant Area	12/7/2024	33	Near Main Gate Area	29/7/2024
16	Near IOBP Area	12/7/2024	34	Near Back Gate Area	29/7/2024
17	Near Main Gate Area	15/7/2024	35	Near Pellet Plant Area	29/7/2024
18	Near Back Gate Area	15/7/2024	36	Near IOBP Area	29/7/2024

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	01.07.2024					05.07.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	50.1	55.5	52.5	52.1	35.5	49.1	59.5	55.1	48.5	33.5
Near Back Gate Area	48.5	60.5	51.1	45.1	33.5	47.5	61.5	54.5	45.5	31.5
Near Pellet Plant Area	52.1	59.5	50.1	48.5	36.5	51.1	55.1	51.5	44.1	29.5
Near IOBP Area	50.1	56.1	53.5	44.1	33.5	55.5	57.5	50.9	44.5	33.5
	08.07.2024					**12.07.2024**				
Near Main Gate Area	55.1	62.5	53.5	48.9	33.5	53.5	58.1	55.5	48.5	35.1
Near Back Gate Area	51.5	60.5	50.5	44.1	31.1	55.1	55.9	48.5	44.1	33.5
Near Pellet Plant Area	49.5	60.5	49.1	49.5	38.5	54.1	54.9	51.1	49.5	30.5
Near IOBP Area	55.1	55.9	53.5	45.5	35.5	55.5	55.5	49.5	48.5	29.5
	15.07.2024					**19.07.2024**				
Near Main Gate Area	59.1	61.5	55.1	45.9	28.9	55.5	61.5	55.5	42.5	29.1
Near Back Gate Area	55.5	62.1	52.9	44.1	32.5	55.5	60.5	52.1	44.9	32.5
Near Pellet Plant Area	54.9	60.1	50.5	48.5	33.1	55.1	55.1	48.9	45.9	35.1
Near IOBP Area	58.5	55.9	45.5	45.5	33.5	50.1	59.5	45.5	44.5	33.5
	22.07.2024					**26.07.2024**				
Near Main Gate Area	51.5	62.5	48.5	45.1	32.5	55.5	62.5	59.1	48.1	29.5
Near Back Gate Area	49.5	60.5	51.1	48.5	33.5	53.1	66.5	54.5	45.1	33.5
Near Pellet Plant Area	52.9	62.1	55.5	44.1	31.1	52.1	65.1	55.5	44.5	31.5
Near IOBP Area	50.5	60.1	54.9	48.5	32.5	54.5	60.1	51.9	45.9	30.9
	29.07.2024									
Near Main Gate Area	55.5	62.5	55.1	48.1	32.5					
Near Back Gate Area	53.5	59.5	52.9	44.5	33.5					
Near Pellet Plant Area	51.9	64.5	54.9	41.9	33.1					
Near IOBP Area	50.5	62.5	55.5	48.5	30.5					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF JULY -2024

Chandrasekharpur,
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Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.07.2024
2	Baitarani River (Near Plant Area)	08.07.2024
3	Reservoir Pond (Inside Plant)	08.07.2024
4	Dalki Nala Near Plant	08.07.2024
5	Nadiguth Village	08.07.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35.2	35.8	34.3	37.2	36.07
4.	pH	7.1	7.4	7.2	7.1	7.2
5.	Total Suspended Solids (mg/L)	18.1	19.5	25.5	14.9	18.1
6.	Total Dissolved Solid (mg/L)	587	650	612	651	555
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.1	4.8	6.5	3.5	3
8.	Chemical Oxygen Demand(mg/L)	1.08	1.16	4.5	1.5	1.5
9.	Total Residual Chlorine(mg/L)	0.56	0.18	2.5	0.52	0.5
10.	Alkalinity(mg/L)	68.2	44.5	62.1	38.5	41.5
11.	Calcium(mg/L)	44.5	32.1	46.5	29.5	31.1
12.	Magnesium(mg/L)	35.5	29.5	42.1	38.5	36.1
13.	Total Hardness as CaCO3(mg/L)	38	36.5	82.5	30.5	32.1
14.	Electrical Conductivity (µs/cm)	92.5	60.5	124.1	86.5	106.5
15.	Turbidity (NTU)	14.5	18.5	47.1	28	21.5
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	0.14	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	<0.02	ND	ND
20.	Zinc as Zn (µg/L)	0.02	0.14	<0.05	0.56	0.04
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	9.5	11.5	34.5	7.5	8.5
23.	Nitrate (mg/L)	1.04	3.12	5.12	2.54	2.14
24.	Sodium as Na (mg/L)	1.12	2.14	14.1	2.08	1.52
25.	Potassium as K (mg/L)	1.5	0.18	4.15	2.04	1.15
26.	Sulfate (mg/L)	1.12	<0.01	4.08	3.9	0.04
27.	Nitrate as NO3 (mg/L)	2.1	2.5	4.5	2.56	1.54
28.	Total Silica as SiO2 (mg/L)	4.5	2.5	9.1	1.5	1.06

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF JULY -2024

Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- July -2024	OCPL/GW/01/07/24
2.	Sample02	NEDIGUTH	10- July -2024	OCPL/GW/02/07/24
3.	Sample03	TALASAHI	10- July -2024	OCPL/GW/03/07/24
4.	Sample04	PLANT-1(Near Canteen)	10- July -2024	OCPL/GW/04/07/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- July -2024	OCPL/GW/05/07/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.0	1.0	1.3	1.2	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.1	28.5	28.5	27.5	28.5		
4	pH	-	6.5	7.0	7.1	6.5	7.5	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.1	58	55.1	58	58.1	300	600

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6	Calcium	mg/L	8.5	8.1	11.1	12.0	8.5	75	200
7	Magnesium	mg/L	1.1	3	3.5	3	1.5	30	No relaxation
8	Chloride	mg/L	15	15.1	15.5	14.5	18.1	250	1000
9	Alkalinity	mg/L	18.1	16.1	18.1	10.5	19.1	200	600
10	Electrical Conductivity	µs/cm	75.5	63.1	65	69.1	78.1	--	--
11	Arsenic as As	µg/L	0.03	ND	0.03	ND	0.05	10	No relaxation
12	Lead as Pb	µg/L	ND	0.17	0.11	0.54	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.5	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92.1	93.5	77.5	77.1	98.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15.5	15.5	25.1	35.1	35.1	300	1000
18	Nitrate	mg/L	1.5	1.5	1.0	1.0	1.1	45	100

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19	Sodium as Na	mg/L	2.5	3	3.5	4.5	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.1	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.5	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.1	ND	0.5	--	--
23	Total suspended Solid	mg/L	0.11	1.1	1.13	0.55	1.1	--	--
24	Total dissolved Solid	mg/L	85.1	75.5	72.1	95.5	88.5	250	2000
25	Turbidity	NTU	0.5	0.5	0.5	0.5	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF JULY -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- July -2024	OCPL/GWL/01/07/24
2	Sample02	NEDIGUTH	12- July -2024	OCPL/GWL/02/07/24
3	Sample03	TALASAHI	12- July -2024	OCPL/GWL/03/07/24
4	Sample04	PLANT-1(Near Canteen)	12- July -2024	OCPL/GWL/04/07/24
5	Sample05	PLANT-2(SLIMEPOND)	12- July -2024	OCPL/GWL/05/07/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.5	9	9.4	--
2	NEDIGUTH	Dug well	1.52	9.2	11.5	--
3	TALASAHI	Dug well	1.0	8.5	9.4	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	65	15.1	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	61.5	44.5	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF JULY – 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.07.2024
2	DG Stack-2	08.07.2024
3	Stack-1(Pellet Plant Process Stack)	09.07.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.07.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission								
	Parameters	**DG Stack-1**	**DG Stack-2**		**Parameters**	**Pellet Plant Process Stack**	**Pellet Plant Dedusting Stack**	**Limit**
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	75.4	80.9	--	Temperature of Emission(oC)	95.2	94.4	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	265	329	--	Emission (M3/Hr.)	7252	6557	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	11.3	34.2	--	Velocity (NM3/Hr)	35602	36456	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	650	1670	--	PM Concentration Mg/nm3 PM10	131	141	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	130	122	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.1	8.1	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.4	25.4	--	Carbon monoxide (CO) Mg/nm3	<0.5	<0.5	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.0	12.8	--	Carbon dioxide (CO2) %v/v	8	7.5	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	122	160	600	Concentration of Sulphur Dioxide(mg/Nm3)	185	182	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.0	75.9	300	Concentration of Nitrogen Dioxide (mg/Nm3	82	81	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	34.2	35.0	50	--	--	--	--

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ENVIRONMENTAL MONITORING REPORT

August 2024

M/S ESSEL MINING & INDUSTRIES LTD.

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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF AUGUST -2024

Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i Near ECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/8/2024	19	Near Admin Building	15/8/2024
2	Near Canteen	1/8/2024	20	Nedigutha Village	16/8/2024
3	Near Admin Building	1/8/2024	21	Near ECR-1	19/8/2024
4	Nedigutha Village	2/8/2024	22	Near Canteen	19/8/2024
5	Near ECR-1	5/8/2024	23	Near Admin Building	19/8/2024
6	Near Canteen	5/8/2024	24	Nedigutha Village	20/8/2024
7	Near Admin Building	5/8/2024	25	Near ECR-1	22/8/2024
8	Nedigutha Village	6/8/2024	26	Near Canteen	22/8/2024
9	Near ECR-1	8/8/2024	27	Near Admin Building	22/8/2024
10	Near Canteen	8/8/2024	28	Nedigutha Village	23/8/2024
11	Near Admin Building	8/8/2024	29	Near ECR-1	26/8/2024
12	Nedigutha Village	9/8/2024	30	Near Canteen	26/8/2024
13	Near ECR-1	12/8/2024	31	Near Admin Building	26/8/2024
14	Near Canteen	12/8/2024	32	Nedigutha Village	27/8/2024
15	Near Admin Building	12/8/2024	33	Near ECR-1	29/8/2024
16	Nedigutha Village	13/8/2024	34	Near Canteen	29/8/2024
17	Near ECR-1	15/8/2024	35	Near Admin Building	29/8/2024
18	Near Canteen	15/8/2024	36	Nedigutha Village	30/8/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.08.2024	25.59	24.07	63.54	52.84	ND	ND	158.66	14.71	ND	ND	ND	ND
05.08.2024	28.32	25.38	67.28	55.21	ND	ND	155.69	16.89	ND	ND	ND	ND
08.08.2024	26.05	21.54	66.00	59.41	ND	ND	159.40	15.40	ND	ND	ND	ND
12.08.2024	29.83	23.89	68.12	49.43	ND	ND	156.17	15.10	ND	ND	ND	ND
15.08.2024	32.76	26.05	65.57	52.19	ND	ND	159.71	16.40	ND	ND	ND	ND
19.08.2024	30.03	21.43	64.40	52.52	ND	ND	165.48	14.80	ND	ND	ND	ND
22.08.2024	25.95	23.89	67.61	55.94	ND	ND	158.76	17.09	ND	ND	ND	ND
26.08.2024	30.03	25.50	65.48	58.74	ND	ND	156.05	14.53	ND	ND	ND	ND
29.08.2024	23.94	21.98	62.47	50.05	ND	ND	157.07	15.57	ND	ND	ND	ND
Location: Near Canteen												
01.08.2024	28.47	21.75	65.56	53.15	ND	ND	156.09	17.21	ND	ND	ND	ND
05.08.2024	25.85	26.29	67.78	55.65	ND	ND	159.20	14.61	ND	ND	ND	ND
08.08.2024	29.81	25.85	65.38	58.61	ND	ND	155.96	15.78	ND	ND	ND	ND
12.08.2024	32.08	23.52	67.58	52.37	ND	ND	158.87	16.31	ND	ND	ND	ND
15.08.2024	25.65	22.83	68.34	58.93	ND	ND	158.98	15.41	ND	ND	ND	ND
19.08.2024	34.32	25.55	68.69	53.05	ND	ND	156.22	15.66	ND	ND	ND	ND
22.08.2024	30.92	23.42	65.91	56.11	ND	ND	159.07	15.20	ND	ND	ND	ND
26.08.2024	30.28	24.29	67.76	59.00	ND	ND	156.35	16.33	ND	ND	ND	ND
29.08.2024	29.78	23.59	65.27	49.60	ND	ND	157.34	15.68	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.08.2024	30.51	23.20	65.83	53.11	ND	ND	155.55	15.70	ND	ND	ND	ND
05.08.2024	29.53	24.35	65.60	49.02	ND	ND	156.45	16.10	ND	ND	ND	ND
08.08.2024	29.65	22.41	63.60	55.66	ND	ND	160.39	14.60	ND	ND	ND	ND
12.08.2024	34.50	23.34	68.64	58.53	ND	ND	158.65	16.04	ND	ND	ND	ND
15.08.2024	30.66	23.01	66.47	53.47	ND	ND	156.20	15.01	ND	ND	ND	ND
19.08.2024	29.86	22.47	65.55	49.26	ND	ND	155.89	16.48	ND	ND	ND	ND
22.08.2024	29.68	22.51	63.60	52.76	ND	ND	160.30	15.40	ND	ND	ND	ND
26.08.2024	26.32	24.39	68.10	52.97	ND	ND	164.83	15.95	ND	ND	ND	ND
29.08.2024	30.26	22.86	66.61	49.05	ND	ND	159.50	14.71	ND	ND	ND	ND
Location: Nadiguth Village												
02.08.2024	25.11	22.79	64.13	55.62	ND	ND	156.34	17.42	ND	ND	ND	ND
06.08.2024	24.36	22.53	66.31	59.16	ND	ND	160.59	15.41	ND	ND	ND	ND
09.08.2024	23.45	21.85	66.87	53.31	ND	ND	158.88	15.43	ND	ND	ND	ND
13.08.2024	23.74	22.92	65.42	49.68	ND	ND	158.72	17.40	ND	ND	ND	ND
16.08.2024	24.69	23.68	63.61	52.46	ND	ND	156.69	16.25	ND	ND	ND	ND
20.08.2024	24.89	22.56	66.35	53.15	ND	ND	160.24	15.51	ND	ND	ND	ND
23.08.2024	22.93	22.92	66.88	59.17	ND	ND	156.03	15.60	ND	ND	ND	ND
27.08.2024	24.73	22.86	63.35	52.20	ND	ND	159.43	16.04	ND	ND	ND	ND
30.08.2024	24.74	23.47	67.46	49.10	ND	ND	155.91	15.00	ND	ND	ND	ND

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF AUGUST -2024

Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/8/2024	19	Near Pellet Plant Area	15/8/2024
2	Near Back Gate Area	1/8/2024	20	Near IOBP Area	15/8/2024
3	Near Pellet Plant Area	1/8/2024	21	Near Main Gate Area	19/8/2024
4	Near IOBP Area	1/8/2024	22	Near Back Gate Area	19/8/2024
5	Near Main Gate Area	5/8/2024	23	Near Pellet Plant Area	19/8/2024
6	Near Back Gate Area	5/8/2024	24	Near IOBP Area	19/8/2024
7	Near Pellet Plant Area	5/8/2024	25	Near Main Gate Area	22/8/2024
8	Near IOBP Area	5/8/2024	26	Near Back Gate Area	22/8/2024
9	Near Main Gate Area	8/8/2024	27	Near Pellet Plant Area	22/8/2024
10	Near Back Gate Area	8/8/2024	28	Near IOBP Area	22/8/2024
11	Near Pellet Plant Area	8/8/2024	29	Near Main Gate Area	26/8/2024
12	Near IOBP Area	8/8/2024	30	Near Back Gate Area	26/8/2024
13	Near Main Gate Area	12/8/2024	31	Near Pellet Plant Area	26/8/2024
14	Near Back Gate Area	12/8/2024	32	Near IOBP Area	26/8/2024
15	Near Pellet Plant Area	12/8/2024	33	Near Main Gate Area	29/8/2024
16	Near IOBP Area	12/8/2024	34	Near Back Gate Area	29/8/2024
17	Near Main Gate Area	15/8/2024	35	Near Pellet Plant Area	29/8/2024
18	Near Back Gate Area	15/8/2024	36	Near IOBP Area	29/8/2024

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	01.08.2024					05.08.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	50.91	55.75	53.05	53.15	36.07	49.37	60.16	55.48	49.04	34.17
Near Back Gate Area	49.30	61.08	51.51	45.22	34.47	48.22	61.66	55.14	45.67	32.29
Near Pellet Plant Area	52.97	59.92	50.89	49.42	36.61	51.37	55.52	52.08	44.58	30.07
Near IOBP Area	50.56	56.93	54.49	45.32	33.80	56.14	58.03	51.78	44.61	34.23
	08.08.2024					**12.08.2024**				
Near Main Gate Area	55.76	62.62	54.36	49.69	33.73	53.71	59.01	55.79	49.24	35.80
Near Back Gate Area	52.05	60.86	50.81	45.23	31.82	55.79	56.69	48.74	45.20	33.51
Near Pellet Plant Area	49.99	61.30	49.54	50.01	39.44	54.64	55.00	51.90	49.67	30.89
Near IOBP Area	55.99	56.65	53.68	45.96	36.08	56.20	56.43	50.41	49.28	30.35
	15.08.2024					**19.08.2024**				
Near Main Gate Area	60.06	61.74	56.14	46.57	29.35	55.51	62.00	55.65	43.47	29.94
Near Back Gate Area	56.08	63.36	53.45	44.96	32.56	55.67	60.72	53.01	45.64	33.04
Near Pellet Plant Area	55.27	60.65	50.94	48.80	34.12	55.87	56.54	49.58	46.05	36.16
Near IOBP Area	58.60	56.75	45.87	46.43	33.98	50.68	59.51	46.26	44.68	33.72
	22.08.2024					**26.08.2024**				
Near Main Gate Area	52.13	62.72	49.36	46.36	33.40	55.57	62.96	59.74	48.84	29.64
Near Back Gate Area	49.99	60.92	52.22	48.75	33.61	54.29	66.77	55.26	46.50	33.51
Near Pellet Plant Area	53.40	63.46	55.70	45.44	32.21	53.00	66.19	55.54	45.39	31.50
Near IOBP Area	51.29	60.80	55.18	48.52	33.30	55.09	60.79	52.30	46.42	31.47
	29.08.2024									
Near Main Gate Area	55.97	62.52	55.48	48.95	33.41					
Near Back Gate Area	53.91	60.23	53.31	45.30	34.24					
Near Pellet Plant Area	52.84	65.27	55.50	42.54	33.79					
Near IOBP Area	51.28	63.24	55.96	49.33	30.81					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF AUGUST -2024

Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.08.2024
2	Baitarani River (Near Plant Area)	08.08.2024
3	Reservoir Pond (Inside Plant)	08.08.2024
4	Dalki Nala Near Plant	08.08.2024
5	Nadiguth Village	08.08.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35.44	35.90	35.15	38.02	36.93
4.	pH	7.26	7.92	7.62	7.48	7.50
5.	Total Suspended Solids (mg/L)	18.83	20.18	26.23	15.22	18.34
6.	Total Dissolved Solid (mg/L)	587.53	650.16	612.05	651.70	555.90
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.92	5.25	7.35	4.18	3.28
8.	Chemical Oxygen Demand(mg/L)	1.19	1.58	5.46	1.68	2.01
9.	Total Residual Chlorine(mg/L)	1.18	0.93	2.97	0.58	1.40
10.	Alkalinity(mg/L)	68.27	44.84	63.09	39.45	42.26
11.	Calcium(mg/L)	45.47	32.58	46.91	29.86	31.28
12.	Magnesium(mg/L)	36.42	30.46	43.08	38.97	36.70
13.	Total Hardness as CaCO3(mg/L)	38.99	37.37	82.69	30.92	32.15
14.	Electrical Conductivity (µs/cm)	92.63	61.35	124.69	87.13	107.23
15.	Turbidity (NTU)	14.64	18.77	47.95	28.06	22.17
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	ND	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	ND	ND	ND
20.	Zinc as Zn (µg/L)	0.01	0.15	0.01	0.55	0.03
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	10.16	12.48	34.73	8.01	9.42
23.	Nitrate (mg/L)	1.96	3.25	5.69	3.04	2.17
24.	Sodium as Na (mg/L)	1.87	2.14	14.54	2.77	1.96
25.	Potassium as K (mg/L)	2.24	0.24	4.65	2.22	1.60
26.	Sulfate (mg/L)	1.71	2.05	4.14	4.08	0.26
27.	Nitrate as NO3 (mg/L)	2.31	3.42	5.27	2.98	1.99
28.	Total Silica as SiO2 (mg/L)	4.88	3.29	9.52	1.97	1.84

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF AUGUST -2024

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Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- August-2024	OCPL/GW/01/08/24
2.	Sample02	NEDIGUTH	10- August-2024	OCPL/GW/02/08/24
3.	Sample03	TALASAHI	10- August-2024	OCPL/GW/03/08/24
4.	Sample04	PLANT-1(Near Canteen)	10- August-2024	OCPL/GW/04/08/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- August-2024	OCPL/GW/05/08/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.1	1.0	1.2	1.2	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.3	28.5	28.2	27.5	28.1		
4	pH	-	6.5	7.1	7.1	6.5	7.2	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.3	60.5	60.2	58	62	300	600

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6	Calcium	mg/L	8.2	8.1	11.2	12.3	8.4	75	200
7	Magnesium	mg/L	1.1	3.1	3.3	3.2	1.5	30	No relaxation
8	Chloride	mg/L	15.2	15.1	15.2	14.8	18.2	250	1000
9	Alkalinity	mg/L	18.1	16.2	18.3	10.6	18.1	200	600
10	Electrical Conductivity	µs/cm	75.7	65.1	63.5	62.3	75.1	--	--
11	Arsenic as As	µg/L	0.03	ND	0.04	ND	0.03	10	No relaxation
12	Lead as Pb	µg/L	ND	0.1	0.11	0.5	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.5	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92	93.1	77.5	77	98.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15	15.3	25.3	35.1	35	300	1000
18	Nitrate	mg/L	1.2	1.5	1.2	1.0	1.0	45	100

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19	Sodium as Na	mg/L	2.8	3	3.2	4.5	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.12	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.5	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.1	ND	0.5	--	--
23	Total suspended Solid	mg/L	0.13	1.1	1.13	0.55	1.1	--	--
24	Total dissolved Solid	mg/L	85.1	78.5	72.2	95.5	88	250	2000
25	Turbidity	NTU	0.5	0.5	0.5	0.5	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF AUGUST -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- August -2024	OCPL/GWL/01/08/24
2	Sample02	NEDIGUTH	12- August -2024	OCPL/GWL/02/08/24
3	Sample03	TALASAHI	12- August -2024	OCPL/GWL/03/08/24
4	Sample04	PLANT-1(Near Canteen)	12- August -2024	OCPL/GWL/04/08/24
5	Sample05	PLANT-2(SLIMEPOND)	12- August -2024	OCPL/GWL/05/08/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.5	9	9.1	--
2	NEDIGUTH	Dug well	1.52	9.2	10.2	--
3	TALASAHI	Dug well	1.0	8.5	9.1	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	65	12.1	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	61.5	38.2	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF AUGUST– 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.08.2024
2	DG Stack-2	08.08.2024
3	Stack-1(Pellet Plant Process Stack)	09.08.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.08.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission								
	Parameters	**DG Stack-1**	**DG Stack-2**		**Parameters**	**Pellet Plant Process Stack**	**Pellet Plant Dedusting Stack**	**Limit**
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	75.3	80.5	--	Temperature of Emission(oC)	95.1	94.5	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	267	332	--	Emission (M3/Hr.)	7255	6555	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	11.4	33.5	--	Velocity (NM3/Hr)	35600	36458	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	655	1675	--	PM Concentration Mg/nm3 PM10	133	140	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	132	125	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.2	8.1	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.2	24.1	--	Carbon monoxide (CO) Mg/nm3	<0.5	<0.5	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.0	12.6	--	Carbon dioxide (CO2) %v/v	8.2	7.3	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	123	158	600	Concentration of Sulphur Dioxide(mg/Nm3)	185	180	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.0	75.5	300	Concentration of Nitrogen Dioxide (mg/Nm3	80	83	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	32.7	35.0	50	--	--	--	--

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ENVIRONMENTAL MONITORING REPORT

September 2024

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AMBIENT AIR QUALITY MONITORING REPORT FOR

THE MONTH OF SEPTEMBER -2024

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Ambient Air Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

i Near ECR-1
ii Near Canteen
iii Near Admin Building
iv Nadiguth Village

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near ECR-1	1/9/2024	19	Near Admin Building	15/9/2024
2	Near Canteen	1/9/2024	20	Nedigutha Village	16/9/2024
3	Near Admin Building	1/9/2024	21	Near ECR-1	19/9/2024
4	Nedigutha Village	2/9/2024	22	Near Canteen	19/9/2024
5	Near ECR-1	5/9/2024	23	Near Admin Building	19/9/2024
6	Near Canteen	5/9/2024	24	Nedigutha Village	20/9/2024
7	Near Admin Building	5/9/2024	25	Near ECR-1	22/9/2024
8	Nedigutha Village	6/9/2024	26	Near Canteen	22/9/2024
9	Near ECR-1	8/9/2024	27	Near Admin Building	22/9/2024
10	Near Canteen	8/9/2024	28	Nedigutha Village	23/9/2024
11	Near Admin Building	8/9/2024	29	Near ECR-1	26/9/2024
12	Nedigutha Village	9/9/2024	30	Near Canteen	26/9/2024
13	Near ECR-1	12/9/2024	31	Near Admin Building	26/9/2024
14	Near Canteen	12/9/2024	32	Nedigutha Village	27/9/2024
15	Near Admin Building	12/9/2024	33	Near ECR-1	29/9/2024
16	Nedigutha Village	13/9/2024	34	Near Canteen	29/9/2024
17	Near ECR-1	15/9/2024	35	Near Admin Building	29/9/2024
18	Near Canteen	15/9/2024	36	Nedigutha Village	30/9/2024

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m 3	Nickel (Ni) (ng/m 3)
Location: Near ECR-1												
Limit (µg/M 3)	80	80	100	60	180	1	2000	400	5 (Annual)	1 (Annual)	6 (Annual	20 (Annual)
01.09.2024	25.95	24.93	64.14	53.80	ND	ND	158.93	15.09	ND	ND	ND	ND
05.09.2024	29.18	26.31	67.80	55.66	ND	ND	156.45	17.12	ND	ND	ND	ND
08.09.2024	27.03	21.82	66.40	59.54	ND	ND	160.25	15.56	ND	ND	ND	ND
12.09.2024	30.47	23.93	68.86	50.24	ND	ND	156.76	15.98	ND	ND	ND	ND
15.09.2024	33.42	26.20	65.83	53.06	ND	ND	160.46	16.40	ND	ND	ND	ND
19.09.2024	30.15	22.19	64.91	52.98	ND	ND	166.43	15.60	ND	ND	ND	ND
22.09.2024	26.04	24.42	67.94	56.42	ND	ND	159.47	17.09	ND	ND	ND	ND
26.09.2024	30.44	26.03	66.04	59.15	ND	ND	156.56	14.94	ND	ND	ND	ND
29.09.2024	24.28	22.13	63.08	50.37	ND	ND	157.31	15.68	ND	ND	ND	ND
Location: Near Canteen												
01.09.2024	29.13	22.45	65.83	54.00	ND	ND	156.58	17.37	ND	ND	ND	ND
05.09.2024	26.09	26.87	67.96	55.92	ND	ND	159.48	15.36	ND	ND	ND	ND
08.09.2024	30.24	26.46	66.25	58.84	ND	ND	156.89	16.08	ND	ND	ND	ND
12.09.2024	32.75	23.97	67.59	52.63	ND	ND	159.33	16.64	ND	ND	ND	ND
15.09.2024	26.51	23.02	68.82	59.06	ND	ND	159.52	15.94	ND	ND	ND	ND
19.09.2024	34.62	25.67	69.06	54.02	ND	ND	156.50	16.21	ND	ND	ND	ND
22.09.2024	31.63	23.75	65.95	56.58	ND	ND	159.22	15.26	ND	ND	ND	ND
26.09.2024	30.80	25.01	67.86	59.95	ND	ND	156.94	17.26	ND	ND	ND	ND
29.09.2024	30.09	24.46	66.21	50.25	ND	ND	157.42	15.90	ND	ND	ND	ND

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Parameters	Sulphur Dioxide (SO2)	Nitrogen Dioxide (NO2)	PM10	PM2.5	Ozone(O3) (1 Hr)	Lead (Pb)	Carbon Monoxide (CO) (8Hrs) Mg/m3	Ammonia (NH3)	Benzene (C6 H6)	Benzo(a)Pyrene (BaP) Particulate phase only(ng/m3)	Arsenic (As) (ng/m3	Nickel (Ni) (ng/m3)
Location: Near Admin Building												
01.09.2024	31.01	23.57	66.70	53.74	ND	ND	156.54	16.59	ND	ND	ND	ND
05.09.2024	30.27	25.34	65.88	49.09	ND	ND	157.45	16.18	ND	ND	ND	ND
08.09.2024	29.90	23.20	64.02	56.13	ND	ND	161.05	15.42	ND	ND	ND	ND
12.09.2024	35.47	24.15	69.24	59.25	ND	ND	158.98	16.93	ND	ND	ND	ND
15.09.2024	31.34	24.00	67.28	54.12	ND	ND	157.05	15.78	ND	ND	ND	ND
19.09.2024	30.31	23.20	66.22	49.42	ND	ND	156.37	16.98	ND	ND	ND	ND
22.09.2024	30.21	23.31	64.37	53.59	ND	ND	160.63	15.96	ND	ND	ND	ND
26.09.2024	26.68	24.43	68.15	53.59	ND	ND	164.85	16.10	ND	ND	ND	ND
29.09.2024	30.33	23.83	66.88	50.04	ND	ND	159.98	15.41	ND	ND	ND	ND
Location: Nadiguth Village												
02.09.2024	25.26	23.54	64.27	55.66	ND	ND	156.60	18.37	ND	ND	ND	ND
06.09.2024	25.06	23.39	67.08	59.81	ND	ND	160.60	16.31	ND	ND	ND	ND
09.09.2024	24.12	21.92	67.37	53.89	ND	ND	159.77	15.48	ND	ND	ND	ND
13.09.2024	24.39	23.00	65.64	49.74	ND	ND	159.65	18.10	ND	ND	ND	ND
16.09.2024	25.00	24.04	64.20	52.86	ND	ND	157.31	17.04	ND	ND	ND	ND
20.09.2024	25.12	22.76	66.74	53.58	ND	ND	160.81	15.70	ND	ND	ND	ND
23.09.2024	23.25	23.20	67.49	60.09	ND	ND	156.82	15.96	ND	ND	ND	ND
27.09.2024	25.47	23.61	63.95	52.96	ND	ND	160.07	16.31	ND	ND	ND	ND
30.09.2024	25.03	23.94	67.69	49.65	ND	ND	156.15	15.34	ND	ND	ND	ND

a

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NOISE QUALITY MONITORING REPORT

FOR

THE MONTH OF SEPTEMBER -2024

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Noise Quality Monitoring:

Number of locations – 04
Name Sampling Locations:

a. Near Main Gate Area
b. Near Back Gate Area
c. Near Pellet Plant Area
d. Near IOBP Area

Frequency of sampling –Twice a weak
Number of samples – 36

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling	Sample Nos.	Location	Date of Sampling
1	Near Main Gate Area	1/9/2024	19	Near Pellet Plant Area	15/9/2024
2	Near Back Gate Area	1/9/2024	20	Near IOBP Area	15/9/2024
3	Near Pellet Plant Area	1/9/2024	21	Near Main Gate Area	19/9/2024
4	Near IOBP Area	1/9/2024	22	Near Back Gate Area	19/9/2024
5	Near Main Gate Area	5/9/2024	23	Near Pellet Plant Area	19/9/2024
6	Near Back Gate Area	5/9/2024	24	Near IOBP Area	19/9/2024
7	Near Pellet Plant Area	5/9/2024	25	Near Main Gate Area	22/9/2024
8	Near IOBP Area	5/9/2024	26	Near Back Gate Area	22/9/2024
9	Near Main Gate Area	8/9/2024	27	Near Pellet Plant Area	22/9/2024
10	Near Back Gate Area	8/9/2024	28	Near IOBP Area	22/9/2024
11	Near Pellet Plant Area	8/9/2024	29	Near Main Gate Area	26/9/2024
12	Near IOBP Area	8/9/2024	30	Near Back Gate Area	26/9/2024
13	Near Main Gate Area	12/9/2024	31	Near Pellet Plant Area	26/9/2024
14	Near Back Gate Area	12/9/2024	32	Near IOBP Area	26/9/2024
15	Near Pellet Plant Area	12/9/2024	33	Near Main Gate Area	29/9/2024
16	Near IOBP Area	12/9/2024	34	Near Back Gate Area	29/9/2024
17	Near Main Gate Area	15/9/2024	35	Near Pellet Plant Area	29/9/2024
18	Near Back Gate Area	15/9/2024	36	Near IOBP Area	29/9/2024

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	01.09.2024					05.09.2024				
	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)	Day (6.00-7.00am)	Day (10.00-11.00am)	Day (3.00-4.00pm)	Evening (6.00-7.00pm)	Night (10.00-11.00am)
Limit (in dB(A))Leq	**75**	**75**	**75**	**70**	**70**	**75**	**75**	**75**	**70**	**70**
Near Main Gate Area	51.16	56.48	53.42	53.37	36.54	50.19	60.20	55.82	49.88	34.98
Near Back Gate Area	49.84	61.32	51.75	46.04	34.82	48.86	62.08	55.45	45.80	33.21
Near Pellet Plant Area	53.20	60.77	51.05	49.71	37.00	51.42	55.54	52.85	44.88	30.37
Near IOBP Area	50.89	57.59	55.03	46.04	34.52	56.79	58.58	52.02	45.31	34.62
	08.09.2024					**12.09.2024**				
Near Main Gate Area	56.10	63.21	55.26	50.01	34.63	54.00	59.03	55.97	49.48	36.62
Near Back Gate Area	52.96	61.76	51.27	45.24	32.46	56.58	56.89	49.27	45.82	34.00
Near Pellet Plant Area	50.83	62.10	49.54	50.58	39.76	54.88	55.35	51.95	50.23	31.22
Near IOBP Area	56.48	57.10	54.10	46.06	37.02	56.93	56.94	50.50	49.53	30.48
	15.09.2024					**19.09.2024**				
Near Main Gate Area	60.88	62.41	56.69	47.43	30.00	56.47	62.31	56.49	44.31	30.87
Near Back Gate Area	56.89	63.91	53.54	45.41	33.22	56.28	60.88	53.80	46.09	33.82
Near Pellet Plant Area	55.60	61.29	51.28	49.38	34.44	56.12	57.39	49.99	46.67	36.34
Near IOBP Area	59.19	57.30	46.43	46.89	34.22	51.40	60.16	46.41	45.00	33.86
	22.09.2024					**26.09.2024**				
Near Main Gate Area	51.93	63.12	49.10	45.65	33.50	55.91	63.23	60.37	48.95	29.54
Near Back Gate Area	50.08	60.69	52.41	48.71	33.97	53.80	67.36	54.74	46.08	34.37
Near Pellet Plant Area	53.65	62.93	55.53	45.21	31.76	52.99	66.08	56.12	45.06	32.22
Near IOBP Area	50.95	60.33	54.96	49.10	32.55	55.46	61.06	52.06	46.09	31.27
	29.09.2024									
Near Main Gate Area	55.56	62.62	55.88	48.94	32.90					
Near Back Gate Area	54.42	59.84	53.03	44.74	34.00					
Near Pellet Plant Area	51.93	65.04	55.68	41.93	33.45					
Near IOBP Area	51.29	63.05	56.02	48.72	31.26					

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SURFACE WATER ANALYSIS REPORT

FOR

THE MONTH OF SEPTEMBER -2024

Surface Water Monitoring:

Number of locations – 04

Name Sampling Locations:

a. Baitarani River (Dhanurjaypur)
b. Baitarani River (Near Plant Area)
c. Reservoir Pond (Inside Plant)
d. Dalki Nala Near Plant
e. Nadiguth Village

Frequency of sampling - Once a month

Number of samples - 5

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	Baitarani River (Dhanurjaypur)	08.09.2024
2	Baitarani River (Near Plant Area)	08.09.2024
3	Reservoir Pond (Inside Plant)	08.09.2024
4	Dalki Nala Near Plant	08.09.2024
5	Nadiguth Village	08.09.2024

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Sl. No.	Parameter	Baitarani River (Dhanurjaypur)	Baitarani River (Near Plant Area)	Reservoir Pond (Inside Plant)	Dalki Nala Near Plant	Nadiguth Village
1.	Colour (Pt-Co)	<1	<1	<1	<1	<1
2.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Temperature (°C)	35.68	36.23	35.21	37.39	36.65
4.	pH	7.43	7.99	7.22	7.17	7.37
5.	Total Suspended Solids (mg/L)	18.48	20.19	25.80	15.56	18.40
6.	Total Dissolved Solid (mg/L)	587.04	650.63	612.67	651.30	555.85
7.	Biochemical Oxygen Demand at 27°C(mg/L)	5.34	5.68	6.57	3.79	3.66
8.	Chemical Oxygen Demand(mg/L)	1.14	1.37	5.24	2.17	1.69
9.	Total Residual Chlorine(mg/L)	1.19	1.07	2.87	1.17	0.74
10.	Alkalinity(mg/L)	68.33	45.30	62.47	38.85	41.79
11.	Calcium(mg/L)	44.70	32.90	47.32	30.37	31.91
12.	Magnesium(mg/L)	35.74	30.03	42.23	39.23	36.69
13.	Total Hardness as CaCO3(mg/L)	38.06	37.25	82.82	30.67	32.95
14.	Electrical Conductivity (µs/cm)	93.07	60.81	124.21	87.30	107.02
15.	Turbidity (NTU)	14.95	19.23	47.17	29.00	21.83
16.	Arsenic as As (µg/L)	ND	ND	ND	ND	ND
17.	Lead as Pb (µg/L)	ND	ND	ND	ND	ND
18.	Cadmium as Cd (µg/L)	ND	ND	ND	ND	ND
19.	Total Chromium as Cr (µg/L)	ND	ND	ND	ND	ND
20.	Zinc as Zn (µg/L)	0.01	0.12	0.02	0.51	0.03
21.	Fluoride as F (mg/L)	ND	ND	ND	ND	ND
22.	Iron as Fe (mg/L)	10.06	11.90	34.92	8.16	9.44
23.	Nitrate (mg/L)	1.22	3.59	6.10	2.92	2.32
24.	Sodium as Na (mg/L)	1.68	2.46	14.50	2.38	1.96
25.	Potassium as K (mg/L)	1.52	0.97	4.60	2.23	1.17
26.	Sulfate (mg/L)	1.40	1.22	4.25	4.22	0.85
27.	Nitrate as NO3 (mg/L)	2.32	3.15	5.35	3.45	2.12
28.	Total Silica as SiO2 (mg/L)	4.96	2.50	9.37	2.26	1.40

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GROUND WATER ANALYSIS REPORT

FOR

THE MONTH OF SEPTEMBER -2024

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Ground Water Monitoring:

GROUND WATER MONITORING REPORT SUMMARY SHEET OF SAMPLING (GROUNDWATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample01	MALDAVILLAGE	10- September-2024	OCPL/GW/01/09/24
2.	Sample02	NEDIGUTH	10- September-2024	OCPL/GW/02/09/24
3.	Sample03	TALASAHI	10- September-2024	OCPL/GW/03/09/24
4.	Sample04	PLANT-1(Near Canteen)	10- September-2024	OCPL/GW/04/09/24
5.	Sample05	PLANT-2(SLIMEPOND)	10- September-2024	OCPL/GW/05/09/24

ANALYSIS RESULT (With drinking water specifications, BIS (As per 10500- 2012BIS)

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT- 1 (Near Canteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.0	1.0	1.1	1.1	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	28.86	28.87	29.05	28.06	28.86		
4	pH	-	6.5	7.7	7.5	7.4	7.5	6.5-8.5	No relaxation
5	Total Hardness (as CaCO3)	mg/L	62.64	60.95	61.06	58.70	62.99	300	600

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6	Calcium	mg/L	8.3	8.5	11.7	12.5	8.7	75	200
7	Magnesium	mg/L	1.5	3.9	3.9	4.1	1.8	30	No relaxation
8	Chloride	mg/L	15.8	15.4	15.3	15.2	18.3	250	1000
9	Alkalinity	mg/L	19.1	17.0	18.8	11.5	18.2	200	600
10	Electrical Conductivity	µs/cm	76.5	65.1	64.2	62.5	75.5	--	--
11	Arsenic as As	µg/L	0.03	ND	0.03	ND	0.03	10	No relaxation
12	Lead as Pb	µg/L	ND	0.1	0.11	0.5	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	0.05	0.05	3.0	No relaxation
14	Total Chromium as Cr	µg/L	0.5	ND	0.05	0.05	0.04	50	No relaxation
15	Zinc as Zn	µg/L	92.2	93.6	77.2	77.3	97.1	5000	No relaxation
16	Fluoride as F	mg/L	ND	0.02	ND	0.02	ND	1.0	1.9
17	Iron as Fe	µg/L	15.3	15.3	25.3	35.1	35	300	1000
18	Nitrate	mg/L	1.2	1.3	1.2	1.0	1.0	45	100

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19	Sodium as Na	mg/L	2.5	3.2	3.1	4.5	5	150	No relaxation
20	Potassium as K	mg/L	ND	0.12	0.1	0.1	0.1	12	No relaxation
21	Sulfate	mg/L	ND	ND	0.05	0.05	0.5	200	400
22	Total Silica as SiO2	mg/L	0.5	ND	0.1	ND	0.5	--	--
23	Total suspended Solid	mg/L	0.12	1.13	1.1	0.23	1.1	--	--
24	Total dissolved Solid	mg/L	85	76.5	72	95.5	88	250	2000
25	Turbidity	NTU	0.5	0.5	0.5	0.5	0.5	5	10

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GROUND WATER LEVEL ANALYSIS REPORT FOR

THE MONTH OF SEPTEMBER -2024

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Ground Water Level Monitoring:

SUMMARYSHEETOFMONITORING:

SlNo.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1	Sample01	MALDA VILLAGE	12- September -2024	OCPL/GWL/01/09/24
2	Sample02	NEDIGUTH	12- September -2024	OCPL/GWL/02/09/24
3	Sample03	TALASAHI	12- September -2024	OCPL/GWL/03/09/24
4	Sample04	PLANT-1(Near Canteen)	12- September -2024	OCPL/GWL/04/09/24
5	Sample05	PLANT-2(SLIMEPOND)	12- September -2024	OCPL/GWL/05/09/24

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia.(m)	Depth of the well (m)	Depth of the water table BGL(M)	Remarks
1	MALDAVILLAGE	Dug well	0.5	9	9.0	--
2	NEDIGUTH	Dug well	1.52	9.2	9.8	--
3	TALASAHI	Dug well	1.0	8.5	8.9	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	65	12.2	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	61.5	38.1	--

Sampling By: Mr. Hrusikesh Das

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STACK MONITORING REPORT

FOR

THE MONTH OF SEPTEMBER – 2024

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Stack Monitoring:

Number of Stack – 04

Name Sampling Locations:

a. DGStack-1
b. DGStack-2
c. Stack-1(Pellet Plant Process Stack)
d. Stack-2(Pellet Plant Dedusting Stack)

Frequency of sampling - Once a month

Number of samples - 4

SUMMARY SHEET OF SAMPLING:

Sample Nos.	Location	Date of Sampling
1	DG Stack-1	08.09.2024
2	DG Stack-2	08.09.2024
3	Stack-1(Pellet Plant Process Stack)	09.09.2024
4	Stack-2(Pellet Plant Dedusting Stack)	09.09.2024

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		DG Stack-1	DG Stack-2	Pellet Plant Process Stack	Pellet Plant Dedusting Stack
A. General information about Stack					
1	Stack connected to	DG-1	DG-2	Pellet plant process stack	Pellet plant de-dusting stack
2	Emission due to	Burning of Diesel	Burning of Diesel	Burning of furnace oil	Electricity
3	Material of construction of stack	MS	MS	MS	MS
4	Shape of Stack	Circular	Circular	Circular	Circular
5	Serial no.	N15E226771	N15H319963	--	--
6	Boiler/Furnace/DG/Kiln Capacity	1250KVA	1250KVA	--	--
B. Physical characteristics of stack					
1	Height of the Stack from Ground level	9 m	9 m	80 m	60 m
2	Diameter of the stack at sampling point	400 mm	400 mm	--	--
3	Height of the Sampling Point from Ground level	7 m	7 m	--	--
4	Type	HCKI634Z1	HCKI634Z1	--	--
C. Analysis/Characteristic of Stack					
1	Fuel used	LDO	LDO	FO	FO
2	Fuel Consumption	NA	NA	NA	NA

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D. Results of Sampling & Analysis of Gaseous Emission

	Parameters	DG Stack-1	DG Stack-2		Parameters	Pellet Plant Process Stack	Pellet Plant Dedusting Stack	Limit
1	Temperature of Emission(°C) *Method - IS11255(PartIII),2008RA2018*	78.3	80.2	--	Temperature of Emission(oC)	95.2	94.6	--
2	Barometric pressure (mm of Hg) *Method - USEPAPart2- 25/09/1996*	262	330	--	Emission (M3/Hr.)	7262	6558	--
3	Velocity of gas(m/sec.) *Method - IS11255(PartIII),2008RA2018*	11.5	33.6	--	Velocity (NM3/Hr)	35602	36459	--
4	Quantity of Gas Flow (Nm^3/hr) *Method - IS11255(PartIII),2008RA2018*	652	1678	--	PM Concentration Mg/nm3 PM10	132	140	150
5	Concentration of Moisture (%) *Method - USEPA(Part-4)*	<2.0	<2.0	--	PM Concentration Mg/nm3 PM2.5	132	128	150
6	Concentration of Oxygen (%v/v) *Method - IS13270:1992, Ref:2009*	8.1	8.2	--	--	--	--	--
7	Concentration of Carbon Monoxide (mg/Nm^3) *Method - IS13270:1992, Ref:2009*	22.3	24.2	--	Carbon monoxide (CO) Mg/nm3	<0.5	<0.5	1
8	Concentration of Carbon Dioxide(%v/v) *Method - IS13270:1992, Ref:2009*	6.0	12.5	--	Carbon dioxide (CO2) %v/v	8.2	7.2	--
9	Concentration of Sulphur Dioxide(mg/Nm^3) *Method - IS11255(PartII),1985RA2014*	122	150	600	Concentration of Sulphur Dioxide(mg/Nm3)	185	182	--
10	Concentration of Nitrogen Dioxide(mg/Nm^3) *Method - IS11255(Part7),2005RA2017*	72.3	75.6	300	Concentration of Nitrogen Dioxide (mg/Nm3	80	81	--
11	Concentration of Particulate Matters (mg/Nm3) *Method - IS11255(PartI):1985, RA2014*	32.5	35.2	50	--	--	--	--