ADITYA BIRLA

EMIL

Ref. No. A/ 490 /2023-24

Dated–01.12.2023
(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-2023 to September-2023 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-2023 to September-2023**.

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

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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-2023 to September-2023

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-4886/lND-I-CON-6459 dated 28.03.2023 valid up to 31.03.2024.
(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 i.e. 13.5 Crores.
(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, $S0_2$ 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

5/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

M/S ESSEL MINING & INDUSTRIES LTD.
VILL- BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA, KEONJHAR

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near ECR -1		√				√	
Near Canteen		√				√	
Near Admin Building		√				√	
Nedigoth Village			√				√

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near ECR -1	03.04.2023	OCPL/ AAQ/EMIL/01/04/23
2.	Sample 02	Near Canteen	03.04.2023	OCPL/ AAQ/EMIL/02/04/23
3.	Sample 03	Near Admin Building	03.04.2023	OCPL/ AAQ/EMIL/03/04/23
4.	Sample 04	Nedigoth Village	01.04.2023	OCPL/ AAQ/EMIL/04/04/23
5.	Sample 05	Near ECR -1	07.04.2023	OCPL/ AAQ/EMIL/05/04/23
6.	Sample 06	Near Canteen	07.04.2023	OCPL/ AAQ/EMIL/06/04/23
7.	Sample 07	Near Admin Building	07.04.2023	OCPL/ AAQ/EMIL/07/04/23
8.	Sample 08	Nedigoth Village	04.04.2023	OCPL/ AAQ/EMIL/08/04/23
9.	Sample 09	Near ECR -1	10.04.2023	OCPL/ AAQ/EMIL/09/04/23
10.	Sample 10	Near Canteen	10.04.2023	OCPL/ AAQ/EMIL/10/04/23
11.	Sample 11	Near Admin Building	10.04.2023	OCPL/ AAQ/EMIL/11/04/23
12.	Sample 12	Nedigoth Village	08.04.2023	OCPL/ AAQ/EMIL/12/04/23
13.	Sample 13	Near ECR -1	14.04.2023	OCPL/ AAQ/EMIL/13/04/23
14.	Sample 14	Near Canteen	14.04.2023	OCPL/ AAQ/EMIL/14/04/23
15.	Sample 15	Near Admin Building	14.04.2023	OCPL/ AAQ/EMIL/15/04/23
16.	Sample 16	Nedigoth Village	11.04.2023	OCPL/ AAQ/EMIL/16/04/23

17.	Sample 17	Near ECR -1	17.04.2023	OCPL/ AAQ/EMIL/17/04/23
18.	Sample 18	Near Canteen	17.04.2023	OCPL/ AAQ/EMIL/18/04/23
19.	Sample 19	Near Admin Building	17.04.2023	OCPL/ AAQ/EMIL/19/04/23
20.	Sample 20	Nedigoth Village	15.04.2023	OCPL/ AAQ/EMIL/20/04/23
21.	Sample 21	Near ECR -1	21.04.2023	OCPL/ AAQ/EMIL/21/04/23
22.	Sample 22	Near Canteen	21.04.2023	OCPL/ AAQ/EMIL/22/04/23
23.	Sample 23	Near Admin Building	21.04.2023	OCPL/ AAQ/EMIL/23/04/23
24.	Sample 24	Nedigoth Village	18.04.2023	OCPL/ AAQ/EMIL/24/04/23
25.	Sample 25	Near ECR -1	24.04.2023	OCPL/ AAQ/EMIL/25/04/23
26.	Sample 26	Near Canteen	24.04.2023	OCPL/ AAQ/EMIL/26/04/23
27.	Sample 27	Near Admin Building	24.04.2023	OCPL/ AAQ/EMIL/27/04/23
28.	Sample 28	Nedigoth Village	22.04.2023	OCPL/ AAQ/EMIL/28/04/23
29.	Sample 29	Near ECR -1	26.04.2023	OCPL/ AAQ/EMIL/29/04/23
30.	Sample 30	Near Canteen	26.04.2023	OCPL/ AAQ/EMIL/30/04/23
31.	Sample 31	Near Admin Building	26.04.2023	OCPL/ AAQ/EMIL/31/04/23
32.	Sample 32	Nedigoth Village	25.04.2023	OCPL/ AAQ/EMIL/32/04/23
33.	Sample 33	Near ECR -1	28.04.2023	OCPL/ AAQ/EMIL/33/04/23
34.	Sample 34	Near Canteen	28.04.2023	OCPL/ AAQ/EMIL/34/04/23
35.	Sample 35	Near Admin Building	28.04.2023	OCPL/ AAQ/EMIL/35/04/23
36.	Sample 36	Nedigoth Village	29.04.2023	OCPL/ AAQ/EMIL/36/04/23

LOCATION: Near ECR -1

Parameters	Limit (µg/M^3)	Date									
		03.04.23	07.04.23	10.04.23	14.04.23	17.04.23	21.04.23	24.04.23	26.04.23	28.04.23	Avg
PM_{10}	100	90.8	94.2	96.6	95.4	89.5	98.6	94.6	96	98.5	94.91
$PM_{2.5}$	60	58.2	56.4	58.5	54	56.8	54.4	60	55.8	56.2	56.72
Sulphur Dioxide (SO_2)	80	37.8	38	39.4	38.6	40.2	41	42.6	39.8	40	39.71
Oxide of Nitrogen (NO_2)	80	32.5	34	36.8	35.2	34.6	32.4	34	33.6	35.2	34.25
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	175.4	172.2	176	178.4	182.6	180.6	184	182	182.6	179.31
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	37.2	36.8	38.4	39	40.2	41.6	44	40.4	39.5	39.67
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Canteen

Parameters	Limit (µg/ M^3)	DATE									
		03.04.23	07.04.23	10.04.23	14.04.23	17.04.23	21.04.23	24.04.23	26.04.23	28.04.23	Avg
PM_{10}	100	88	84.5	84.4	85.4	90.2	86	86.8	87.2	88.5	86.77
$PM_{2.5}$	60	56.2	55.8	58.6	60	58	58.5	54.4	57	58.1	57.41
Sulphur Dioxide (SO_2)	80	44.5	42	46.6	44.2	42.4	43.8	45.6	42.3	48	44.37
Oxide of Nitrogen (NO_2)	80	45.2	46.8	44.2	45.5	46	47.3	46.6	44	46.2	45.75
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	187.5	188.6	186	185.4	192	188.6	189.5	186.6	191	188.3
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	35.8	36.6	36.2	38	34.8	36.6	38.4	35.3	37.2	36.54
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Admin Building

Parameters	Limit ($\mu g/M^3$)	DATE									
		03.04.23	07.04.23	10.04.23	14.04.23	17.04.23	21.04.23	24.04.23	26.04.23	28.04.23	Avg
PM_{10}	100	94.5	92.8	94	96.2	96.6	98.4	94.5	92.6	96	95.06
$PM_{2.5}$	60	59.2	60	58.4	58.6	59.2	58	55.4	57.9	58.8	59.78
Sulphur Dioxide (SO_2)	80	34.2	32.5	36	34.6	32.5	30.2	33.6	34	34.8	33.6
Oxide of Nitrogen (NO_2)	80	32.4	34.2	30.6	34	36.5	34.8	35.2	32.8	32	33.61
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	167.8	169.4	174.6	168	169.8	172.4	176.5	170.2	171.4	171.1
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	36.5	38	38.4	36	35.9	37.2	34.5	37.2	39.4	37.01
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Nedigoth Village

Parameters	Limit (µg/M^3)	DATE									
		01.04.23	04.04.23	08.04.23	11.04.23	15.04.23	18.04.23	22.04.23	25.04.23	29.04.23	Avg
PM_{10}	100	44.6	42	46.4	46.4	48.2	44.3	45.2	44.5	45.8	45.26
$PM_{2.5}$	60	42.6	42	43.2	44.6	44.2	43.5	40.8	42.8	41.6	42.81
Sulphur Dioxide (SO_2)	80	18	19.7	21.4	20.4	22.8	17.5	18.4	19	17.9	19.45
Oxide of Nitrogen (NO_2)	80	18.2	18	18.6	19.5	17.6	18.5	16.8	16.2	19.1	18.05
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	140.4	142.8	146	148.8	146.2	145.8	145.4	140.8	142	144.24
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12.5	13.2	14.6	14	13.8	16.2	16.5	14.4	12.7	14.21
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, &CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

NOISE LEVEL MONITORING RESULT (In DbA) FOR THE MONTH OF APRIL

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area				√		√	
Near Back Gate Area				√		√	
Near Pellet Plant Area				√		√	
Near IOBP Area				√		√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	05.04.2023	OCPL/ NL/EMIL/01/04/23
2.	Sample 02	Near Back Gate Area	05.04.2023	OCPL/ NL/EMIL/02/04/23
3.	Sample 03	Near Pellet Plant Area	05.04.2023	OCPL/ NL/EMIL/03/04/23
4.	Sample 04	Near IOBP Area	05.04.2023	OCPL/ NL/EMIL/04/04/23
5.	Sample 05	Near Main Gate Area	07.04.2023	OCPL/ NL/EMIL/05/04/23
6.	Sample 06	Near Back Gate Area	07.04.2023	OCPL/ NL/EMIL/06/04/23
7.	Sample 07	Near Pellet Plant Area	07.04.2023	OCPL/ NL/EMIL/07/04/23
8.	Sample 08	Near IOBP Area	07.04.2023	OCPL/ NL/EMIL/08/04/23
9.	Sample 09	Near Main Gate Area	12.04.2023	OCPL/ NL/EMIL/09/04/23
10.	Sample 10	Near Back Gate Area	12.04.2023	OCPL/ NL/EMIL/10/04/23
11.	Sample 11	Near Pellet Plant Area	12.04.2023	OCPL/ NL/EMIL/11/04/23
12.	Sample 12	Near IOBP Area	12.04.2023	OCPL/ NL/EMIL/12/04/23
13.	Sample 13	Near Main Gate Area	14.04.2023	OCPL/ NL/EMIL/13/04/23
14.	Sample 14	Near Back Gate Area	14.04.2023	OCPL/ NL/EMIL/14/04/23
15.	Sample 15	Near Pellet Plant Area	14.04.2023	OCPL/ NL/EMIL/15/04/23
16.	Sample 16	Near IOBP Area	14.04.2023	OCPL/ NL/EMIL/16/04/23
17.	Sample 17	Near Main Gate Area	19.04.2023	OCPL/ NL/EMIL/17/04/23
18.	Sample 18	Near Back Gate Area	19.04.2023	OCPL/ NL/EMIL/18/04/23
19.	Sample 19	Near Pellet Plant Area	19.04.2023	OCPL/ NL/EMIL/19/04/23
20.	Sample 20	Near IOBP Area	19.04.2023	OCPL/ NL/EMIL/20/04/23
21.	Sample 21	Near Main Gate Area	21.04.2023	OCPL/ NL/EMIL/21/04/23
22.	Sample 22	Near Back Gate Area	21.04.2023	OCPL/ NL/EMIL/22/04/23
23.	Sample 23	Near Pellet Plant Area	21.04.2023	OCPL/ NL/EMIL/23/04/23
24.	Sample 24	Near IOBP Area	21.04.2023	OCPL/ NL/EMIL/24/04/23
25.	Sample 25	Near Main Gate Area	24.04.2023	OCPL/ NL/EMIL/25/04/23
26.	Sample 26	Near Back Gate Area	24.04.2023	OCPL/ NL/EMIL/26/04/23
27.	Sample 27	Near Pellet Plant Area	24.04.2023	OCPL/ NL/EMIL/27/04/23
28.	Sample 28	Near IOBP Area	24.04.2023	OCPL/ NL/EMIL/28/04/23

29.	Sample 29	Near Main Gate Area	26.04.2023	OCPL/ NL/EMIL/29/04/23
30.	Sample 30	Near Back Gate Area	26.04.2023	OCPL/ NL/EMIL/30/04/23
31.	Sample 31	Near Pellet Plant Area	26.04.2023	OCPL/ NL/EMIL/31/04/23
32.	Sample 32	Near IOBP Area	26.04.2023	OCPL/ NL/EMIL/32/04/23
33.	Sample 33	Near Main Gate Area	28.04.2023	OCPL/ NL/EMIL/33/04/23
34.	Sample 34	Near Back Gate Area	28.04.2023	OCPL/ NL/EMIL/34/04/23
35.	Sample 35	Near Pellet Plant Area	28.04.2023	OCPL/ NL/EMIL/35/04/23
36.	Sample 36	Near IOBP Area	28.04.2023	OCPL/ NL/EMIL/36/04/23

Date of Monitoring: 05.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	56.2	61.2	65.4	57.4	25.1
2	Near Back Gate Area	51.8	62.4	61	54	22
3	Near Pellet Plant Area	46	64.2	54.4	42.8	34.2
4	Near IOBP Area	32.4	58.4	36	47.2	24.5
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 07.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	57.2	65.8	54	38.6	32.4
2	Near Back Gate Area	46.2	65.5	52	46.2	32.8
3	Near Pellet Plant Area	58.2	64.4	60.2	45.2	26.5
4	Near IOBP Area	46.2	37.2	35.5	36.2	31.4
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 12.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	54.2	62.4	64.8	44.5	27.4
2	Near Back Gate Area	45.5	54.2	55.2	47.8	21.7
3	Near Pellet Plant Area	47.5	54.4	53.6	44.4	28.2
4	Near IOBP Area	44.5	33	45.6	41	22.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 14.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	56.6	66.8	63.3	42.4	32.8
2	Near Back Gate Area	56.2	55.8	56.6	51.4	28.2
3	Near Pellet Plant Area	51	51.8	50.5	38.2	31.6
4	Near IOBP Area	54.3	52.6	52	54.4	27
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 19.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	54.2	64.6	67.4	50.3	34.6
2	Near Back Gate Area	45.4	41.2	48.6	42.5	21
3	Near Pellet Plant Area	41.6	38	56.4	38.2	36.5
4	Near IOBP Area	38.5	51	50.4	36.4	34.9
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 21.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	43.6	62.2	56.4	35.4	22.9
2	Near Back Gate Area	41	52.5	54.8	36	30.5
3	Near Pellet Plant Area	44.8	62.4	56.2	37.9	40.9
4	Near IOBP Area	39.4	65	58.9	42.2	44.8
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 24.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	62.2	60.4	63.6	52.7	32.6
2	Near Back Gate Area	44.8	51.4	44.6	39	36.4
3	Near Pellet Plant Area	49.4	57.8	62.6	44.5	34
4	Near IOBP Area	55.4	52.6	41.4	46.2	36.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 26.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	40.3	64.4	60.2	62.5	31.4
2	Near Back Gate Area	36.2	52	51.4	40.6	27.5
3	Near Pellet Plant Area	44.6	49.6	45.7	51.2	32.5
4	Near IOBP Area	50.5	52.4	40.5	42.6	27
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 28.04.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	54.8	65.4	58.6	44	28.5
2	Near Back Gate Area	44.5	46.1	36.4	32.4	34.6
3	Near Pellet Plant Area	65.3	68.2	66.6	56.5	22.4
4	Near IOBP Area	54.4	56.4	42.5	32.9	27.4
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF APRIL– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	06- APRIL -2023	OCPL/SW/01/04/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	06- APRIL -2023	OCPL/SW/02/04/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	06- APRIL -2023	OCPL/SW/03/04/23
4.	Sample 04	DALKI NALA NEAR PLANT	06- APRIL -2023	OCPL/SW/04/04/23
5.	Sample 05	NADIGUTH	06- APRIL -2023	OCPL/SW/05/04/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/04/23		**Report No.- OCPL/EMIL/01/04/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- APRIL -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- APRIL -2023
Sample type	Surface Water	Date of Analysis	07- APRIL -2023
Required parameters	As described in W/O	Date of Issue of report	17- APRIL -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	25.0
4	pH	-	6.9
5	Total Suspended Solids	mg/L	65.4
6	Total Dissolved Solid	mg/L	719
7	Biochemical Oxygen Demand at 27°C	mg/L	6.1
8	Chemical Oxygen Demand	mg/L	1.14
9	Total Residual Chlorine	mg/L	0.48
10	Alkalinity	mg/L	78.2
11	Calcium	mg/L	38.9
12	Magnesium	mg/L	38.2
13	Total Hardness as CaCO3	mg/L	42.5
14	Electrical Conductivity	µs/cm	114
15	Turbidity	NTU	11.4
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.02
20	Zinc as Zn	µg/L	0.26
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	9.7
23	Nitrate	mg/L	1.02
24	Sodium as Na	mg/L	1.45
25	Potassium as K	mg/L	1.44
26	Sulfate	mg/L	1.18
27	Nitrate as NO_3	mg/L	1.98
28	Total Silica as SiO_2	mg/L	4.14
29	Total dissolved Solid	mg/L	719

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/04/23		**Report No.- OCPL/EMIL/02/04/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (NEAR PLANT AREA)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- APRIL -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- APRIL -2023
Sample type	Surface Water	Date of Analysis	07- APRIL -2023
Required parameters	As described in W/O	Date of Issue of report	17- APRIL -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.1
2	Odour	-	Agreeable
3	Temperature	°C	25.1
4	pH	-	6.9
5	Total Suspended Solids	mg/L	35.4
6	Total Dissolved Solid	mg/L	722
7	Biochemical Oxygen Demand at 27°C	mg/L	4.1
8	Chemical Oxygen Demand	mg/L	1.2
9	Total Residual Chlorine	mg/L	0.4
10	Alkalinity	mg/L	14.4
11	Calcium	mg/L	18.6
12	Magnesium	mg/L	36
13	Total Hardness as CaCO3	mg/L	34.5
14	Electrical Conductivity	µs/cm	54.8
15	Turbidity	NTU	29.6

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.14
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	12.8
23	Nitrate	mg/L	4.1
24	Sodium as Na	mg/L	2.2
25	Potassium as K	mg/L	0.62
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	4.6
28	Total Silica as SiO_2	mg/L	3.5
29	Total dissolved Solid	mg/L	722

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/04/23		**Report No.- OCPL/EMIL/03/04/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**RESERVOUR POND INSIDE PLANT PREMISES**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- APRIL -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- APRIL -2023
Sample type	Surface Water	Date of Analysis	07- APRIL -2023
Required parameters	As described in W/O	Date of Issue of report	17- APRIL -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.4
2	Odour	-	Agreeable
3	Temperature	°C	25.5
4	pH	-	6.5
5	Total Suspended Solids	mg/L	142
6	Total Dissolved Solid	mg/L	958
7	Biochemical Oxygen Demand at 27°C	mg/L	9.8
8	Chemical Oxygen Demand	mg/L	6.1
9	Total Residual Chlorine	mg/L	4.8
10	Alkalinity	mg/L	82.6
11	Calcium	mg/L	54.8
12	Magnesium	mg/L	55.6
13	Total Hardness as CaCO3	mg/L	172.2
14	Electrical Conductivity	µs/cm	194.6

15	Turbidity	NTU	62.4
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.14
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	<0.05
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	46.8
23	Nitrate	mg/L	6.4
24	Sodium as Na	mg/L	35.4
25	Potassium as K	mg/L	7.8
26	Sulfate	mg/L	4.1
27	Nitrate as NO_3	mg/L	5.04
28	Total Silica as SiO_2	mg/L	14.6
29	Total dissolved Solid	mg/L	958

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/04/23		**Report No.- OCPL/EMIL/04/04/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- APRIL -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- APRIL -2023
Sample type	Surface Water	Date of Analysis	07- APRIL -2023
Required parameters	As described in W/O	Date of Issue of report	17- APRIL -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.2
2	Odour	-	Agreeable
3	Temperature	°C	24.8
4	pH	-	6.9
5	Total Suspended Solids	mg/L	44.5
6	Total Dissolved Solid	mg/L	614
7	Biochemical Oxygen Demand at 27°C	mg/L	3.8
8	Chemical Oxygen Demand	mg/L	1.2
9	Total Residual Chlorine	mg/L	0.1
10	Alkalinity	mg/L	28.9
11	Calcium	mg/L	19.6
12	Magnesium	mg/L	22.8
13	Total Hardness as CaCO3	mg/L	28.2
14	Electrical Conductivity	µs/cm	96.4
15	Turbidity	NTU	24.2

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.02
20	Zinc as Zn	µg/L	1.2
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	12.6
23	Nitrate	mg/L	8.2
24	Sodium as Na	mg/L	6.1
25	Potassium as K	mg/L	3.6
26	Sulfate	mg/L	6.5
27	Nitrate as NO_3	mg/L	3.1
28	Total Silica as SiO_2	mg/L	6.2
29	Total dissolved Solid	mg/L	614

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/04/23		**Report No.- OCPL/EMIL/05/04/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- APRIL -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- APRIL -2023
Sample type	Surface Water	Date of Analysis	07- APRIL -2023
Required parameters	As described in W/O	Date of Issue of report	17- APRIL -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.1
2	Odour	-	Agreeable
3	Temperature	°C	25.2
4	pH	-	6.9
5	Total Suspended Solids	mg/L	36.8
6	Total Dissolved Solid	mg/L	586
7	Biochemical Oxygen Demand at 27°C	mg/L	3.4
8	Chemical Oxygen Demand	mg/L	1.6
9	Total Residual Chlorine	mg/L	0.62
10	Alkalinity	mg/L	28.6
11	Calcium	mg/L	21.2
12	Magnesium	mg/L	29.6
13	Total Hardness as CaCO3	mg/L	34.8
14	Electrical Conductivity	µs/cm	72.6
15	Turbidity	NTU	20.4
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	0.04
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.2
23	Nitrate	mg/L	1.6
24	Sodium as Na	mg/L	1.2
25	Potassium as K	mg/L	1.1
26	Sulfate	mg/L	0.42
27	Nitrate as NO_3	mg/L	1.8
28	Total Silica as SiO_2	mg/L	1.02
29	Total dissolved Solid	mg/L	586

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	MALDA VILLAGE	13- APRIL -2023	OCPL/GW/01/04/23
2.	Sample 02	NEDIGUTH	13- APRIL -2023	OCPL/GW/02/04/23
3.	Sample 03	TALA SAHI	13- APRIL -2023	OCPL/GW/03/04/23
4.	Sample 04	PLANT- 1 (Near Canteen)	13- APRIL -2023	OCPL/GW/04/04/23
5.	Sample 05	PLANT- 2 (SLIME POND)	13- APRIL -2023	OCPL/GW/05/04/23

ANALYSIS RESULT

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

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALA SAHI	PLANT- 1 (Near Canteen)	PLANT- 2 (SLIME POND)		
1	Colour	Pt-Co	1.1	1.0	1.0	0.9	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.5	24.8	24.5	25.8	25.8		
4	pH	-	7.1	6.9	7.1	6.9	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	28.2	35.2	32.6	38.4	36.5	300	600
6	Calcium	mg/L	8.2	12.8	16.6	16.2	14.6	75	200
7	Magnesium	mg/L	1.4	1.02	1.8	2.1	2.4	30	No relaxation
8	Chloride	mg/L	8.0	7.8	6.2	12.8	18.6	250	1000
9	Alkalinity	mg/L	7.8	9.1	12.8	14.5	18.4	200	600
10	Electrical Conductivity	µs/cm	62.4	72.8	84	78.4	86.4	--	--
11	Arsenic as As	µg/L	ND	ND	ND	ND	ND	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	ND	ND	ND	50	No relaxation

15	Zinc as Zn	µg/L	48.6	30.5	48.2	52.4	45.4	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	9.8	10.6	8.46	12.4	12.8	300	1000
18	Nitrate	mg/L	0.02	0.14	0.02	0.11	0.08	45	100
19	Sodium as Na	mg/L	0.04	0.02	0.2	1.08	1.2	150	No relaxation
20	Potassium as K	mg/L	ND	ND	ND	ND	ND	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	ND	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	0.02	ND	0.01	--	--
23	Total suspended Solid	mg/L	0.2	0.4	1.4	0.6	0.4	--	--
24	Total dissolved Solid	mg/L	42.8	48	38.5	52.4	56.4	250	2000
25	Turbidity	NTU	0.2	0.1	0.4	0.01	0.02	5	10

Sampling By: Mr. Hrusikesh Das

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF APRIL– 2023

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	20- APRIL -2023	OCPL/GWL/01/04/23
7.	Sample 02	NEDIGUTH	20- APRIL -2023	OCPL/GWL/02/04/23
8.	Sample 03	TALA SAHI	20- APRIL -2023	OCPL/GWL/03/04/23
9.	Sample 04	PLANT- 1 (Near Canteen)	20- APRIL -2023	OCPL/GWL/04/04/23
10.	Sample 05	PLANT- 2 (SLIME POND)	20- APRIL -2023	OCPL/GWL/05/04/23

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	MALDA VILLAGE	Dugwell	0.8	8.2	7.26	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.61	--
3	TALA SAHI	Dugwell	1.0	8.6	8.27	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.62	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.72	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF APRIL – 2023

LOCATION AND MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DG Stack- 1				√			
DG Stack- 2				√			
Stack- 1 (Pellet Plant Process Stack)							√
Stack- 2 (Pellet Plant Dedusting Stack)							√

TEST REPORT

Name & Address of the Client:	**Report No.**: OCPL/BBS/36
M/S ESSEL MINING & INDUSTRIES LTD	**Date : 15.04.2023**
Keonjhar, Odisha, India	**Sample No.**: OCPL/EMIL/2023-24/06
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling : 05.04.2023

ANALYSIS RESULT

A .	**General information about stack :**	
1.	Stack connected to	: DG-1
2 .	Emission due to	: Burning of Diesel
3 .	Material of construction of stack	: MS
4 .	Shape of Stack	: Circular
5 .	Serial no.	: N15E226771

6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack:**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption: NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^oC)	198		IS 11255 (Part III),2008RA 2018
2.	Barometric pressure (mm of Hg)	345		USEPA Part 2 - 25/09/1996
3.	Velocity of gas(m/sec.)	12.9		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1247		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen(% v/v)	8.4		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	22.6		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	4.8		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	108	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	66	300	IS 11255 (Part 7),2005RA 2017

11.	Concentration of Particulate Matters (mg/Nm^3)	34	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Name & Address of the Client :	**Report No.** : OCPL/BBS/37
M/S ESSEL MINING & INDUSTRIES LTD	**Date** : 15.04.2023
Keonjhar, Odisha, India	**Sample No.** : OCPL/EMIL /2023-24/07
	Sample Description : DG Flue Gas Monitoring
	Date of Sampling : 08.04.2023

ANALYSIS RESULT

A .	**General information about stack :**			
1.	Stack connected to		: DG-2	
2 .	Emission due to		: Burning of Diesel	
3 .	Material of construction of stack		: MS	
4 .	Shape of Stack		: Circular	
5 .	Serial no.		: N15H319963	
6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack :**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption : NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^{o}C)	189		IS 11255 (Part III),2008RA 2018

2.	Barometric pressure (mm of Hg)	348		USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	14.9		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1256		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen (% v/v)	8.6		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	21.8		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	4.2		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	112.8	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	62.5	300	IS 11255 (Part 7),2005RA 2017
11.	Concentration of Particulate Matters (mg/Nm^3)	32.6	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

TEST REPORT

Stack No.	Stack Description	Emission due to	Date of Sampling
Stack- 1	Pellet plant process stack	Burning of furnace oil	17:04:2023
Stack- 2	Pellet plant dedusting stack	Electricity	18:04:2023

ANALYSIS RESULT

Stack No.	Stack Description	Stack height (in meter)	Emission M^3 / Hr.	Temperature ^oC	Velocity NM^3/Hr
1	Pellet plant process stack	80	6685	127.2	34625
2	Pellet plant dedusting stack	60	6634	84.5	38456

Stack No.	Stack Description	Carbon monoxide (CO) Mg/nm^3	Carbon dioxide (CO_2) % v/v	PM Concentration Mg/nm^3		SO_2 Mg/nm^3	NO_2 Mg/nm^3
				PM 10	PM 2.5		
Norms/Limit		1	NA	150	150	NA	NA
1	Pellet plant process stack	<0.2	4.62	62.4	68.6	242	62.4
2	Pellet plant dedusting stack	<0.2	4.9	54.5	54	268.6	51.3

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used: Thermo Environmental Instruments TEI- 401

Sampling By: Mr. Hrusikesh Das

6/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

M/S ESSEL MINING & INDUSTRIES LTD.
VILL- BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA, KEONJHAR

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near ECR -1		√				√	
Near Canteen		√				√	
Near Admin Building		√				√	
Nadiguth Village		√				√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near ECR -1	01.05.2023	OCPL/ AAQ/EMIL/01/05/23
2.	Sample 02	Near Canteen	01.05.2023	OCPL/ AAQ/EMIL/02/05/23
3.	Sample 03	Near Admin Building	01.05.2023	OCPL/ AAQ/EMIL/03/05/23
4.	Sample 04	Nedigutha Village	02.05.2023	OCPL/ AAQ/EMIL/04/05/23
5.	Sample 05	Near ECR -1	05.05.2023	OCPL/ AAQ/EMIL/05/05/23
6.	Sample 06	Near Canteen	05.05.2023	OCPL/ AAQ/EMIL/06/05/23
7.	Sample 07	Near Admin Building	05.05.2023	OCPL/ AAQ/EMIL/07/05/23
8.	Sample 08	Nedigutha Village	06.05.2023	OCPL/ AAQ/EMIL/08/05/23
9.	Sample 09	Near ECR -1	08.05.2023	OCPL/ AAQ/EMIL/09/05/23
10.	Sample 10	Near Canteen	08.05.2023	OCPL/ AAQ/EMIL/10/05/23
11.	Sample 11	Near Admin Building	08.05.2023	OCPL/ AAQ/EMIL/11/05/23
12.	Sample 12	Nedigutha Village	09.05.2023	OCPL/ AAQ/EMIL/12/05/23
13.	Sample 13	Near ECR -1	12.05.2023	OCPL/ AAQ/EMIL/13/05/23
14.	Sample 14	Near Canteen	12.05.2023	OCPL/ AAQ/EMIL/14/05/23
15.	Sample 15	Near Admin Building	12.05.2023	OCPL/ AAQ/EMIL/15/05/23
16.	Sample 16	Nedigutha Village	13.05.2023	OCPL/ AAQ/EMIL/16/05/23

17.	Sample 17	Near ECR -1	15.05.2023	OCPL/ AAQ/EMIL/17/05/23
18.	Sample 18	Near Canteen	15.05.2023	OCPL/ AAQ/EMIL/18/05/23
19.	Sample 19	Near Admin Building	15.05.2023	OCPL/ AAQ/EMIL/19/05/23
20.	Sample 20	Nedigutha Village	16.05.2023	OCPL/ AAQ/EMIL/20/05/23
21.	Sample 21	Near ECR -1	19.05.2023	OCPL/ AAQ/EMIL/21/05/23
22.	Sample 22	Near Canteen	19.05.2023	OCPL/ AAQ/EMIL/22/05/23
23.	Sample 23	Near Admin Building	19.05.2023	OCPL/ AAQ/EMIL/23/05/23
24.	Sample 24	Nedigutha Village	20.05.2023	OCPL/ AAQ/EMIL/24/05/23
25.	Sample 25	Near ECR -1	22.05.2023	OCPL/ AAQ/EMIL/25/05/23
26.	Sample 26	Near Canteen	22.05.2023	OCPL/ AAQ/EMIL/26/05/23
27.	Sample 27	Near Admin Building	22.05.2023	OCPL/ AAQ/EMIL/27/05/23
28.	Sample 28	Nedigutha Village	23.05.2023	OCPL/ AAQ/EMIL/28/05/23
29.	Sample 29	Near ECR -1	26.05.2023	OCPL/ AAQ/EMIL/29/05/23
30.	Sample 30	Near Canteen	26.05.2023	OCPL/ AAQ/EMIL/30/05/23
31.	Sample 31	Near Admin Building	26.05.2023	OCPL/ AAQ/EMIL/31/05/23
32.	Sample 32	Nedigutha Village	27.05.2023	OCPL/ AAQ/EMIL/32/05/23
33.	Sample 33	Near ECR -1	29.05.2023	OCPL/ AAQ/EMIL/33/05/23
34.	Sample 34	Near Canteen	29.05.2023	OCPL/ AAQ/EMIL/34/05/23
35.	Sample 35	Near Admin Building	29.05.2023	OCPL/ AAQ/EMIL/35/05/23
36.	Sample 36	Nedigutha Village	31.05.2023	OCPL/ AAQ/EMIL/36/05/23

LOCATION: Near ECR -1

Parameters	Limit (µg/M^3)	Date									
		01.05.23	05.05.23	08.05.23	12.05.23	15.05.23	19.05.23	22.05.23	26.05.23	29.05.23	Avg
PM_{10}	100	96.8	94.4	96.2	95	94.6	94	92.8	95.6	96.2	95.06
$PM_{2.5}$	60	54.4	52.8	54.6	47.6	52	54.8	52	60	51.4	53.31
Sulphur Dioxide (SO_2)	80	38.2	40.6	42	41.8	38.6	42.5	46.4	45	44.2	42.14
Oxide of Nitrogen (NO_2)	80	34.8	36.2	44.6	45.2	40.8	38	46.2	36	34.5	39.58
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	178.2	184	186.4	179.2	192.5	188	194.2	179.8	186.4	185.41
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	38.5	36	38.4	39	44.6	45.2	42.8	42.6	41.2	40.92
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Canteen

Parameters	Limit (µg/ M^3)	DATE									
		01.05.23	05.05.23	08.05.23	12.05.23	15.05.23	19.05.23	22.05.23	26.05.23	29.05.23	Avg
PM_{10}	100	82.6	86	84.5	85.9	88	79.8	81.5	87.2	86.8	84.7
$PM_{2.5}$	60	55.8	58	57.4	61	60	57.6	54.4	58.4	59.5	58.32
Sulphur Dioxide (SO_2)	80	43.8	44.2	46.7	48	45.6	49.8	52	44.6	56.4	47.9
Oxide of Nitrogen (NO_2)	80	46	48.6	41	38.4	35.6	39.5	40.1	37	38.5	40.52
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	192.6	184	176.8	186	198.4	192.5	189.5	191	194.2	189.44
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	37	36.8	34	36.9	42.4	32	48.5	52.4	51.5	41.27
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

ORECNIC CONSULTING PVT. LTD. Tested By: OCPL

LOCATION: Near Admin Building

Parameters	Limit ($\mu g/M^3$)	DATE									
		01.05.23	05.05.23	08.05.23	12.05.23	15.05.23	19.05.23	22.05.23	26.05.23	29.05.23	Avg
PM_{10}	100	92.8	94.2	88.6	96	96.2	95.4	94.8	94	88.9	93.43
$PM_{2.5}$	60	60	58.6	56.4	54.4	56.2	52	58.6	57.5	54.8	56.72
Sulphur Dioxide (SO_2)	80	36.8	35.2	34	32.8	41.8	38.9	46	42.5	42	38.88
Oxide of Nitrogen (NO_2)	80	35.6	41.2	44	42.6	38.4	46	44.8	46.5	38	41.9
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	162.4	165.2	168	172	159.6	165.4	166.8	172.4	176	167.5
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	38	36.5	41.2	45.6	48	39.5	42.6	37.2	41.5	41.12
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Nedigutha Village

Parameters	Limit (µg/M^3)	DATE									
		02.05.23	06.05.23	09.05.23	13.05.23	16.05.23	20.05.23	23.05.23	27.05.23	30.04.23	Avg
PM_{10}	100	40.2	41	42.5	46	44.8	44.3	45.8	46.2	44.2	43.88
$PM_{2.5}$	60	39.6	42	42.4	44.6	42.6	43.8	41.6	44.2	40.8	42.4
Sulphur Dioxide (SO_2)	80	16.8	16.5	18	20.4	21.8	23.6	24.8	20.2	22.5	20.51
Oxide of Nitrogen (NO_2)	80	16.5	18.8	18.2	21.4	17.6	20.4	17.6	18.4	19.6	18.72
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	138.8	148.6	152.4	154	148.2	146	154.8	149.8	151.6	149.35
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	13.6	14.2	14.8	16	18.4	17.8	18.2	16.6	14	15.95
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, &CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

NOISE LEVEL MONITORING RESULT (InDbA) FOR THE MONTH OF MAY

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area				√		√	
Near Back Gate Area				√		√	
Near Pellet Plant Area				√		√	
Near IOBP Area				√		√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	03.05.2023	OCPL/ NL/EMIL/01/05/23
2.	Sample 02	Near Back Gate Area	03.05.2023	OCPL/ NL/EMIL/02/05/23
3.	Sample 03	Near Pellet Plant Area	03.05.2023	OCPL/ NL/EMIL/03/05/23
4.	Sample 04	Near IOBP Area	03.05.2023	OCPL/ NL/EMIL/04/05/23
5.	Sample 05	Near Main Gate Area	05.05.2023	OCPL/ NL/EMIL/05/05/23
6.	Sample 06	Near Back Gate Area	05.05.2023	OCPL/ NL/EMIL/06/05/23
7.	Sample 07	Near Pellet Plant Area	05.05.2023	OCPL/ NL/EMIL/07/05/23
8.	Sample 08	Near IOBP Area	05.05.2023	OCPL/ NL/EMIL/08/05/23
9.	Sample 09	Near Main Gate Area	10.05.2023	OCPL/ NL/EMIL/09/05/23
10.	Sample 10	Near Back Gate Area	10.05.2023	OCPL/ NL/EMIL/10/05/23
11.	Sample 11	Near Pellet Plant Area	10.05.2023	OCPL/ NL/EMIL/11/05/23
12.	Sample 12	Near IOBP Area	10.05.2023	OCPL/ NL/EMIL/12/05/23
13.	Sample 13	Near Main Gate Area	12.05.2023	OCPL/ NL/EMIL/13/05/23
14.	Sample 14	Near Back Gate Area	12.05.2023	OCPL/ NL/EMIL/14/05/23
15.	Sample 15	Near Pellet Plant Area	12.05.2023	OCPL/ NL/EMIL/15/05/23
16.	Sample 16	Near IOBP Area	12.05.2023	OCPL/ NL/EMIL/16/05/23
17.	Sample 17	Near Main Gate Area	17.05.2023	OCPL/ NL/EMIL/17/05/23
18.	Sample 18	Near Back Gate Area	17.05.2023	OCPL/ NL/EMIL/18/05/23
19.	Sample 19	Near Pellet Plant Area	17.05.2023	OCPL/ NL/EMIL/19/05/23
20.	Sample 20	Near IOBP Area	17.05.2023	OCPL/ NL/EMIL/20/05/23
21.	Sample 21	Near Main Gate Area	19.05.2023	OCPL/ NL/EMIL/21/05/23
22.	Sample 22	Near Back Gate Area	19.05.2023	OCPL/ NL/EMIL/22/05/23
23.	Sample 23	Near Pellet Plant Area	19.05.2023	OCPL/ NL/EMIL/23/05/23
24.	Sample 24	Near IOBP Area	19.05.2023	OCPL/ NL/EMIL/24/05/23
25.	Sample 25	Near Main Gate Area	24.05.2023	OCPL/ NL/EMIL/25/05/23
26.	Sample 26	Near Back Gate Area	24.05.2023	OCPL/ NL/EMIL/26/05/23
27.	Sample 27	Near Pellet Plant Area	24.05.2023	OCPL/ NL/EMIL/27/05/23
28.	Sample 28	Near IOBP Area	24.05.2023	OCPL/ NL/EMIL/28/05/23

29.	Sample 29	Near Main Gate Area	26.05.2023	OCPL/ NL/EMIL/29/05/23
30.	Sample 30	Near Back Gate Area	26.05.2023	OCPL/ NL/EMIL/30/05/23
31.	Sample 31	Near Pellet Plant Area	26.05.2023	OCPL/ NL/EMIL/31/05/23
32.	Sample 32	Near IOBP Area	26.05.2023	OCPL/ NL/EMIL/32/05/23
33.	Sample 33	Near Main Gate Area	31.05.2023	OCPL/ NL/EMIL/33/05/23
34.	Sample 34	Near Back Gate Area	31.05.2023	OCPL/ NL/EMIL/34/05/23
35.	Sample 35	Near Pellet Plant Area	31.05.2023	OCPL/ NL/EMIL/35/05/23
36.	Sample 36	Near IOBP Area	31.05.2023	OCPL/ NL/EMIL/36/05/23

Date of Monitoring: 03.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	54	62.8	66.2	61.5	26
2	Near Back Gate Area	52.6	64.6	61.8	54.4	24.4
3	Near Pellet Plant Area	45.2	68	58.7	44.8	31.2
4	Near IOBP Area	34.5	54.2	32.2	48.2	25.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 05.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	58.4	62.5	60.5	41.2	44.8
2	Near Back Gate Area	44.2	64	52.8	48.6	36
3	Near Pellet Plant Area	58.2	66.2	58.4	45.2	31.4
4	Near IOBP Area	45.6	56.4	47.5	35.4	33.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 10.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	55.8	65.4	68.2	48.6	31.2
2	Near Back Gate Area	44.5	56	56.6	51	21.6
3	Near Pellet Plant Area	42	58.2	57.8	42.5	24.4
4	Near IOBP Area	46.2	36.2	44.2	41.8	25.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 12.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	56.8	65.4	64.8	46.5	28
2	Near Back Gate Area	41	52	48	31.2	26.5
3	Near Pellet Plant Area	45.4	49.6	50.2	34	22.2
4	Near IOBP Area	62	51.2	42	48.6	34.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 17.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	65.5	64.6	67.4	45.2	21.8
2	Near Back Gate Area	45.4	41.2	56.1	42.5	19.6
3	Near Pellet Plant Area	41.6	44.2	56.4	38.2	25.6
4	Near IOBP Area	42.5	51	50.4	36.4	36
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 19.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	51.4	65.2	44.8	30.4	19.8
2	Near Back Gate Area	41.2	52.5	65.4	36.5	21.2
3	Near Pellet Plant Area	50.4	62.4	56.2	37.9	34
4	Near IOBP Area	39.4	65	61.6	42.2	38.8
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 24.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	58.7	65	64.8	59.3	34
2	Near Back Gate Area	45.6	38.2	40.5	42.4	26.2
3	Near Pellet Plant Area	65.2	57.8	62.6	66	34.4
4	Near IOBP Area	48.9	65.7	41.4	56.6	30.8
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 26.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	36.6	45.8	52	48.4	26.2
2	Near Back Gate Area	28	34.8	42.6	38.2	21.5
3	Near Pellet Plant Area	52	49.6	48.8	51.2	36
4	Near IOBP Area	54.4	56.2	40.5	44.9	38.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 31.05.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	47.4	65.2	58.6	38.6	21
2	Near Back Gate Area	40.8	42.6	41	32.4	16.2
3	Near Pellet Plant Area	65.3	70.2	66.6	54.2	28.5
4	Near IOBP Area	54.4	62.4	42.5	36	34.2
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF MAY– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	07- MAY -2023	OCPL/SW/01/05/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	07- MAY -2023	OCPL/SW/02/05/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	07- MAY -2023	OCPL/SW/03/05/23
4.	Sample 04	DALKI NALA NEAR PLANT	07- MAY -2023	OCPL/SW/04/05/23
5.	Sample 05	NADIGUTH	07- MAY -2023	OCPL/SW/05/05/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/05/23		**Report No.- OCPL/EMIL/01/05/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- MAY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- MAY -2023
Sample type	Surface Water	Date of Analysis	08- MAY -2023
Required parameters	As described in W/O	Date of Issue of report	18- MAY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	25.2
4	pH	-	6.8
5	Total Suspended Solids	mg/L	62.5
6	Total Dissolved Solid	mg/L	686
7	Biochemical Oxygen Demand at 27°C	mg/L	6.2
8	Chemical Oxygen Demand	mg/L	1.08
9	Total Residual Chlorine	mg/L	0.26
10	Alkalinity	mg/L	64.2
11	Calcium	mg/L	41.6
12	Magnesium	mg/L	36.4
13	Total Hardness as CaCO3	mg/L	44.6
14	Electrical Conductivity	µs/cm	127.2
15	Turbidity	NTU	12.6
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.02
20	Zinc as Zn	µg/L	0.18
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	6.6
23	Nitrate	mg/L	1.42
24	Sodium as Na	mg/L	1.2
25	Potassium as K	mg/L	1.64
26	Sulfate	mg/L	2.02
27	Nitrate as NO_3	mg/L	1.08
28	Total Silica as SiO_2	mg/L	5.2
29	Total dissolved Solid	mg/L	686

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/05/23		**Report No.- OCPL/EMIL/02/05/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (NEAR PLANT AREA)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- MAY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- MAY -2023
Sample type	Surface Water	Date of Analysis	08- MAY -2023
Required parameters	As described in W/O	Date of Issue of report	18- MAY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.0
2	Odour	-	Agreeable
3	Temperature	°C	25.2
4	pH	-	6.8
5	Total Suspended Solids	mg/L	42.6
6	Total Dissolved Solid	mg/L	704
7	Biochemical Oxygen Demand at 27°C	mg/L	3.6
8	Chemical Oxygen Demand	mg/L	2.4
9	Total Residual Chlorine	mg/L	1.06
10	Alkalinity	mg/L	16.2
11	Calcium	mg/L	21.6
12	Magnesium	mg/L	42.8
13	Total Hardness as CaCO3	mg/L	46
14	Electrical Conductivity	µs/cm	86.3
15	Turbidity	NTU	31.5

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.08
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	14.6
23	Nitrate	mg/L	4.5
24	Sodium as Na	mg/L	3.4
25	Potassium as K	mg/L	1.42
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	2.4
28	Total Silica as SiO_2	mg/L	5.6
29	Total dissolved Solid	mg/L	704

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/05/23		**Report No.- OCPL/EMIL/03/05/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**RESERVOUR POND INSIDE PLANT PREMISES**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- MAY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- MAY -2023
Sample type	Surface Water	Date of Analysis	08- MAY -2023
Required parameters	As described in W/O	Date of Issue of report	18- MAY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.5
2	Odour	-	Agreeable
3	Temperature	°C	25.7
4	pH	-	6.5
5	Total Suspended Solids	mg/L	168
6	Total Dissolved Solid	mg/L	982
7	Biochemical Oxygen Demand at 27°C	mg/L	9.85
8	Chemical Oxygen Demand	mg/L	6.4
9	Total Residual Chlorine	mg/L	4.65
10	Alkalinity	mg/L	88.5
11	Calcium	mg/L	61.4
12	Magnesium	mg/L	52.4
13	Total Hardness as CaCO3	mg/L	188
14	Electrical Conductivity	µs/cm	208

15	Turbidity	NTU	76.5
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.26
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	<0.05
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	42.6
23	Nitrate	mg/L	7.8
24	Sodium as Na	mg/L	46.4
25	Potassium as K	mg/L	11.8
26	Sulfate	mg/L	6.2
27	Nitrate as NO_3	mg/L	7.1
28	Total Silica as SiO_2	mg/L	16.2
29	Total dissolved Solid	mg/L	982

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/05/23		**Report No.- OCPL/EMIL/04/05/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- MAY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- MAY -2023
Sample type	Surface Water	Date of Analysis	08- MAY -2023
Required parameters	As described in W/O	Date of Issue of report	18- MAY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.1
2	Odour	-	Agreeable
3	Temperature	°C	25.1
4	pH	-	6.9
5	Total Suspended Solids	mg/L	36.2
6	Total Dissolved Solid	mg/L	644
7	Biochemical Oxygen Demand at 27°C	mg/L	3.4
8	Chemical Oxygen Demand	mg/L	2.5
9	Total Residual Chlorine	mg/L	0.08
10	Alkalinity	mg/L	22.4
11	Calcium	mg/L	21.6
12	Magnesium	mg/L	24.8
13	Total Hardness as CaCO3	mg/L	32.5
14	Electrical Conductivity	µs/cm	126
15	Turbidity	NTU	25.8

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.01
20	Zinc as Zn	µg/L	2.6
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.4
23	Nitrate	mg/L	7.6
24	Sodium as Na	mg/L	5.14
25	Potassium as K	mg/L	2.65
26	Sulfate	mg/L	7.6
27	Nitrate as NO_3	mg/L	2.04
28	Total Silica as SiO_2	mg/L	8.2
29	Total dissolved Solid	mg/L	644

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/05/23		**Report No.- OCPL/EMIL/05/05/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- MAY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- MAY -2023
Sample type	Surface Water	Date of Analysis	08- MAY -2023
Required parameters	As described in W/O	Date of Issue of report	18- MAY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.1
2	Odour	-	Agreeable
3	Temperature	°C	25.3
4	pH	-	6.8
5	Total Suspended Solids	mg/L	42.6
6	Total Dissolved Solid	mg/L	643
7	Biochemical Oxygen Demand at 27°C	mg/L	3.68
8	Chemical Oxygen Demand	mg/L	2.21
9	Total Residual Chlorine	mg/L	0.45
10	Alkalinity	mg/L	22.4
11	Calcium	mg/L	18.6
12	Magnesium	mg/L	16.4
13	Total Hardness as CaCO3	mg/L	29
14	Electrical Conductivity	µs/cm	94.5
15	Turbidity	NTU	31.8
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	0.06
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	7.6
23	Nitrate	mg/L	2.1
24	Sodium as Na	mg/L	1.46
25	Potassium as K	mg/L	2.24
26	Sulfate	mg/L	0.22
27	Nitrate as NO_3	mg/L	1.06
28	Total Silica as SiO_2	mg/L	2.04
29	Total dissolved Solid	mg/L	643

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	MALDA VILLAGE	14- MAY -2023	OCPL/GW/01/05/23
2.	Sample 02	NEDIGUTH	14- MAY -2023	OCPL/GW/02/05/23
3.	Sample 03	TALA SAHI	14- MAY -2023	OCPL/GW/03/05/23
4.	Sample 04	PLANT- 1 (Near Canteen)	14- MAY -2023	OCPL/GW/04/05/23
5.	Sample 05	PLANT- 2 (SLIME POND)	14- MAY -2023	OCPL/GW/05/05/23

ANALYSIS RESULT

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

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALA SAHI	PLANT- 1 (Near Canteen)	PLANT- 2 (SLIME POND)		
1	Colour	Pt-Co	1.1	1.0	1.0	0.9	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.4	24.6	24.6	25.7	25.8		
4	pH	-	7.1	6.9	6.8	6.9	6.8	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	32.5	29.4	30.6	34.8	32.6	300	600
6	Calcium	mg/L	8.4	11.8	14.1	12.4	13.8	75	200
7	Magnesium	mg/L	1.4	1.02	1.06	2.1	1.88	30	No relaxation
8	Chloride	mg/L	6.2	4.8	3.45	6.08	12.4	250	1000
9	Alkalinity	mg/L	11.5	8.4	6.6	9.2	12.5	200	600
10	Electrical Conductivity	µs/cm	85.4	92.8	86.9	104.8	121.4	--	--
11	Arsenic as As	µg/L	ND	ND	ND	ND	ND	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	ND	ND	ND	50	No relaxation

15	Zinc as Zn	µg/L	36.4	52.8	44.5	56.4	64.2	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	9.8	6.4	4.2	8.5	9.6	300	1000
18	Nitrate	mg/L	0.02	0.08	0.02	0.24	0.08	45	100
19	Sodium as Na	mg/L	0.16	0.02	0.2	1.24	1.26	150	No relaxation
20	Potassium as K	mg/L	ND	ND	ND	ND	ND	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	ND	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	0.02	ND	0.01	--	--
23	Total suspended Solid	mg/L	1.04	0.42	1.4	0.68	0.8	--	--
24	Total dissolved Solid	mg/L	62.6	56.8	48.6	88.4	94.6	250	2000
25	Turbidity	NTU	0.62	0.51	0.86	0.4	0.14	5	10

Sampling By: Mr. Hrusikesh Das

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF MAY– 2023

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	21- MAY -2023	OCPL/GWL/01/05/23
7.	Sample 02	NEDIGUTH	21- MAY -2023	OCPL/GWL/02/05/23
8.	Sample 03	TALA SAHI	21- MAY -2023	OCPL/GWL/03/05/23
9.	Sample 04	PLANT- 1 (Near Canteen)	21- MAY -2023	OCPL/GWL/04/05/23
10.	Sample 05	PLANT- 2 (SLIME POND)	21- MAY -2023	OCPL/GWL/05/05/23

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	MALDA VILLAGE	Dugwell	0.8	8.2	7.22	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.58	--
3	TALA SAHI	Dugwell	1.0	8.6	8.14	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.54	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.65	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF MAY – 2023

LOCATION AND MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DG Stack- 1		√					
DG Stack- 2		√					
Stack- 1(Pellet Plant Process Stack)			√				
Stack- 2 (Pellet Plant Dedusting Stack)			√				

TEST REPORT

Name & Address of the Client:	**Report No.**: OCPL/BBS/36
M/S ESSEL MINING & INDUSTRIES LTD	
Keonjhar, Odisha, India	**Sample No.**: OCPL/EMIL/2023-24/06
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling : 29.05.2023

ANALYSIS RESULT

A .	**General information about stack :**	
1.	Stack connected to	: DG-1
2 .	Emission due to	: Burning of Diesel
3 .	Material of construction of stack	: MS
4 .	Shape of Stack	: Circular
5 .	Serial no.	: N15E226771

6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack:**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption: NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^oC)	204.8		IS 11255 (Part III),2008RA 2018
2.	Barometric pressure (mm of Hg)	362		USEPA Part 2 - 25/09/1996
3.	Velocity of gas(m/sec.)	14.4		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1256		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture(%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen(% v/v)	8.2		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	24.8		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	5.2		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	132.6	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	78.4	300	IS 11255 (Part 7),2005RA 2017

11.	Concentration of Particulate Matters (mg/Nm^3)	42.5	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Name & Address of the Client :	**Report No.** : OCPL/BBS/37
M/S ESSEL MINING & INDUSTRIES LTD	
Keonjhar, Odisha, India	**Sample No.** : OCPL/EMIL /2023-24/07
	Sample Description : DG Flue Gas Monitoring
	Date of Sampling : 29.05.2023

ANALYSIS RESULT

A .	**General information about stack :**			
1.	Stack connected to		: DG-2	
2 .	Emission due to		: Burning of Diesel	
3 .	Material of construction of stack		: MS	
4 .	Shape of Stack		: Circular	
5 .	Serial no.		: N15H319963	
6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack :**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption : NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^{o}C)	196.4		IS 11255 (Part III),2008RA 2018

2.	Barometric pressure (mm of Hg)	356.2		USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	16.2		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1288		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen (% v/v)	10.8		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	26.4		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	6.5		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	134.8	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	72.6	300	IS 11255 (Part 7),2005RA 2017
11.	Concentration of Particulate Matters (mg/Nm^3)	43.5	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

TEST REPORT

Stack No.	Stack Description	Emission due to	Date of Sampling
Stack- 1	Pellet plant process stack	Burning of furnace oil	30:05:2023
Stack- 2	Pellet plant dedusting stack	Electricity	30:05:2023

ANALYSIS RESULT

Stack No.	Stack Description	Stack height (in meter)	Emission M^3 / Hr.	Temperature ^oC	Velocity NM^3/Hr
1	Pellet plant process stack	80	6696	92.5	34242
2	Pellet plant dedusting stack	60	6675	98.6	37210

Stack No.	Stack Description	Carbon monoxide (CO) Mg/nm^3	Carbon dioxide (CO_2) % v/v	PM Concentration Mg/nm^3		SO_2 Mg/nm^3	NO_2 Mg/nm^3
				PM 10	PM 2.5		
Norms as per SPCB		1	NA	150	150	NA	NA
1	Pellet plant process stack	<0.2	5.21	71	84.5	274.6	64.8
2	Pellet plant dedusting stack	<0.2	5.4	68.3	74.8	256	56.4

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used:Thermo Environmental Instruments TEI- 401

Sampling By: Mr. Hrusikesh Das

7/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

M/S ESSEL MINING & INDUSTRIES LTD.
VILL- BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA, KEONJHAR

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near ECR -1		√				√	
Near Canteen		√				√	
Near Admin Building		√				√	
Nadiguth Village		√				√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near ECR -1	02.06.2023	OCPL/ AAQ/EMIL/01/06/23
2.	Sample 02	Near Canteen	02.06.2023	OCPL/ AAQ/EMIL/02/06/23
3.	Sample 03	Near Admin Building	02.06.2023	OCPL/ AAQ/EMIL/03/06/23
4.	Sample 04	Nedigutha Village	01.06.2023	OCPL/ AAQ/EMIL/04/06/23
5.	Sample 05	Near ECR -1	05.06.2023	OCPL/ AAQ/EMIL/05/06/23
6.	Sample 06	Near Canteen	05.06.2023	OCPL/ AAQ/EMIL/06/06/23
7.	Sample 07	Near Admin Building	05.06.2023	OCPL/ AAQ/EMIL/07/06/23
8.	Sample 08	Nedigutha Village	06.06.2023	OCPL/ AAQ/EMIL/08/06/23
9.	Sample 09	Near ECR -1	09.06.2023	OCPL/ AAQ/EMIL/09/06/23
10.	Sample 10	Near Canteen	09.06.2023	OCPL/ AAQ/EMIL/10/06/23
11.	Sample 11	Near Admin Building	09.06.2023	OCPL/ AAQ/EMIL/11/06/23
12.	Sample 12	Nedigutha Village	08.06.2023	OCPL/ AAQ/EMIL/12/06/23
13.	Sample 13	Near ECR -1	12.06.2023	OCPL/ AAQ/EMIL/13/06/23
14.	Sample 14	Near Canteen	12.06.2023	OCPL/ AAQ/EMIL/14/06/23
15.	Sample 15	Near Admin Building	12.06.2023	OCPL/ AAQ/EMIL/15/06/23
16.	Sample 16	Nedigutha Village	13.06.2023	OCPL/ AAQ/EMIL/16/06/23

17.	Sample 17	Near ECR -1	16.06.2023	OCPL/ AAQ/EMIL/17/06/23
18.	Sample 18	Near Canteen	16.06.2023	OCPL/ AAQ/EMIL/18/06/23
19.	Sample 19	Near Admin Building	16.06.2023	OCPL/ AAQ/EMIL/19/06/23
20.	Sample 20	Nedigutha Village	15.06.2023	OCPL/ AAQ/EMIL/20/06/23
21.	Sample 21	Near ECR -1	19.06.2023	OCPL/ AAQ/EMIL/21/06/23
22.	Sample 22	Near Canteen	19.06.2023	OCPL/ AAQ/EMIL/22/06/23
23.	Sample 23	Near Admin Building	19.06.2023	OCPL/ AAQ/EMIL/23/06/23
24.	Sample 24	Nedigutha Village	20.06.2023	OCPL/ AAQ/EMIL/24/06/23
25.	Sample 25	Near ECR -1	23.06.2023	OCPL/ AAQ/EMIL/25/06/23
26.	Sample 26	Near Canteen	23.06.2023	OCPL/ AAQ/EMIL/26/06/23
27.	Sample 27	Near Admin Building	23.06.2023	OCPL/ AAQ/EMIL/27/06/23
28.	Sample 28	Nedigutha Village	22.06.2023	OCPL/ AAQ/EMIL/28/06/23
29.	Sample 29	Near ECR -1	26.06.2023	OCPL/ AAQ/EMIL/29/06/23
30.	Sample 30	Near Canteen	26.06.2023	OCPL/ AAQ/EMIL/30/06/23
31.	Sample 31	Near Admin Building	26.06.2023	OCPL/ AAQ/EMIL/31/06/23
32.	Sample 32	Nedigutha Village	27.06.2023	OCPL/ AAQ/EMIL/32/06/23
33.	Sample 33	Near ECR -1	30.06.2023	OCPL/ AAQ/EMIL/33/06/23
34.	Sample 34	Near Canteen	30.06.2023	OCPL/ AAQ/EMIL/34/06/23
35.	Sample 35	Near Admin Building	30.06.2023	OCPL/ AAQ/EMIL/35/06/23
36.	Sample 36	Nedigutha Village	29.06.2023	OCPL/ AAQ/EMIL/36/06/23

LOCATION: Near ECR -1

Parameters	Limit ($\mu g/M^3$)	Date									
		02.06.23	05.06.23	09.06.23	12.06.23	16.06.23	19.06.23	23.06.23	26.06.23	30.06.23	Avg
PM_{10}	100	94.2	89.4	96.4	90.8	98	89.6	93.7	80.7	88	91.2
$PM_{2.5}$	60	58.4	56.2	47.9	50.4	52	54.8	54.6	57.2	51.4	53.65
Sulphur Dioxide (SO_2)	80	42.8	39	45.6	51.4	48.6	52	51.4	49.6	46.2	47.4
Oxide of Nitrogen (NO_2)	80	42.4	40.6	45.2	46.4	37	39.6	48.6	41.4	44.6	42.86
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	168.5	172.9	184.6	193	188.5	162	204.6	188	191.4	183.72
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	40.4	42	46.5	41.7	48.4	49.6	39.9	44.6	53.4	45.16
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Canteen

Parameters	Limit (µg/ M^3)	DATE									
		02.06.23	05.06.23	09.06.23	12.06.23	16.06.23	19.06.23	23.06.23	26.06.23	30.06.23	Avg
PM_{10}	100	84.8	78.4	86.4	81	84.2	75.2	70.2	80.4	82.9	80.38
$PM_{2.5}$	60	52.4	48.6	54.2	49.6	48.6	52.4	49.6	52.4	54.8	51.4
Sulphur Dioxide (SO_2)	80	40.6	44.8	42	52.4	54.8	56	44.9	47.6	45	47.56
Oxide of Nitrogen (NO_2)	80	42.4	48	51.6	44	40.8	39.9	42.2	44.8	51.2	44.98
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	156	192	168.4	179.4	185.4	166.8	185.6	180.4	196	178.8
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	51.4	48.6	42.4	39.8	41.6	48	50.4	56	51.5	47.74
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Admin Building

Parameters	Limit ($\mu g/M^3$)	DATE									
		02.06.23	05.06.23	09.06.23	12.06.23	16.06.23	19.06.23	23.06.23	26.06.23	30.06.23	Avg
PM_{10}	100	94.2	85.4	86.2	86.9	92.9	91	89.4	85.2	87	88.68
$PM_{2.5}$	60	56.4	59.2	58	50.6	49.8	54.2	58	54	52.5	54.74
Sulphur Dioxide (SO_2)	80	40.2	45	38.6	39.4	48	51.2	48.5	48.9	46.2	45.11
Oxide of Nitrogen (NO_2)	80	36.4	41.2	38.9	44	46.8	42.5	44.8	49	45.8	43.26
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	169.4	162	168	174.6	188.4	179.4	185.6	162	184	174.8
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	38.6	39.2	44.6	42.5	41.8	39.5	42.6	38	41.5	40.9
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Nedigutha Village

Parameters	Limit (μg/M^3)	DATE									
		01.06.23	06.06.23	08.06.23	13.06.23	15.06.23	20.06.23	22.06.23	27.06.23	29.06.23	Avg
PM_{10}	100	42	44.8	49	48.6	42.5	32.4	51.6	42	46.5	44.37
$PM_{2.5}$	60	38.4	44.8	49.2	35.8	42.6	46	38.5	46.3	40.7	42.47
Sulphur Dioxide (SO_2)	80	21.2	24	20.6	26.2	22.5	19.4	29.4	36.4	24.8	24.94
Oxide of Nitrogen (NO_2)	80	21.8	20.4	26	18.5	16.2	20.4	22.6	24	20.5	21.15
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	146.5	154.9	159	164.6	130.6	142	158.4	186	144	154
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	18.5	16	18.2	21.5	20.2	26.5	14.6	18.2	21	19.41
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, &CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

NOISE LEVEL MONITORING RESULT (InDbA) FOR THE MONTH OF JUNE

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area		√				√	
Near Back Gate Area		√				√	
Near Pellet Plant Area		√				√	
Near IOBP Area		√				√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	02.06.2023	OCPL/ NL/EMIL/01/06/23
2.	Sample 02	Near Back Gate Area	02.06.2023	OCPL/ NL/EMIL/02/06/23
3.	Sample 03	Near Pellet Plant Area	02.06.2023	OCPL/ NL/EMIL/03/06/23
4.	Sample 04	Near IOBP Area	02.06.2023	OCPL/ NL/EMIL/04/06/23
5.	Sample 05	Near Main Gate Area	05.06.2023	OCPL/ NL/EMIL/05/06/23
6.	Sample 06	Near Back Gate Area	05.06.2023	OCPL/ NL/EMIL/06/06/23
7.	Sample 07	Near Pellet Plant Area	05.06.2023	OCPL/ NL/EMIL/07/06/23
8.	Sample 08	Near IOBP Area	05.06.2023	OCPL/ NL/EMIL/08/06/23
9.	Sample 09	Near Main Gate Area	09.06.2023	OCPL/ NL/EMIL/09/06/23
10.	Sample 10	Near Back Gate Area	09.06.2023	OCPL/ NL/EMIL/10/06/23
11.	Sample 11	Near Pellet Plant Area	09.06.2023	OCPL/ NL/EMIL/11/06/23
12.	Sample 12	Near IOBP Area	09.06.2023	OCPL/ NL/EMIL/12/06/23
13.	Sample 13	Near Main Gate Area	12.06.2023	OCPL/ NL/EMIL/13/06/23
14.	Sample 14	Near Back Gate Area	12.06.2023	OCPL/ NL/EMIL/14/06/23
15.	Sample 15	Near Pellet Plant Area	12.06.2023	OCPL/ NL/EMIL/15/06/23
16.	Sample 16	Near IOBP Area	12.06.2023	OCPL/ NL/EMIL/16/06/23
17.	Sample 17	Near Main Gate Area	16.06.2023	OCPL/ NL/EMIL/17/06/23
18.	Sample 18	Near Back Gate Area	16.06.2023	OCPL/ NL/EMIL/18/06/23
19.	Sample 19	Near Pellet Plant Area	16.06.2023	OCPL/ NL/EMIL/19/06/23
20.	Sample 20	Near IOBP Area	16.06.2023	OCPL/ NL/EMIL/20/06/23
21.	Sample 21	Near Main Gate Area	19.06.2023	OCPL/ NL/EMIL/21/06/23
22.	Sample 22	Near Back Gate Area	19.06.2023	OCPL/ NL/EMIL/22/06/23
23.	Sample 23	Near Pellet Plant Area	19.06.2023	OCPL/ NL/EMIL/23/06/23
24.	Sample 24	Near IOBP Area	19.06.2023	OCPL/ NL/EMIL/24/06/23
25.	Sample 25	Near Main Gate Area	23.06.2023	OCPL/ NL/EMIL/25/06/23
26.	Sample 26	Near Back Gate Area	23.06.2023	OCPL/ NL/EMIL/26/06/23
27.	Sample 27	Near Pellet Plant Area	23.06.2023	OCPL/ NL/EMIL/27/06/23
28.	Sample 28	Near IOBP Area	23.06.2023	OCPL/ NL/EMIL/28/06/23

29.	Sample 29	Near Main Gate Area	26.06.2023	OCPL/ NL/EMIL/29/06/23
30.	Sample 30	Near Back Gate Area	26.06.2023	OCPL/ NL/EMIL/30/06/23
31.	Sample 31	Near Pellet Plant Area	26.06.2023	OCPL/ NL/EMIL/31/06/23
32.	Sample 32	Near IOBP Area	26.06.2023	OCPL/ NL/EMIL/32/06/23
33.	Sample 33	Near Main Gate Area	30.06.2023	OCPL/ NL/EMIL/33/06/23
34.	Sample 34	Near Back Gate Area	30.06.2023	OCPL/ NL/EMIL/34/06/23
35.	Sample 35	Near Pellet Plant Area	30.06.2023	OCPL/ NL/EMIL/35/06/23
36.	Sample 36	Near IOBP Area	30.06.2023	OCPL/ NL/EMIL/36/06/23

Date of Monitoring: 02.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	45.7	85.2	81.8	77.7	61.2
2	Near Back Gate Area	41.2	62.2	66.02	58.6	46.3
3	Near Pellet Plant Area	66.6	82.2	96.6	91.1	72.8
4	Near IOBP Area	72.1	87.6	93.7	87.6	68.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Tested By: OCPL

Date of Monitoring: 05.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	44.7	84.2	82.8	78.7	62.2
2	Near Back Gate Area	43.2	63.2	65.02	59.6	47.3
3	Near Pellet Plant Area	65.6	83.2	97.6	90.1	74.8
4	Near IOBP Area	71.1	86.6	94.7	88.6	70.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 09.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	83.2	80.8	76.7	60.2
2	Near Back Gate Area	44.2	60.2	66.03	57.6	48.3
3	Near Pellet Plant Area	64.6	80.2	98.6	90.2	70.8
4	Near IOBP Area	70.1	85.6	90.5	86.6	69.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 12.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	84.2	82.8	78.8	62.3
2	Near Back Gate Area	40.6	63.2	65.02	59.6	49.3
3	Near Pellet Plant Area	65.6	83.2	95.6	90.6	70.9
4	Near IOBP Area	73.1	88.6	93.8	88.6	69.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 16.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	84.2	80.8	77.7	60.2
2	Near Back Gate Area	44.2	63.2	66.03	58.6	48.3
3	Near Pellet Plant Area	64.6	83.2	98.6	91.1	70.8
4	Near IOBP Area	70.1	86.6	90.5	87.6	69.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 19.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	45.7	84.2	82.8	76.7	62.2
2	Near Back Gate Area	41.2	63.2	65.02	57.6	47.3
3	Near Pellet Plant Area	66.6	83.2	97.6	90.2	74.8
4	Near IOBP Area	72.1	88.6	94.7	86.6	70.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 23.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	83.2	82.8	77.7	62.3
2	Near Back Gate Area	44.2	60.2	65.02	58.6	49.3
3	Near Pellet Plant Area	64.6	80.2	95.6	91.1	70.9
4	Near IOBP Area	70.1	85.6	93.8	87.6	69.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 26.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	84.2	82.8	78.8	62.2
2	Near Back Gate Area	40.6	63.2	65.02	59.6	47.3
3	Near Pellet Plant Area	65.6	83.2	97.6	90.6	74.8
4	Near IOBP Area	73.1	86.6	94.7	88.6	70.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 30.06.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	46.7	83.2	80.8	76.7	60.2
2	Near Back Gate Area	44.2	60.2	66.03	57.6	48.3
3	Near Pellet Plant Area	66.6	82.2	96.6	91.1	72.8
4	Near IOBP Area	72.1	87.6	93.7	87.6	68.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF JUNE– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	06- JUNE -2023	OCPL/SW/01/06/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	06- JUNE -2023	OCPL/SW/02/06/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	06- JUNE -2023	OCPL/SW/03/06/23
4.	Sample 04	DALKI NALA NEAR PLANT	06- JUNE -2023	OCPL/SW/04/06/23
5.	Sample 05	NADIGUTH	06- JUNE -2023	OCPL/SW/05/06/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/06/23		**Report No.- OCPL/EMIL/01/06/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- JUNE -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- JUNE -2023
Sample type	Surface Water	Date of Analysis	07- JUNE -2023
Required parameters	As described in W/O	Date of Issue of report	16- JUNE -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	25.1
4	pH	-	7.1
5	Total Suspended Solids	mg/L	76
6	Total Dissolved Solid	mg/L	792
7	Biochemical Oxygen Demand at 27°C	mg/L	6.8
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.22
10	Alkalinity	mg/L	71
11	Calcium	mg/L	46.4
12	Magnesium	mg/L	52
13	Total Hardness as CaCO3	mg/L	40.9
14	Electrical Conductivity	µs/cm	206.4
15	Turbidity	NTU	14.8
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.02
20	Zinc as Zn	µg/L	0.16
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	6.1
23	Nitrate	mg/L	1.04
24	Sodium as Na	mg/L	1.6
25	Potassium as K	mg/L	1.32
26	Sulfate	mg/L	2.6
27	Nitrate as NO_3	mg/L	1.48
28	Total Silica as SiO_2	mg/L	6.4
29	Total dissolved Solid	mg/L	792

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/06/23		**Report No.- OCPL/EMIL/02/06/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (NEAR PLANT AREA)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- JUNE -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- JUNE -2023
Sample type	Surface Water	Date of Analysis	07- JUNE -2023
Required parameters	As described in W/O	Date of Issue of report	16- JUNE -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.2
2	Odour	-	Agreeable
3	Temperature	℃	25.6
4	pH	-	7.4
5	Total Suspended Solids	mg/L	68.5
6	Total Dissolved Solid	mg/L	984
7	Biochemical Oxygen Demand at 27°C	mg/L	4.2
8	Chemical Oxygen Demand	mg/L	2.8
9	Total Residual Chlorine	mg/L	1.42
10	Alkalinity	mg/L	28.4
11	Calcium	mg/L	32
12	Magnesium	mg/L	58.6
13	Total Hardness as CaCO3	mg/L	54
14	Electrical Conductivity	µs/cm	234
15	Turbidity	NTU	64

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.2
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.6
23	Nitrate	mg/L	6.4
24	Sodium as Na	mg/L	3.8
25	Potassium as K	mg/L	2.2
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	2.04
28	Total Silica as SiO_2	mg/L	6.1
29	Total dissolved Solid	mg/L	984

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/06/23		**Report No.- OCPL/EMIL/03/06/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**RESERVOUR POND INSIDE PLANT PREMISES**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- JUNE -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- JUNE -2023
Sample type	Surface Water	Date of Analysis	07- JUNE -2023
Required parameters	As described in W/O	Date of Issue of report	16- JUNE -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	OK

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.4
2	Odour	-	Agreeable
3	Temperature	°C	26.1
4	pH	-	7.1
5	Total Suspended Solids	mg/L	172
6	Total Dissolved Solid	mg/L	965
7	Biochemical Oxygen Demand at 27°C	mg/L	6.2
8	Chemical Oxygen Demand	mg/L	5.8
9	Total Residual Chlorine	mg/L	4.8
10	Alkalinity	mg/L	92.4
11	Calcium	mg/L	58.2
12	Magnesium	mg/L	45
13	Total Hardness as CaCO3	mg/L	172.5
14	Electrical Conductivity	µs/cm	234

15	Turbidity	NTU	81.5
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	<0.05
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	26.4
23	Nitrate	mg/L	7.2
24	Sodium as Na	mg/L	57
25	Potassium as K	mg/L	24.8
26	Sulfate	mg/L	5.1
27	Nitrate as NO_3	mg/L	3.4
28	Total Silica as SiO_2	mg/L	14.5
29	Total dissolved Solid	mg/L	965

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/06/23		**Report No.- OCPL/EMIL/04/06/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- JUNE -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- JUNE -2023
Sample type	Surface Water	Date of Analysis	07- JUNE -2023
Required parameters	As described in W/O	Date of Issue of report	16- JUNE -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.1
2	Odour	-	Agreeable
3	Temperature	°C	25.4
4	pH	-	6.8
5	Total Suspended Solids	mg/L	48.6
6	Total Dissolved Solid	mg/L	844
7	Biochemical Oxygen Demand at 27°C	mg/L	4.2
8	Chemical Oxygen Demand	mg/L	2.9
9	Total Residual Chlorine	mg/L	0.2
10	Alkalinity	mg/L	18.6
11	Calcium	mg/L	22
12	Magnesium	mg/L	34.5
13	Total Hardness as CaCO3	mg/L	38
14	Electrical Conductivity	µs/cm	246
15	Turbidity	NTU	42.8

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.01
20	Zinc as Zn	µg/L	2.1
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	6.44
23	Nitrate	mg/L	5.4
24	Sodium as Na	mg/L	8.8
25	Potassium as K	mg/L	3.4
26	Sulfate	mg/L	8.05
27	Nitrate as NO_3	mg/L	3.4
28	Total Silica as SiO_2	mg/L	14.9
29	Total dissolved Solid	mg/L	844

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/06/23		**Report No.- OCPL/EMIL/05/06/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- JUNE -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- JUNE -2023
Sample type	Surface Water	Date of Analysis	07- JUNE -2023
Required parameters	As described in W/O	Date of Issue of report	16- JUNE -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.2
2	Odour	-	Agreeable
3	Temperature	°C	25.6
4	pH	-	7.2
5	Total Suspended Solids	mg/L	65.6
6	Total Dissolved Solid	mg/L	896
7	Biochemical Oxygen Demand at 27°C	mg/L	6.6
8	Chemical Oxygen Demand	mg/L	3.9
9	Total Residual Chlorine	mg/L	1.06
10	Alkalinity	mg/L	34.2
11	Calcium	mg/L	26.8
12	Magnesium	mg/L	20.4
13	Total Hardness as $CaCO_3$	mg/L	32.8
14	Electrical Conductivity	µs/cm	197
15	Turbidity	NTU	40.8
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	0.04
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.05
23	Nitrate	mg/L	3.6
24	Sodium as Na	mg/L	2.26
25	Potassium as K	mg/L	3.42
26	Sulfate	mg/L	1.08
27	Nitrate as NO_3	mg/L	1.2
28	Total Silica as SiO_2	mg/L	6.5
29	Total dissolved Solid	mg/L	896

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	MALDA VILLAGE	10- JUNE -2023	OCPL/GW/01/06/23
2.	Sample 02	NEDIGUTH	10- JUNE -2023	OCPL/GW/02/06/23
3.	Sample 03	TALA SAHI	10- JUNE -2023	OCPL/GW/03/06/23
4.	Sample 04	PLANT- 1 (Near Canteen)	10- JUNE -2023	OCPL/GW/04/06/23
5.	Sample 05	PLANT- 2 (SLIME POND)	10- JUNE -2023	OCPL/GW/05/06/23

ANALYSIS RESULT

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

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALA SAHI	PLANT- 1 (Near Canteen)	PLANT- 2 (SLIME POND)		
1	Colour	Pt-Co	1.1	1.0	1.0	1.1	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.3	24.2	24.6	25.1	25.2		
4	pH	-	7.1	6.9	7.1	6.9	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	34.5	29.4	36	34.8	41.5	300	600
6	Calcium	mg/L	12.2	9.6	11.4	12.4	16.5	75	200
7	Magnesium	mg/L	2.1	1.6	1.42	2.4	1.64	30	No relaxation
8	Chloride	mg/L	4.4	6.2	4.2	6.08	6.8	250	1000
9	Alkalinity	mg/L	14.6	18	14.5	10.4	14	200	600
10	Electrical Conductivity	µs/cm	88.2	106.5	98.2	114	94.5	--	--
11	Arsenic as As	µg/L	ND	ND	ND	ND	ND	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	ND	10	No relaxation
13	Cadmium as Cd	µg/L	ND	ND	ND	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	ND	ND	ND	50	No relaxation

15	Zinc as Zn	µg/L	24.5	38.3	51	60.6	48	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	ND	1.9
17	Iron as Fe	µg/L	8.4	5.2	4.8	4.6	6.2	300	1000
18	Nitrate	mg/L	0.02	0.04	0.02	0.6	0.42	45	100
19	Sodium as Na	mg/L	1.4	1.08	0.28	1.52	1.6	150	No relaxation
20	Potassium as K	mg/L	ND	ND	ND	ND	ND	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	ND	200	400
22	Total Silica as SiO_2	mg/L	0.42	ND	0.8	ND	0.01	--	--
23	Total suspended Solid	mg/L	1.2	0.6	1.8	0.98	1.06	--	--
24	Total dissolved Solid	mg/L	86.4	78.2	92.6	86	90.5	250	2000
25	Turbidity	NTU	0.06	0.2	0.54	0.48	0.28	5	10

Sampling By: Mr. Hrusikesh Das

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF JUNE– 2023

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	24- JUNE -2023	OCPL/GWL/01/06/23
7.	Sample 02	NEDIGUTH	24- JUNE -2023	OCPL/GWL/02/06/23
8.	Sample 03	TALA SAHI	24- JUNE -2023	OCPL/GWL/03/06/23
9.	Sample 04	PLANT- 1 (Near Canteen)	24- JUNE -2023	OCPL/GWL/04/06/23
10.	Sample 05	PLANT- 2 (SLIME POND)	24- JUNE -2023	OCPL/GWL/05/06/23

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	MALDA VILLAGE	Dugwell	0.8	8.2	7.16	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.42	--
3	TALA SAHI	Dugwell	1.0	8.6	8.11	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.23	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.34	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF JUNE – 2023

LOCATION AND MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DG Stack- 1				√			
DG Stack- 2				√			
Stack- 1(Pellet Plant Process Stack)				√			
Stack- 2 (Pellet Plant Dedusting Stack)				√			

TEST REPORT

Name & Address of the Client:	**Report No.**: OCPL/BBS/36
M/S ESSEL MINING & INDUSTRIES LTD	**Date : 10.06.2023**
Keonjhar, Odisha, India	**Sample No.**: OCPL/EMIL/2023-24/06
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling : 07.06.2023

ANALYSIS RESULT

A .	**General information about stack :**	
1.	Stack connected to	: DG-1
2 .	Emission due to	: Burning of Diesel
3 .	Material of construction of stack	: MS
4 .	Shape of Stack	: Circular
5 .	Serial no.	: N15E226771

6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack:**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption: NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^oC)	192		IS 11255 (Part III),2008RA 2018
2.	Barometric pressure (mm of Hg)	348		USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	14.8		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1187		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture(%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen(% v/v)	8.1		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	22.5		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	5.2		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	146	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	82	300	IS 11255 (Part 7),2005RA 2017

11.	Concentration of Particulate Matters (mg/Nm^3)	44.8	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Name & Address of the Client :	**Report No.** : OCPL/BBS/37
M/S ESSEL MINING & INDUSTRIES LTD	**Date** : 10.06.2023
Keonjhar, Odisha, India	**Sample No.** : OCPL/EMIL /2023-24/07
	Sample Description : DG Flue Gas Monitoring
	Date of Sampling : 14.06.2023

ANALYSIS RESULT

A .	**General information about stack :**			
1.	Stack connected to		: DG-2	
2 .	Emission due to		: Burning of Diesel	
3 .	Material of construction of stack		: MS	
4 .	Shape of Stack		: Circular	
5 .	Serial no.		: N15H319963	
6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack :**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption : NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (°C)	212.4		IS 11255 (Part III),2008RA 2018

2.	Barometric pressure (mm of Hg)	378.6		USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	18.6		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1406		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen (% v/v)	9.8		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	27.48		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	8.9		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	156.2	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	78	300	IS 11255 (Part 7),2005RA 2017
11.	Concentration of Particulate Matters (mg/Nm^3)	46.6	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Stack No.	Stack Description	Emission due to	Date of Sampling
Stack- 1	Pellet plant process stack	Burning of furnace oil	21:04:2023
Stack- 2	Pellet plant dedusting stack	Electricity	28:04:2023

ANALYSIS RESULT

Stack No.	Stack Description	Stack height (in meter)	Emission M^3 / Hr.	Temperature ^oC	Velocity NM^3/Hr
1	Pellet plant process stack	80	6824	99.4	34884
2	Pellet plant dedusting stack	60	6876	116.2	38056

Stack No.	Stack Description	Carbon monoxide (CO) Mg/nm^3	Carbon dioxide (CO_2) % v/v	PM Concentration Mg/nm^3		SO_2 Mg/nm^3	NO_2 Mg/nm^3
				PM 10	PM 2.5		
Norms as per SPCB		1	NA	150	150	NA	NA
1	Pellet plant process stack	<0.2	6.4	86.5	124.8	288	78.6
2	Pellet plant dedusting stack	<0.2	5.9	94	146.2	291	91.4

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used:Thermo Environmental Instruments TEI- 401

Sampling By: Mr. Hrusikesh Das

July 2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

Iron Ore Beneficiation & Pelletisation Plant

M/S ESSEL MINING & INDUSTRIES LTD.

VILL- BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA, KEONJHAR

Contents

ESSEL MINING & INDUSTRIES LIMITED

AAQ REPORT

JULY – 2023

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near ECR -1		√			√		
Near Canteen		√			√		
Near Admin Building		√			√		
Nadiguth Village		√			√		

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near ECR -1	03.07.2023	OCPL/ AAQ/EMIL/01/07/23
2.	Sample 02	Near Canteen	03.07.2023	OCPL/ AAQ/EMIL/02/07/23
3.	Sample 03	Near Admin Building	03.07.2023	OCPL/ AAQ/EMIL/03/07/23
4.	Sample 04	Nedigutha Village	01.07.2023	OCPL/ AAQ/EMIL/04/07/23
5.	Sample 05	Near ECR -1	06.07.2023	OCPL/ AAQ/EMIL/05/07/23
6.	Sample 06	Near Canteen	06.07.2023	OCPL/ AAQ/EMIL/06/07/23
7.	Sample 07	Near Admin Building	06.07.2023	OCPL/ AAQ/EMIL/07/07/23
8.	Sample 08	Nedigutha Village	04.07.2023	OCPL/ AAQ/EMIL/08/07/23
9.	Sample 09	Near ECR -1	10.07.2023	OCPL/ AAQ/EMIL/09/07/23
10.	Sample 10	Near Canteen	10.07.2023	OCPL/ AAQ/EMIL/10/07/23
11.	Sample 11	Near Admin Building	10.07.2023	OCPL/ AAQ/EMIL/11/07/23
12.	Sample 12	Nedigutha Village	08.07.2023	OCPL/ AAQ/EMIL/12/07/23
13.	Sample 13	Near ECR -1	13.07.2023	OCPL/ AAQ/EMIL/13/07/23
14.	Sample 14	Near Canteen	13.07.2023	OCPL/ AAQ/EMIL/14/07/23
15.	Sample 15	Near Admin Building	13.07.2023	OCPL/ AAQ/EMIL/15/07/23
16.	Sample 16	Nedigutha Village	11.07.2023	OCPL/ AAQ/EMIL/16/07/23

17.	Sample 17	Near ECR -1	17.07.2023	OCPL/ AAQ/EMIL/17/07/23
18.	Sample 18	Near Canteen	17.07.2023	OCPL/ AAQ/EMIL/18/07/23
19.	Sample 19	Near Admin Building	17.07.2023	OCPL/ AAQ/EMIL/19/07/23
20.	Sample 20	Nedigutha Village	15.07.2023	OCPL/ AAQ/EMIL/20/07/23
21.	Sample 21	Near ECR -1	20.07.2023	OCPL/ AAQ/EMIL/21/07/23
22.	Sample 22	Near Canteen	20.07.2023	OCPL/ AAQ/EMIL/22/07/23
23.	Sample 23	Near Admin Building	20.07.2023	OCPL/ AAQ/EMIL/23/07/23
24.	Sample 24	Nedigutha Village	18.07.2023	OCPL/ AAQ/EMIL/24/07/23
25.	Sample 25	Near ECR -1	24.07.2023	OCPL/ AAQ/EMIL/25/07/23
26.	Sample 26	Near Canteen	24.07.2023	OCPL/ AAQ/EMIL/26/07/23
27.	Sample 27	Near Admin Building	24.07.2023	OCPL/ AAQ/EMIL/27/07/23
28.	Sample 28	Nedigutha Village	22.07.2023	OCPL/ AAQ/EMIL/28/07/23
29.	Sample 29	Near ECR -1	27.07.2023	OCPL/ AAQ/EMIL/29/07/23
30.	Sample 30	Near Canteen	27.07.2023	OCPL/ AAQ/EMIL/30/07/23
31.	Sample 31	Near Admin Building	27.07.2023	OCPL/ AAQ/EMIL/31/07/23
32.	Sample 32	Nedigutha Village	25.07.2023	OCPL/ AAQ/EMIL/32/07/23
33.	Sample 33	Near ECR -1	31.07.2023	OCPL/ AAQ/EMIL/33/07/23
34.	Sample 34	Near Canteen	31.07.2023	OCPL/ AAQ/EMIL/34/07/23
35.	Sample 35	Near Admin Building	31.07.2023	OCPL/ AAQ/EMIL/35/07/23
36.	Sample 36	Nedigutha Village	29.07.2023	OCPL/ AAQ/EMIL/36/07/23

LOCATION: Near ECR -1

Parameters	Limit (μg/M³)	Date									
		03.07.23	06.07.23	10.07.23	13.07.23	17.07.23	20.07.23	24.07.23	27.07.23	31.07.23	Avg
PM_{10}	100	72.8	42	84.5	85.9	88	48.6	81.5	87.2	86.8	75.25
$PM_{2.5}$	60	56.2	38.4	57.4	61	62.8	35.8	54.4	58.4	59.5	53.76
Sulphur Dioxide (SO_2)	80	48.6	21.2	46.7	48	45.6	26.2	52	44.6	56.4	43.25
Oxide of Nitrogen (NO_2)	80	42	21.8	41	38.4	35.6	18.5	40.1	37	38.5	34.76
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	178.8	169.2	176.8	192	198.4	192.5	189.5	191	194.2	186.93
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	58.2	36.8	46	36.9	42.4	34	48.5	52.4	56	45.68
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Canteen

Parameters	Limit (μg/ M^3)	DATE									
		03.07.23	06.07.23	10.07.23	13.07.23	17.07.23	20.07.23	24.07.23	27.07.23	31.07.23	Avg
PM_{10}	100	92	42	84.5	85.9	84.5	48.6	81.5	87.2	94.8	77.88888889
$PM_{2.5}$	60	56.4	38.4	57.4	61	57.4	35.8	54.4	58.4	58.6	53.08
Sulphur Dioxide (SO_2)	80	34.6	21.2	46.7	48	46.7	26.2	52	44.6	46	40.66
Oxide of Nitrogen (NO_2)	80	44	21.8	41	38.4	41	18.5	40.1	37	44.8	36.28
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	186.4	169.2	176.8	188.4	198.4	192.5	189.5	191	194.2	187.3
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	62.5	36.8	48.5	36.9	42.4	34.2	48.5	52.4	56	46.46
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Near Admin Building

Parameters	Limit ($\mu g/M^3$)	DATE									
		03.07.23	06.07.23	10.07.23	13.07.23	17.07.23	20.07.23	24.07.23	27.07.23	31.07.23	Avg
PM_{10}	100	92.9	92.9	86.2	95	94.6	94	92.8	95.6	96.2	93.35
$PM_{2.5}$	60	49.8	49.8	58	47.6	52	54.8	52	60.2	51.4	52.84
Sulphur Dioxide (SO_2)	80	48	48	38.6	41.8	38.6	42.5	46.4	45	44.2	43.67
Oxide of Nitrogen (NO_2)	80	46.8	46.8	38.9	45.2	40.8	38	46.2	36	34.5	41.46
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	186.2	184	190	179.2	192.5	188	194.2	179.8	192.6	187.38
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	40.8	36	39.2	39	52.6	45.2	56	42.6	41.2	43.62
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

LOCATION: Nedigutha Village

Parameters	Limit (μg/M^3)	DATE									
		01.07.23	04.07.23	08.07.23	11.07.23	15.07.23	18.07.23	22.07.23	25.07.23	29.07.23	Avg
PM_{10}	100	72.8	42	84.5	85.9	88	48.6	81.5	87.2	86.8	75.25
$PM_{2.5}$	60	56.2	38.4	57.4	61	62.8	35.8	54.4	58.4	59.5	53.76
Sulphur Dioxide (SO_2)	80	48.6	21.2	46.7	48	45.6	26.2	52	44.6	56.4	43.25
Oxide of Nitrogen (NO_2)	80	42	21.8	41	38.4	35.6	18.5	40.1	37	38.5	34.76
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	178.8	169.2	176.8	192	198.4	192.5	189.5	191	194.2	186.93
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	58.2	36.8	46	36.9	42.4	34	48.5	52.4	56	45.68
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable
Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550
Measurement of PM_{10}& $PM_{2.5,}$ SO_2, NO_2, &CO has been done as per the IS Code IS: 5182 Part IV, II, VI, X& XVII respectively

ESSEL MINING & INDUSTRIES LIMITED

NOISE MONITORING REPORT

JULY – 2023

NOISE LEVEL MONITORING RESULT (InDbA) FOR THE MONTH OF JULY

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area		√				√	
Near Back Gate Area		√				√	
Near Pellet Plant Area		√				√	
Near IOBP Area		√				√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	03.07.2023	OCPL/ NL/EMIL/01/07/23
2.	Sample 02	Near Back Gate Area	03.07.2023	OCPL/ NL/EMIL/02/07/23
3.	Sample 03	Near Pellet Plant Area	03.07.2023	OCPL/ NL/EMIL/03/07/23
4.	Sample 04	Near IOBP Area	03.07.2023	OCPL/ NL/EMIL/04/07/23
5.	Sample 05	Near Main Gate Area	07.07.2023	OCPL/ NL/EMIL/05/07/23
6.	Sample 06	Near Back Gate Area	07.07.2023	OCPL/ NL/EMIL/06/07/23
7.	Sample 07	Near Pellet Plant Area	07.07.2023	OCPL/ NL/EMIL/07/07/23
8.	Sample 08	Near IOBP Area	07.07.2023	OCPL/ NL/EMIL/08/07/23
9.	Sample 09	Near Main Gate Area	10.07.2023	OCPL/ NL/EMIL/09/07/23
10.	Sample 10	Near Back Gate Area	10.07.2023	OCPL/ NL/EMIL/10/07/23
11.	Sample 11	Near Pellet Plant Area	10.07.2023	OCPL/ NL/EMIL/11/07/23
12.	Sample 12	Near IOBP Area	10.07.2023	OCPL/ NL/EMIL/12/07/23
13.	Sample 13	Near Main Gate Area	14.07.2023	OCPL/ NL/EMIL/13/07/23
14.	Sample 14	Near Back Gate Area	14.07.2023	OCPL/ NL/EMIL/14/07/23
15.	Sample 15	Near Pellet Plant Area	14.07.2023	OCPL/ NL/EMIL/15/07/23
16.	Sample 16	Near IOBP Area	14.07.2023	OCPL/ NL/EMIL/16/07/23
17.	Sample 17	Near Main Gate Area	17.07.2023	OCPL/ NL/EMIL/17/07/23
18.	Sample 18	Near Back Gate Area	17.07.2023	OCPL/ NL/EMIL/18/07/23
19.	Sample 19	Near Pellet Plant Area	17.07.2023	OCPL/ NL/EMIL/19/07/23
20.	Sample 20	Near IOBP Area	17.07.2023	OCPL/ NL/EMIL/20/07/23
21.	Sample 21	Near Main Gate Area	21.07.2023	OCPL/ NL/EMIL/21/07/23
22.	Sample 22	Near Back Gate Area	21.07.2023	OCPL/ NL/EMIL/22/07/23
23.	Sample 23	Near Pellet Plant Area	21.07.2023	OCPL/ NL/EMIL/23/07/23
24.	Sample 24	Near IOBP Area	21.07.2023	OCPL/ NL/EMIL/24/07/23
25.	Sample 25	Near Main Gate Area	24.07.2023	OCPL/ NL/EMIL/25/07/23
26.	Sample 26	Near Back Gate Area	24.07.2023	OCPL/ NL/EMIL/26/07/23
27.	Sample 27	Near Pellet Plant Area	24.07.2023	OCPL/ NL/EMIL/27/07/23
28.	Sample 28	Near IOBP Area	24.07.2023	OCPL/ NL/EMIL/28/07/23

29.	Sample 29	Near Main Gate Area	28.07.2023	OCPL/ NL/EMIL/29/07/23
30.	Sample 30	Near Back Gate Area	28.07.2023	OCPL/ NL/EMIL/30/07/23
31.	Sample 31	Near Pellet Plant Area	28.07.2023	OCPL/ NL/EMIL/31/07/23
32.	Sample 32	Near IOBP Area	28.07.2023	OCPL/ NL/EMIL/32/07/23
33.	Sample 33	Near Main Gate Area	31.07.2023	OCPL/ NL/EMIL/33/07/23
34.	Sample 34	Near Back Gate Area	31.07.2023	OCPL/ NL/EMIL/34/07/23
35.	Sample 35	Near Pellet Plant Area	31.07.2023	OCPL/ NL/EMIL/35/07/23
36.	Sample 36	Near IOBP Area	31.07.2023	OCPL/ NL/EMIL/36/07/23

Date of Monitoring: 03.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.7	77.2	66.6	79.8	88.3
2	Near Back Gate Area	51.9	66.3	61.2	58.6	59.3
3	Near Pellet Plant Area	71.8	77.2	91.6	93.5	79.2
4	Near IOBP Area	79.1	89.1	77.9	88.2	81.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 07.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	44.3	81.2	81.2	78.7	66.8
2	Near Back Gate Area	47.1	59.3	65.02	59.6	55.5
3	Near Pellet Plant Area	66.3	81.7	91.3	78.3	77.9
4	Near IOBP Area	79.8	77.9	77.3	78.2	82.4
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 10.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	54.3	81.2	64.3	74.2	66.9
2	Near Back Gate Area	44.1	60.2	61.3	59.3	52.5
3	Near Pellet Plant Area	71.9	88.3	84.3	88.7	77.8
4	Near IOBP Area	77.4	81.9	88.9	88.9	68.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 14.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	51.3	69.3	71.3	67.3	64.2
2	Near Back Gate Area	49.3	58.6	66.3	59.6	54.2
3	Near Pellet Plant Area	66.3	77.3	95.6	78.8	71.5
4	Near IOBP Area	71.2	88.6	99.2	81.1	78.9
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 17.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	66.3	67.9	79.3	66.3
2	Near Back Gate Area	41.2	63.2	61.3	58.6	49.4
3	Near Pellet Plant Area	66.2	75.2	91.9	79.3	71.9
4	Near IOBP Area	73.2	91.3	78.3	81.3	77.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 21.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	66.5	78.3	76.7	59.8
2	Near Back Gate Area	44.2	63.2	69.3	61.3	51.2
3	Near Pellet Plant Area	69.3	88.6	97.6	88.9	91.3
4	Near IOBP Area	77.8	71.2	91.9	78.2	94.2
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 24.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	61.2	81.8	82.8	69.8	71.3
2	Near Back Gate Area	44.2	60.2	77.3	58.6	61.8
3	Near Pellet Plant Area	69.3	74.6	95.6	87.4	77.9
4	Near IOBP Area	79.2	59.3	91.8	88.2	71
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 28.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	55.1	67.7	67.3	71.6	59.7
2	Near Back Gate Area	49.3	63.2	58.7	61.3	61.3
3	Near Pellet Plant Area	69.2	81.2	97.6	89.7	88.1
4	Near IOBP Area	77.2	86.6	99.7	71.9	84.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 31.07.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	51.3	58.4	81.4	61.3	69.3
2	Near Back Gate Area	49.8	51.5	77.3	59.6	57.7
3	Near Pellet Plant Area	79.2	77.6	91.3	88.7	74.8
4	Near IOBP Area	84.2	76.2	94.7	83.2	71.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

ESSEL MINING & INDUSTRIES LIMITED

SURFACE WATER QUALITY REPORT

JULY – 2023

SURFACE WATER ANALYSIS FOR THE MONTH OF JULY– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	05- JULY -2023	OCPL/SW/01/07/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	05- JULY -2023	OCPL/SW/02/07/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	05- JULY -2023	OCPL/SW/03/07/23
4.	Sample 04	DALKI NALA NEAR PLANT	05- JULY -2023	OCPL/SW/04/07/23
5.	Sample 05	NADIGUTH	05- JULY -2023	OCPL/SW/05/07/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/07/23		**Report No.- OCPL/EMIL/01/07/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- JULY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- JULY -2023
Sample type	Surface Water	Date of Analysis	06- JULY -2023
Required parameters	As described in W/O	Date of Issue of report	17- JULY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.6
2	Odour	-	Agreeable
3	Temperature	°C	25.8
4	pH	-	6.9
5	Total Suspended Solids	mg/L	116
6	Total Dissolved Solid	mg/L	1108
7	Biochemical Oxygen Demand at 27°C	mg/L	8.4
8	Chemical Oxygen Demand	mg/L	1.8
9	Total Residual Chlorine	mg/L	0.36
10	Alkalinity	mg/L	86
11	Calcium	mg/L	54.8
12	Magnesium	mg/L	48.2
13	Total Hardness as CaCO3	mg/L	55
14	Electrical Conductivity	µs/cm	234.8
15	Turbidity	NTU	26.8
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.14
20	Zinc as Zn	µg/L	0.08
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	7.4
23	Nitrate	mg/L	1.19
24	Sodium as Na	mg/L	1.82
25	Potassium as K	mg/L	1.46
26	Sulfate	mg/L	2.88
27	Nitrate as NO_3	mg/L	1.6
28	Total Silica as SiO_2	mg/L	12.4
29	Total dissolved Solid	mg/L	1108

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/07/23		**Report No.- OCPL/EMIL/02/07/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (NEAR PLANT AREA)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- JULY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- JULY -2023
Sample type	Surface Water	Date of Analysis	06- JULY -2023
Required parameters	As described in W/O	Date of Issue of report	17- JULY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.3
2	Odour	-	Agreeable
3	Temperature	°C	25.9
4	pH	-	7.1
5	Total Suspended Solids	mg/L	140.4
6	Total Dissolved Solid	mg/L	1251
7	Biochemical Oxygen Demand at 27°C	mg/L	6.5
8	Chemical Oxygen Demand	mg/L	3.3
9	Total Residual Chlorine	mg/L	1.86
10	Alkalinity	mg/L	34
11	Calcium	mg/L	42.5
12	Magnesium	mg/L	66
13	Total Hardness as CaCO3	mg/L	68.5
14	Electrical Conductivity	µs/cm	286
15	Turbidity	NTU	92.8

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	2.18
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	9.44
23	Nitrate	mg/L	7.1
24	Sodium as Na	mg/L	3.68
25	Potassium as K	mg/L	2.94
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	2.46
28	Total Silica as SiO_2	mg/L	16.5
29	Total dissolved Solid	mg/L	1251

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/07/23		**Report No.- OCPL/EMIL/03/07/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**RESERVOUR POND INSIDE PLANT PREMISES**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- JULY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- JULY -2023
Sample type	Surface Water	Date of Analysis	06- JULY -2023
Required parameters	As described in W/O	Date of Issue of report	17- JULY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	OK

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.5
2	Odour	-	Agreeable
3	Temperature	°C	26.5
4	pH	-	6.8
5	Total Suspended Solids	mg/L	245
6	Total Dissolved Solid	mg/L	1096
7	Biochemical Oxygen Demand at 27°C	mg/L	7.8
8	Chemical Oxygen Demand	mg/L	5.2
9	Total Residual Chlorine	mg/L	5.65
10	Alkalinity	mg/L	82.9
11	Calcium	mg/L	72
12	Magnesium	mg/L	64.6
13	Total Hardness as CaCO3	mg/L	208
14	Electrical Conductivity	µs/cm	249

15	Turbidity	NTU	94
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	<0.05
21	Fluoride as F	mg/L	2.49
22	Iron as Fe	mg/L	28.4
23	Nitrate	mg/L	6.6
24	Sodium as Na	mg/L	65.4
25	Potassium as K	mg/L	33.2
26	Sulfate	mg/L	5.8
27	Nitrate as NO_3	mg/L	4.1
28	Total Silica as SiO_2	mg/L	8.95
29	Total dissolved Solid	mg/L	1096

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/07/23		**Report No.- OCPL/EMIL/04/07/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- JULY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- JULY -2023
Sample type	Surface Water	Date of Analysis	06- JULY -2023
Required parameters	As described in W/O	Date of Issue of report	17- JULY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.6
2	Odour	-	Agreeable
3	Temperature	°C	26.8
4	pH	-	6.8
5	Total Suspended Solids	mg/L	98.6
6	Total Dissolved Solid	mg/L	996
7	Biochemical Oxygen Demand at 27°C	mg/L	6.1
8	Chemical Oxygen Demand	mg/L	3.24
9	Total Residual Chlorine	mg/L	1.08
10	Alkalinity	mg/L	26.5
11	Calcium	mg/L	42.6
12	Magnesium	mg/L	48
13	Total Hardness as CaCO3	mg/L	41
14	Electrical Conductivity	µs/cm	273
15	Turbidity	NTU	62

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	2.9
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	9.4
23	Nitrate	mg/L	12.4
24	Sodium as Na	mg/L	16
25	Potassium as K	mg/L	6.8
26	Sulfate	mg/L	17.2
27	Nitrate as NO_3	mg/L	14.1
28	Total Silica as SiO_2	mg/L	8.4
29	Total dissolved Solid	mg/L	996

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/07/23		**Report No.- OCPL/EMIL/05/07/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- JULY -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- JULY -2023
Sample type	Surface Water	Date of Analysis	06- JULY -2023
Required parameters	As described in W/O	Date of Issue of report	17- JULY -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.8
2	Odour	-	Agreeable
3	Temperature	°C	26.4
4	pH	-	6.9
5	Total Suspended Solids	mg/L	116
6	Total Dissolved Solid	mg/L	1248
7	Biochemical Oxygen Demand at 27°C	mg/L	8.4
8	Chemical Oxygen Demand	mg/L	3.2
9	Total Residual Chlorine	mg/L	1.26
10	Alkalinity	mg/L	56.4
11	Calcium	mg/L	48.5
12	Magnesium	mg/L	35.2
13	Total Hardness as $CaCO_3$	mg/L	42
14	Electrical Conductivity	µs/cm	265.4
15	Turbidity	NTU	62
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	1.24
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	10.4
23	Nitrate	mg/L	6
24	Sodium as Na	mg/L	8.4
25	Potassium as K	mg/L	7.2
26	Sulfate	mg/L	2.42
27	Nitrate as NO_3	mg/L	3.5
28	Total Silica as SiO_2	mg/L	18.4
29	Total dissolved Solid	mg/L	1248

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

GROUND WATER QUALITY REPORT

JULY – 2023

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	MALDA VILLAGE	12- JULY -2023	OCPL/GW/01/07/23
2.	Sample 02	NEDIGUTH	12- JULY -2023	OCPL/GW/02/07/23
3.	Sample 03	TALA SAHI	12- JULY -2023	OCPL/GW/03/07/23
4.	Sample 04	PLANT- 1 (Near Canteen)	12- JULY -2023	OCPL/GW/04/07/23
5.	Sample 05	PLANT- 2 (SLIME POND)	12- JULY -2023	OCPL/GW/05/07/23

ANALYSIS RESULT

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

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALA SAHI	PLANT- 1 (Near Canteen)	PLANT- 2 (SLIME POND)		
1	Colour	Pt-Co	1.1	0.8	1.0	1.0	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.8	25.4	24.2	25.5	25.2		
4	pH	-	6.9	7.8	7.2	7.2	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	52.8	51.8	56.6	68.4	40.2	300	600
6	Calcium	mg/L	11.4	18	16.2	16	15.2	75	200
7	Magnesium	mg/L	0.96	1.6	3.8	3.4	2.2	30	No relaxation
8	Chloride	mg/L	8.8	14.8	12.2	8.2	14.5	250	1000
9	Alkalinity	mg/L	22.4	26.8	14	22.5	14.8	200	600
10	Electrical Conductivity	µs/cm	60.5	74	66.2	64	71	--	--
11	Arsenic as As	µg/L	ND	ND	ND	0.01	ND	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	0.02	10	No relaxation
13	Cadmium as Cd	µg/L	0.04	0.11	0.02	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	0.02	0.04	0.04	50	No relaxation

15	Zinc as Zn	µg/L	76.5	58.7	55	68	75.6	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	ND	1.9
17	Iron as Fe	µg/L	34.8	18.4	24.5	16.6	32.4	300	1000
18	Nitrate	mg/L	0.04	0.16	0.02	0.14	0.04	45	100
19	Sodium as Na	mg/L	1.1	1.02	1.04	1.02	0.32	150	No relaxation
20	Potassium as K	mg/L	ND	ND	0.02	0.05	ND	12	No relaxation
21	Sulfate	mg/L	ND	0.02	0.04	ND	0.06	200	400
22	Total Silica as SiO_2	mg/L	ND	0.2	0.04	0.06	0.2	--	--
23	Total suspended Solid	mg/L	0.88	0.42	1.5	0.8	0.6	--	--
24	Total dissolved Solid	mg/L	26	92	186	18	37	250	2000
25	Turbidity	NTU	0.2	0.42	0.2	0.16	0.12	5	10

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

GROUND WATER LEVEL REPORT

JULY – 2023

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF JULY– 2023

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	27- JULY -2023	OCPL/GWL/01/07/23
7.	Sample 02	NEDIGUTH	27- JULY -2023	OCPL/GWL/02/07/23
8.	Sample 03	TALA SAHI	27- JULY -2023	OCPL/GWL/03/07/23
9.	Sample 04	PLANT- 1 (Near Canteen)	27- JULY -2023	OCPL/GWL/04/07/23
10.	Sample 05	PLANT- 2 (SLIME POND)	27- JULY -2023	OCPL/GWL/05/07/23

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	MALDA VILLAGE	Dugwell	0.8	8.2	7.28	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.51	--
3	TALA SAHI	Dugwell	1.0	8.6	8.22	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.69	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.5	--

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

STACK ANALYSIS REPORT

JULY – 2023

REPORT ON STACK MONITORINGFOR THE MONTH OF JULY – 2023

LOCATION AND MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DG Stack- 1				√			
DG Stack- 2				√			
Stack- 1(Pellet Plant Process Stack)				√			
Stack- 2 (Pellet Plant Dedusting Stack)				√			

TEST REPORT

Name & Address of the Client:	**Report No.**: OCPL/BBS/36
M/S ESSEL MINING & INDUSTRIES LTD	**Date : 19.07.2023**
Keonjhar, Odisha, India	**Sample No.**: OCPL/EMIL/2023-24/06
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling : 07.07.2023

ANALYSIS RESULT

A .	**General information about stack :**	
1.	Stack connected to	: DG-1
2 .	Emission due to	: Burning of Diesel
3 .	Material of construction of stack	: MS
4 .	Shape of Stack	: Circular
5 .	Serial no.	: N15E226771

6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack:**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption: NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^oC)	114	--	IS 11255 (Part III),2008RA 2018
2.	Barometric pressure (mm of Hg)	352	--	USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	16.2	--	IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1253	--	IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture(%)	<2.0	--	USEPA (Part-4)
6.	Concentration of Oxygen(% v/v)	8.4	--	IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	26.5	--	IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	6.4	--	IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	154	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	86.2	300	IS 11255 (Part 7),2005RA 2017

11.	Concentration of Particulate Matters (mg/Nm^3)	54.8	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Name & Address of the Client :	**Report No.** : OCPL/BBS/37
M/S ESSEL MINING & INDUSTRIES LTD	**Date** : 19.07.2023
Keonjhar, Odisha, India	**Sample No.** : OCPL/EMIL /2023-24/07
	Sample Description : DG Flue Gas Monitoring
	Date of Sampling : 14.07.2023

ANALYSIS RESULT

A .	**General information about stack :**			
1.	Stack connected to		: DG-2	
2 .	Emission due to		: Burning of Diesel	
3 .	Material of construction of stack		: MS	
4 .	Shape of Stack		: Circular	
5 .	Serial no.		: N15H319963	
6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack :**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C.	**Analysis/Characteristic of stack:**			
1.	Fuel used : LDO		2. Fuel Consumption : NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^{o}C)	124.4		IS 11255 (Part III),2008RA 2018

2.	Barometric pressure (mm of Hg)	346.2		USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	17.6		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1524		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen (% v/v)	8.6		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	22.5		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	11.6		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	93.8	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	82.5	300	IS 11255 (Part 7),2005RA 2017
11.	Concentration of Particulate Matters (mg/Nm^3)	52.4	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

StackNo.	Stack Description	Emission due to	Date of Sampling
Stack- 1	Pellet plant processstack	Burning of furnace oil	26:04:2023
Stack- 2	Pellet plant dedusting stack	Electricity	26:04:2023

ANALYSIS RESULT

StackNo.	Stack Description	Stack height (in meter)	Emission M^3 / Hr.	Temperature (^oC)	Velocity NM^3/Hr
1	Pellet plant processstack	80	6543	106.8	35612
2	Pellet plant dedustingstack	60	6675	114.4	36256

Stack No.	Stack Description	Carbon monoxide **(CO)** Mg/nm^3	Carbon dioxide **(CO_2)** % v/v	PM Concentration Mg/nm^3		**SO_2** Mg/nm^3	**NO_2** Mg/nm^3
				PM 10	**PM 2.5**		
Norms as per SPCB		1	NA	150	150	NA	NA
1	Pellet plant process stack	<0.2	11.4	98.4	148.2	235	81.8
2	Pellet plant de-dusting stack	<0.2	8.6	126.5	132	246	94.6

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used: Thermo Environmental Instruments TEI- 401

08/09/202

ENVIRONMENTAL MONITORING REPORT FOR THE MONTH OF AUGUST-2023 FOR M/S ESSEL MINING & INDUSTRIES LTD

M/S ESSEL MINING & INDUSTRIES LTD.

VILL- BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA, KEONJHAR

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AMBIENT AIR MONITORING REPORT FOR THE MONTH OF AUGUST-2023

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON		TUE	WED	THU	FRI	SAT
Near ECR -1				✓			✓	
Near Canteen				✓			✓	
Near Admin Building				✓			✓	
Nadiguth Village				✓			✓	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near ECR -1	01.08.2023	OCPL/ AAQ/EMIL/01/08/23
2.	Sample 02	Near Canteen	01.08.2023	OCPL/ AAQ/EMIL/02/08/23
3.	Sample 03	Near Admin Building	01.08.2023	OCPL/ AAQ/EMIL/03/08/23
4.	Sample 04	Nedigutha Village	03.08.2023	OCPL/ AAQ/EMIL/04/08/23
5.	Sample 05	Near ECR -1	04.08.2023	OCPL/ AAQ/EMIL/05/08/23
6.	Sample 06	Near Canteen	04.08.2023	OCPL/ AAQ/EMIL/06/08/23
7.	Sample 07	Near Admin Building	04.08.2023	OCPL/ AAQ/EMIL/07/08/23
8.	Sample 08	Nedigutha Village	07.08.2023	OCPL/ AAQ/EMIL/08/08/23
9.	Sample 09	Near ECR -1	08.08.2023	OCPL/AAQ/EMIL/09/08/23
10.	Sample 10	Near Canteen	08.08.2023	OCPL/AAQ/EMIL/10/08/23
11.	Sample 11	Near Admin Building	08.08.2023	OCPL/AAQ/EMIL/11/08/23
12.	Sample 12	Nedigutha Village	10.08.2023	OCPL/ AAQ/EMIL/12/08/23
13.	Sample 13	Near ECR -1	11.08.2023	OCPL/AAQ/EMIL/13/08/23
14.	Sample 14	Near Canteen	11.08.2023	OCPL/ AAQ/EMIL/14/08/23
15.	Sample 15	Near Admin Building	11.08.2023	OCPL/ AAQ/EMIL/15/08/23
16.	Sample 16	Nedigutha Village	14.08.2023	OCPL/ AAQ/EMIL/16/08/23

17.	Sample 17	Near ECR -1	15.08.2023	OCPL/ AAQ/EMIL/17/08/23
18.	Sample 18	Near Canteen	15.08.2023	OCPL/ AAQ/EMIL/18/08/23
19.	Sample 19	Near Admin Building	15.08.2023	OCPL/ AAQ/EMIL/19/08/23
20.	Sample 20	Nedigutha Village	17.08.2023	OCPL/ AAQ/EMIL/20/08/23
21.	Sample 21	Near ECR -1	18.08.2023	OCPL/AAQ/EMIL/21/08/23
22.	Sample 22	Near Canteen	18.08.2023	OCPL/AAQ/EMIL/22/08/23
23.	Sample 23	Near Admin Building	18.08.2023	OCPL/ AAQ/EMIL/23/08/23
24.	Sample 24	Nedigutha Village	21.08.2023	OCPL/ AAQ/EMIL/24/08/23
25.	Sample 25	Near ECR -1	22.08.2023	OCPL/ AAQ/EMIL/25/08/23
26.	Sample 26	Near Canteen	22.08.2023	OCPL/ AAQ/EMIL/26/08/23
27.	Sample 27	Near Admin Building	22.08.2023	OCPL/ AAQ/EMIL/27/08/23
28.	Sample 28	Nedigutha Village	24.08.2023	OCPL/AAQ/EMIL/28/08/23
29.	Sample 29	Near ECR -1	25.08.2023	OCPL/AAQ/EMIL/29/08/23
30.	Sample 30	Near Canteen	25.08.2023	OCPL/AAQ/EMIL/30/08/23
31.	Sample 31	Near Admin Building	25.08.2023	OCPL/ AAQ/EMIL/31/08/23
32.	Sample 32	Nedigutha Village	28.08.2023	OCPL/AAQ/EMIL/32/08/23
33.	Sample 33	Near ECR -1	29.08.2023	OCPL/ AAQ/EMIL/33/08/23
34.	Sample 34	Near Canteen	29.08.2023	OCPL/AAQ/EMIL/34/08/23
35.	Sample 35	Near Admin Building	29.08.2023	OCPL/ AAQ/EMIL/35/08/23
36.	Sample 36	Nedigutha Village	31.08.2023	OCPL/ AAQ/EMIL/36/08/23

LOCATION: NEAR ECR -1

Parameters	Limit (µg/M3)	Date									
		01.08.23	04.08.23	08.08.23	11.08.23	15.08.23	18.08.23	22.08.23	25.08.23	29.08.23	Avg
PM10	100	84.5	85.9	88	95	94.6	94	92.8	95.6	96.2	91.84
PM2.5	60	57.4	61	62.8	47.6	52	54.8	52	60.2	51.4	55.46
Sulphur Dioxide (SO2)	80	46.7	48	45.6	41.8	52	44.6	56.4	45	44.2	47.14
Oxide of Nitrogen (NO2)	80	41	38.4	35.6	45.2	40.1	37	38.5	36	34.5	38.47
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	176.8	192	198.4	192.5	192.5	188	194.2	179.8	192.6	189.64
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH3)	400	34	48.5	52.4	56	52.6	45.2	56	42.6	41.2	47.61
Benzene(C6 H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM10& PM2.5, SO2, NO2, & CO has been done as per the IS Code IS: 5182 PartIV, II, VI, X& XVII respectively

LOCATION: NEAR CANTEEN

Parameters	**Limit (µg/ M^3)**	DATE									
		01.08.23	04.08.23	08.08.23	11.08.23	15.08.23	18.08.23	22.08.23	25.08.23	29.08.23	Avg
PM10	100	85.9	84.5	87.2	94.8	84.5	94	92.8	95.6	96.2	90.61
PM2.5	60	61	57.4	58.4	58.6	57.4	54.8	52	60.2	51.4	56.8
Sulphur Dioxide (SO_2)	80	48	46.7	44.6	46	46.7	42.5	46.4	45	44.2	45.56
Oxide of Nitrogen (NO_2)	80	38.4	41	37	44.8	41	38	46.2	36	34.5	39.65
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	186.2	170	190	188.4	198.4	192.5	189.5	191	194.2	188.91
Ozone(O_3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	48	45.2	52.4	42.6	41.2	34.2	48.5	52.4	56	46.72
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 & Envirotech- APM -550

Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 PartIV, II, VI, X& XVII respectively

LOCATION: NEAR ADMIN BUILDING

Parameters	Limit (□g/ M^3)	DATE									
		01.08.23	04.08.23	08.08.23	11.08.23	15.08.23	18.08.23	22.08.23	25.08.23	29.08.23	Avg
PM10	100	84.5	95	94.6	96	94	88.9	94.8	86.8	82	90.73
PM2.5	60	58	47.6	52	54.4	57.5	54.8	58.6	61	62.4	56.25
Sulphur Dioxide (SO_2)	80	38.6	41.8	38.6	32.8	42.5	42	46	48.6	45.2	41.78
Oxide of Nitrogen (NO_2)	80	38.9	45.2	40.8	42.6	46.5	38	44.8	48	40.5	42.81
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	174	160.2	162	177.8	165	170.4	154	152.8	148	162.68
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	46.5	38	35.6	42.5	36.4	38	40.4	38.6	42.6	39.84
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550

Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, & CO has been done as per the IS Code IS: 5182 PartIV, II, VI, X& XVII respectively

LOCATION: NEDIGUTHA VILLAGE

Parameters	Limit (□g/M3)	DATE									
		03.08.23	07.08.23	10.08.23	14.08.23	17.08.23	21.08.23	24.08.23	28.08.23	31.08.23	Avg
PM10	100	48	47.6	42.5	48	47.4	40	48.2	44.8	47.5	46
PM2.5	60	38	36.4	42.4	37.2	38.4	42.6	40.5	42.6	37.4	39.5
Sulphur Dioxide (SO_2)	80	12	11.8	16.5	11.2	11.6	22.3	21.5	21.8	11	15.52
Oxide of Nitrogen (NO_2)	80	11.8	11.2	18.8	11	11.6	20	14	17.6	11.2	14.13
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	136.2	142	148.4	152.5	150	155.4	154.8	149.8	156	149.45
Ozone(O_3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12.8	14.2	16.2	18	14.6	21	17.5	18.2	21.5	17.11
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene (BaP) Particulate phase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND: Not Detectable

Name of the calibrated Instrument: RDS – BL – 460 &Environtech- APM -550

Measurement of PM_{10}& $PM_{2.5}$, SO_2, NO_2, &CO has been done as per the IS Code IS: 5182 PartIV, II, VI, X& XVII respectively

NOISE LEVEL MONITORING REPORT FOR THE MONTH OF AUGUST-2023

NOISE LEVEL MONITORING RESULT (INDBA) FOR THE MONTH OF AUGUST LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area				✓			✓
Near Back Gate Area				✓			✓
Near Pellet Plant Area				✓			✓
Near IOBP Area				✓			✓

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	03.08.2023	OCPL/ NL/EMIL/01/08/23
2.	Sample 02	Near Back Gate Area	03.08.2023	OCPL/ NL/EMIL/02/08/23
3.	Sample 03	Near Pellet Plant Area	03.08.2023	OCPL/ NL/EMIL/03/08/23
4.	Sample 04	Near IOBP Area	03.08.2023	OCPL/ NL/EMIL/04/08/23
5.	Sample 05	Near Main Gate Area	07.08.2023	OCPL/ NL/EMIL/05/08/23
6.	Sample 06	Near Back Gate Area	07.08.2023	OCPL/ NL/EMIL/06/08/23
7.	Sample 07	Near Pellet Plant Area	07.08.2023	OCPL/ NL/EMIL/07/08/23
8.	Sample 08	Near IOBP Area	07.08.2023	OCPL/ NL/EMIL/08/08/23
9.	Sample 09	Near Main Gate Area	10.08.2023	OCPL/ NL/EMIL/09/08/23
10.	Sample 10	Near Back Gate Area	10.08.2023	OCPL/ NL/EMIL/10/08/23
11.	Sample 11	Near Pellet Plant Area	10.08.2023	OCPL/ NL/EMIL/11/08/23
12.	Sample 12	Near IOBP Area	10.08.2023	OCPL/ NL/EMIL/12/08/23
13.	Sample 13	Near Main Gate Area	14.08.2023	OCPL/ NL/EMIL/13/08/23
14.	Sample 14	Near Back Gate Area	14.08.2023	OCPL/ NL/EMIL/14/08/23
15.	Sample 15	Near Pellet Plant Area	14.08.2023	OCPL/ NL/EMIL/15/08/23

16.	Sample 16	Near IOBP Area	14.08.2023	OCPL/ NL/EMIL/16/08/23
17.	Sample 17	Near Main Gate Area	17.08.2023	OCPL/ NL/EMIL/17/08/23
18.	Sample 18	Near Back Gate Area	17.08.2023	OCPL/ NL/EMIL/18/08/23
19.	Sample 19	Near Pellet Plant Area	17.08.2023	OCPL/ NL/EMIL/19/08/23
20.	Sample 20	Near IOBP Area	17.08.2023	OCPL/ NL/EMIL/20/08/23
21.	Sample 21	Near Main Gate Area	21.08.2023	OCPL/ NL/EMIL/21/08/23
22.	Sample 22	Near Back Gate Area	21.08.2023	OCPL/ NL/EMIL/22/08/23
23.	Sample 23	Near Pellet Plant Area	21.08.2023	OCPL/ NL/EMIL/23/08/23
24.	Sample 24	Near IOBP Area	21.08.2023	OCPL/ NL/EMIL/24/08/23
25.	Sample 25	Near Main Gate Area	24.08.2023	OCPL/ NL/EMIL/25/08/23
26.	Sample 26	Near Back Gate Area	24.08.2023	OCPL/ NL/EMIL/26/08/23
27.	Sample 27	Near Pellet Plant Area	24.08.2023	OCPL/ NL/EMIL/27/08/23
28.	Sample 28	Near IOBP Area	24.08.2023	OCPL/ NL/EMIL/28/08/23
29.	Sample 29	Near Main Gate Area	28.08.2023	OCPL/ NL/EMIL/29/08/23
30.	Sample 30	Near Back Gate Area	28.08.2023	OCPL/ NL/EMIL/30/08/23
31.	Sample 31	Near Pellet Plant Area	28.08.2023	OCPL/ NL/EMIL/31/08/23
32.	Sample 32	Near IOBP Area	28.08.2023	OCPL/ NL/EMIL/32/08/23
33.	Sample 33	Near Main Gate Area	31.08.2023	OCPL/ NL/EMIL/33/08/23
34.	Sample 34	Near Back Gate Area	31.08.2023	OCPL/ NL/EMIL/34/08/23
35.	Sample 35	Near Pellet Plant Area	31.08.2023	OCPL/ NL/EMIL/35/08/23
36.	Sample 36	Near IOBP Area	31.08.2023	OCPL/ NL/EMIL/36/08/23

Date of Monitoring: 03.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.5	77.3	66.3	79.9	88.3
2	Near Back Gate Area	51.3	66.5	61.5	58.9	59.2
3	Near Pellet Plant Area	71.8	77.2	91.6	93.5	79.2
4	Near IOBP Area	64.2	89.1	65.6	88.2	86
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 07.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	66.3	67.9	79.3	66.3
2	Near Back Gate Area	41.2	63.2	61.3	58.6	49.4
3	Near Pellet Plant Area	66.2	75.2	91.9	79.3	71.9
4	Near IOBP Area	73.2	91.3	78.3	81.3	77.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 10.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	77.1	66.2	79.9	88.3
2	Near Back Gate Area	51.3	66.5	61.5	58.9	59.2
3	Near Pellet Plant Area	71.8	77.3	91.6	93.6	79.2
4	Near IOBP Area	79.1	89.1	77.9	88.2	81.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 14.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	51.3	69.3	71.3	67.3	64.2
2	Near Back Gate Area	49.3	58.6	66.3	59.6	54.2
3	Near Pellet Plant Area	66.3	77.3	95.6	78.8	71.5
4	Near IOBP Area	71.2	88.6	99.2	81.1	78.9
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 17.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	66.3	67.9	79.3	66.3
2	Near Back Gate Area	41.2	63.2	61.3	58.6	49.4
3	Near Pellet Plant Area	66.2	75.2	91.9	79.3	71.9
4	Near IOBP Area	73.2	91.3	78.3	81.3	77.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 21.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.5	77.3	66.3	79.9	88.3
2	Near Back Gate Area	51.3	66.5	61.5	58.9	59.2
3	Near Pellet Plant Area	71.8	77.2	91.6	93.5	79.2
4	Near IOBP Area	79.1	89.1	77.9	88.2	81.3
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 24.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	51.3	69.3	71.3	67.3	64.2
2	Near Back Gate Area	49.3	58.6	66.3	59.6	54.2
3	Near Pellet Plant Area	66.3	77.3	95.6	78.8	71.5
4	Near IOBP Area	71.2	88.6	99.2	81.1	78.9
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 28.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	55.1	67.7	67.3	71.6	59.7
2	Near Back Gate Area	49.3	63.2	58.7	61.3	61.3
3	Near Pellet Plant Area	69.2	81.2	97.6	89.7	88.1
4	Near IOBP Area	77.2	86.6	99.7	71.9	84.6
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

Date of Monitoring: 31.08.2023

S.L No	Station	Day 6.00-7.00am	Day 10.00-11.00am	Day 3.00-4.00pm	Evening 6.00-7.00 pm	Night 10.00-11.00 pm
1	Near Main Gate Area	49.2	66.5	78.3	76.7	59.8
2	Near Back Gate Area	44.2	63.2	69.3	61.3	51.2
3	Near Pellet Plant Area	69.3	88.6	97.6	88.9	91.3
4	Near IOBP Area	77.8	71.2	91.9	78.2	94.2
5	**Ambient Noise Standard**	**Day Time (in dB(A)) Leq**			**Night Time (in dB(A)) Leq**	
i	Industrial	75.0			70.0	

Instrument used: Larson Devis

SURFACE WATER ANALYSIS REPORT FOR THE MONTH OF AUGUST-2023

SURFACE WATER ANALYSIS FOR THE MONTH OF AUGUST 2023
SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	06- AUGUST - 2023	OCPL/SW/01/08/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	06- AUGUST - 2023	OCPL/SW/02/08/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	06- AUGUST - 2023	OCPL/SW/03/08/23
4.	Sample 04	DALKI NALA NEAR PLANT	06- AUGUST - 2023	OCPL/SW/04/08/23
5.	Sample 05	NADIGUTH	06- AUGUST - 2023	OCPL/SW/05/08/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/08/23		**Report No.- OCPL/EMIL/01/08/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- AUGUST -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- AUGUST -2023
Sample type	Surface Water	Date of Analysis	07- AUGUST -2023
Required parameters	As described in W/O	Date of Issue of report	16- AUGUST -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.6
2	Odour	-	Agreeable
3	Temperature	°C	24.2
4	pH	-	6.9
5	Total Suspended Solids	mg/L	128
6	Total Dissolved Solid	mg/L	1243
7	Biochemical Oxygen Demand at 27°C	mg/L	8.2
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.32
10	Alkalinity	mg/L	74.2
11	Calcium	mg/L	46
12	Magnesium	mg/L	52.4
13	Total Hardness as CaCO3	mg/L	51.2
14	Electrical Conductivity	µs/cm	265.4
15	Turbidity	NTU	32.5

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.22
20	Zinc as Zn	µg/L	0.12
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	7.8
23	Nitrate	mg/L	1.24
24	Sodium as Na	mg/L	1.46
25	Potassium as K	mg/L	1.22
26	Sulfate	mg/L	1.6
27	Nitrate as NO_3	mg/L	2.8
28	Total Silica as SiO_2	mg/L	14.6
29	Total dissolved Solid	mg/L	1243

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/08/23		**Report No.- OCPL/EMIL/02/08/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (NEAR PLANT AREA)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- AUGUST -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- AUGUST -2023
Sample type	Surface Water	Date of Analysis	07- AUGUST -2023
Required parameters	As described in W/O	Date of Issue of report	16- AUGUST -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.4
2	Odour	-	Agreeable
3	Temperature	°C	25.2
4	pH	-	7.1
5	Total Suspended Solids	mg/L	168
6	Total Dissolved Solid	mg/L	1286
7	Biochemical Oxygen Demand at 27°C	mg/L	6.8
8	Chemical Oxygen Demand	mg/L	2.2
9	Total Residual Chlorine	mg/L	1.42
10	Alkalinity	mg/L	26
11	Calcium	mg/L	34.5
12	Magnesium	mg/L	58
13	Total Hardness as CaCO3	mg/L	54.4
14	Electrical Conductivity	µs/cm	232
15	Turbidity	NTU	84.6

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	2.84
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.22
23	Nitrate	mg/L	6.6
24	Sodium as Na	mg/L	2.9
25	Potassium as K	mg/L	3.35
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	2.98
28	Total Silica as SiO_2	mg/L	21.9
29	Total dissolved Solid	mg/L	1286

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/08/23		**Report No.- OCPL/EMIL/03/08/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**RESERVOUR POND INSIDE PLANT PREMISES**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- AUGUST -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- AUGUST -2023
Sample type	Surface Water	Date of Analysis	07- AUGUST -2023
Required parameters	As described in W/O	Date of Issue of report	16- AUGUST -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	OK

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.8
2	Odour	-	Agreeable
3	Temperature	°C	25.1
4	pH	-	6.9
5	Total Suspended Solids	mg/L	262
6	Total Dissolved Solid	mg/L	1149
7	Biochemical Oxygen Demand at 27°C	mg/L	7.1
8	Chemical Oxygen Demand	mg/L	4.94
9	Total Residual Chlorine	mg/L	6.26
10	Alkalinity	mg/L	74
11	Calcium	mg/L	72.4
12	Magnesium	mg/L	64.6
13	Total Hardness as CaCO3	mg/L	214
14	Electrical Conductivity	µs/cm	266
15	Turbidity	NTU	107.5

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	<0.05
21	Fluoride as F	mg/L	3.26
22	Iron as Fe	mg/L	22.4
23	Nitrate	mg/L	6.9
24	Sodium as Na	mg/L	65.4
25	Potassium as K	mg/L	33.2
26	Sulfate	mg/L	5.8
27	Nitrate as NO_3	mg/L	3.4
28	Total Silica as SiO_2	mg/L	7.6
29	Total dissolved Solid	mg/L	1149

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/08/23		**Report No.- OCPL/EMIL/04/08/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- AUGUST -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- AUGUST -2023
Sample type	Surface Water	Date of Analysis	07- AUGUST -2023
Required parameters	As described in W/O	Date of Issue of report	16- AUGUST -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.5
2	Odour	-	Agreeable
3	Temperature	°C	25.1
4	pH	-	6.7
5	Total Suspended Solids	mg/L	102.4
6	Total Dissolved Solid	mg/L	984
7	Biochemical Oxygen Demand at 27°C	mg/L	6.8
8	Chemical Oxygen Demand	mg/L	2.2
9	Total Residual Chlorine	mg/L	1.2
10	Alkalinity	mg/L	21
11	Calcium	mg/L	38.6
12	Magnesium	mg/L	32
13	Total Hardness as CaCO3	mg/L	34.5
14	Electrical Conductivity	µs/cm	211
15	Turbidity	NTU	57.6

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	1.4
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.6
23	Nitrate	mg/L	7.8
24	Sodium as Na	mg/L	11.5
25	Potassium as K	mg/L	5.2
26	Sulfate	mg/L	14.5
27	Nitrate as NO_3	mg/L	8.6
28	Total Silica as SiO_2	mg/L	2.5
29	Total dissolved Solid	mg/L	984

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/08/23		**Report No.- OCPL/EMIL/05/08/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	06- AUGUST -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	07- AUGUST -2023
Sample type	Surface Water	Date of Analysis	07- AUGUST -2023
Required parameters	As described in W/O	Date of Issue of report	16- AUGUST -2023
EMIL reference	WO No.- 1060/ADMIN/5500004339	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.9
2	Odour	-	Agreeable
3	Temperature	°C	24.6
4	pH	-	6.8
5	Total Suspended Solids	mg/L	142
6	Total Dissolved Solid	mg/L	1205
7	Biochemical Oxygen Demand at 27°C	mg/L	7.4
8	Chemical Oxygen Demand	mg/L	2.8
9	Total Residual Chlorine	mg/L	1.4
10	Alkalinity	mg/L	42.6
11	Calcium	mg/L	38.2
12	Magnesium	mg/L	26
13	Total Hardness as CaCO3	mg/L	34.5
14	Electrical Conductivity	µs/cm	198
15	Turbidity	NTU	56.4
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	ND
20	Zinc as Zn	µg/L	2.24
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	8.9
23	Nitrate	mg/L	5.4
24	Sodium as Na	mg/L	10.2
25	Potassium as K	mg/L	6.9
26	Sulfate	mg/L	3.8
27	Nitrate as NO_3	mg/L	7.1
28	Total Silica as SiO_2	mg/L	16
29	Total dissolved Solid	mg/L	1205

GROUND WATER ANALYSIS REPORT FOR THE MONTH OF AUGUST-2023

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

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	MALDA VILLAGE	16- AUGUST - 2023	OCPL/GW/01/08/23
2.	Sample 02	NEDIGUTH	16- AUGUST - 2023	OCPL/GW/02/08/23
3.	Sample 03	TALA SAHI	16- AUGUST - 2023	OCPL/GW/03/08/23
4.	Sample 04	PLANT- 1 (Near Canteen)	16- AUGUST - 2023	OCPL/GW/04/08/23
5.	Sample 05	PLANT- 2 (SLIME POND)	16- AUGUST - 2023	OCPL/GW/05/08/23

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

Sl. No.	TEST PARAMETER	UOM	Results					BIS Desirable limit	Permissible limit with the absence of alternate source
			MALDA VILLAGE	NEDIGUTH	TALA SAHI	PLANT-1 (Near Canteen)	PLANT-2 (SLIME POND)		
1	Colour	Pt-Co	1.2	0.8	1.0	1.0	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	23.2	24.8	24.6	25.1	24.8		
4	pH	-	6.6	7.4	7.2	7.2	7.1	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	45.8	52	48.4	54.2	40.2	300	600
6	Calcium	mg/L	8.6	9.5	14	16	18.2	75	200
7	Magnesium	mg/L	0.8	1.4	2.5	3.1	1.4	30	No relaxation
8	Chloride	mg/L	8.2	6.9	8	6.4	16	250	1000
9	Alkalinity	mg/L	26.2	24	16.6	18	21.4	200	600
10	Electrical Conductivity	µs/cm	58.2	74.8	75.6	68.6	71.5	--	--
11	Arsenic as As	µg/L	ND	ND	ND	0.01	ND	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	0.02	10	No relaxation
13	Cadmium as Cd	µg/L	0.04	ND	0.02	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	0.02	0.04	0.04	50	No relaxation

15	Zinc as Zn	µg/L	84.8	62	55.2	72.4	75	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	ND	1.9
17	Iron as Fe	µg/L	32.5	16.4	21.6	18	28.4	300	1000
18	Nitrate	mg/L	0.11	0.2	0.14	0.16	0.02	45	100
19	Sodium as Na	mg/L	1.12	1.26	1.3	1.06	0.4	150	No relaxation
20	Potassium as K	mg/L	ND	ND	0.01	0.02	ND	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	ND	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	ND	ND	ND	--	--
23	Total suspended Solid	mg/L	0.64	0.3	1.2	1.1	0.42	--	--
24	Total dissolved Solid	mg/L	58.4	86.4	69.5	38.4	46	250	2000
25	Turbidity	NTU	0.24	0.65	0.41	0.56	0.22	5	10

Sampling By: Mr. Hrusikesh Das

GROUND WATER LEVEL ANALYSIS REPORT FOR THE MONTH OF AUGUST-2023

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF AUGUST–2023

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	19- AUGUST - 2023	OCPL/GWL/01/08/23
7.	Sample 02	NEDIGUTH	19- AUGUST - 2023	OCPL/GWL/02/08/23
8.	Sample 03	TALA SAHI	19- AUGUST - 2023	OCPL/GWL/03/08/23
9.	Sample 04	PLANT- 1 (Near Canteen)	19- AUGUST - 2023	OCPL/GWL/04/08/23
10.	Sample 05	PLANT- 2 (SLIME POND)	19- AUGUST - 2023	OCPL/GWL/05/08/23

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	MALDA VILLAGE	Dugwell	0.8	8.2	6.86	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.1	--
3	TALA SAHI	Dugwell	1.0	8.6	7.42	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	12.2	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	44.84	--

Sampling By: Mr. Hrusikesh Das

STACK MONITORING REPORT FOR THE MONTH OF AUGUST-2023

REPORT ON STACK MONITORINGFOR THE MONTH OF AUGUST – 2023

LOCATION AND MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DG Stack- 1				✓			
DG Stack- 2				✓			
Stack- 1(Pellet Plant Process Stack)					✓		
Stack- 2 (Pellet Plant Dedusting Stack)					✓		

TEST REPORT

Name & Address of the Client:	**Report No.**: OCPL/BBS/36
M/S ESSEL MINING & INDUSTRIES LTD	**Date :** 22.08.2023
Keonjhar, Odisha, India	**Sample No.**: OCPL/EMIL/2023-24/06
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling : 09.08.2023

ANALYSIS RESULT

A .	**General information about stack :**	
1.	Stack connected to	: DG-1
2 .	Emission due to	: Burning of Diesel
3 .	Material of construction of stack	: MS
4 .	Shape of Stack	: Circular
5 .	Serial no.	: N15E226771
6.	Boiler/Furnace/DG/Kiln Capacity	: 1250 KVA

B.	**Physical characteristics of stack:**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C. 1.	**Analysis/Characteristic of stack:** Fuel used : LDO		2. Fuel Consumption: NA	
D .	**Results of sampling & analysis of gaseousemission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^oC)	112.8	--	IS 11255 (Part III),2008RA2018
2.	Barometric pressure (mm of Hg)	340	--	USEPA Part 2 - 25/09/1996
3.	Velocity of gas (m/sec.)	18.6	--	IS 11255 (Part III),2008RA2018
4.	Quantity of Gas Flow (Nm^3/hr)	1275	--	IS 11255 (Part III),2008RA2018
5.	Concentration of Moisture(%)	<2.0	--	USEPA (Part-4)
6.	Concentration of Oxygen(% v/v)	9.6	--	IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	28.8	--	IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	6.9	--	IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	139	600	IS 11255 (Part II),1985RA2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	96.8	300	IS 11255 (Part 7),2005RA2017

11.	Concentration of Particulate Matters (mg/Nm^3)	48.6	50	IS 11255 (Part I):1985,RA2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

Name & Address of the Client :	**Report No.** : OCPL/BBS/37
M/S ESSEL MINING & INDUSTRIES LTD	**Date** : 22.08.2023
Keonjhar, Odisha, India	**Sample No.** : OCPL/EMIL /2023-24/07
	Sample Description : DG Flue Gas Monitoring
	Date of Sampling : 09.08.2023

ANALYSIS RESULT

A .	**General information about stack :**			
1.	Stack connected to		: DG-2	
2 .	Emission due to		: Burning of Diesel	
3 .	Material of construction of stack		: MS	
4 .	Shape of Stack		: Circular	
5 .	Serial no.		: N15H319963	
6.	Boiler/Furnace/DG/Kiln Capacity		: 1250 KVA	
B.	**Physical characteristics of stack :**			
1.	Height of the Stack from Ground level		: 9 m	
2.	Diameter of the stack at sampling point		: 400 mm	
3.	Height of the Sampling Point from Ground level		: 7 m	
4.	Type		: HCKI634Z1	
C. 1.	**Analysis/Characteristic of stack:** Fuel used : LDO		2. Fuel Consumption : NA	
D .	**Results of sampling & analysis of gaseous emission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission (^{o}C)	121.4		IS 11255 (Part III),2008RA 2018

2.	Barometric pressure (mm of Hg)	262		USEPA Part 2 -25/09/1996
3.	Velocity of gas (m/sec.)	17.8		IS 11255 (Part III),2008RA 2018
4.	Quantity of Gas Flow (Nm^3/hr)	1624		IS 11255 (Part III),2008RA 2018
5.	Concentration of Moisture (%)	<2.0		USEPA (Part-4)
6.	Concentration of Oxygen (% v/v)	8.8		IS 13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	26.5		IS 13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide (% v/v)	14		IS 13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide (mg/Nm^3)	124	600	IS 11255 (Part II),1985RA 2014
10.	Concentration of Nitrogen Dioxide (mg/Nm^3)	95.2	300	IS 11255 (Part 7),2005RA 2017
11.	Concentration of Particulate Matters (mg/Nm^3)	44.8	50	IS 11255 (Part I):1985,RA 2014
E .	**<u>Pollution control device</u>** Details of pollution control devices attached with the stack : NA			
F.	**Remarks** : Nil			

Sampling By: Mr. Hrusikesh Das

TEST REPORT

StackNo.	Stack Description	Emission due to	Date of Sampling
Stack- 1	Pellet plant processstack	Burning of furnace oil	10:08:2023
Stack- 2	Pellet plant dedusting stack	Electricity	10:08:2023

ANALYSIS RESULT

StackNo.	Stack Description	Stack height (in meter)	Emission M^3 / Hr.	Temperature (^oC)	Velocity NM^3/Hr
1	Pellet plant processstack	80	6624	112.4	35106
2	Pellet plant dedustingstack	60	6745	109.4	35864

Stack No.	Stack Description	Carbon monoxide **(CO)** Mg/nm^3	Carbon dioxide **(CO2)** % v/v	PM Concentration Mg/nm^3		**SO2** Mg/nm^3	**NO2** Mg/nm^3
				PM 10	**PM 2.5**		
Norms as per SPCB		1	NA	150	150	NA	NA
1	Pellet plant process stack	<0.2	9.2	132	116.5	186.5	76.4
2	Pellet plant de-dusting stack	<0.2	8.5	114.8	128	221	84.2

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used: Thermo Environmental Instruments TEI- 401

08/10/2023

ENVIRONMENTAL MONITORING REPORT FOR THE MONTH OF SEPTEMBER-2023 FORM ESSEL MINING & INDUSTRIES LTD.

M/S ESSEL MINING & INDUSTRIES LTD.

VILL-BASANTPUR, PO-DUBUNA, TEHSIL-JHUMPURA,KEONJHAR

CONTENTS

AMBIENT AIR MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

AMBIENTAIRMONITORINGDATAL

OCATION AND WEEKLYMONITORINGSCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
NearECR-1			✓			✓	
Near Canteen			✓			✓	
NearAdminBuilding			✓			✓	
NadiguthVillage			✓			✓	

SUMMARY SHEET OF SAMPLING

SlNo.	SampleNos.	Location	Date ofSampling	LabSampleCode
1.	Sample01	NearECR-1	01.09.2023	OCPL/AAQ/EMIL/01/09/23
2.	Sample02	Near Canteen	01.09.2023	OCPL/AAQ/EMIL/02/09/23
3.	Sample03	NearAdminBuilding	01.09.2023	OCPL/AAQ/EMIL/03/09/23
4.	Sample04	Nedigutha Village	02.09.2023	OCPL/AAQ/EMIL/04/09/23
5.	Sample05	NearECR-1	05.09.2023	OCPL/AAQ/EMIL/05/09/23
6.	Sample06	Near Canteen	05.09.2023	OCPL/AAQ/EMIL/06/09/23
7.	Sample07	NearAdminBuilding	05.09.2023	OCPL/AAQ/EMIL/07/09/23
8.	Sample08	Nedigutha Village	06.09.2023	OCPL/AAQ/EMIL/08/09/23
9.	Sample09	NearECR-1	08.09.2023	OCPL/AAQ/EMIL/09/09/23
10.	Sample10	Near Canteen	08.09.2023	OCPL/AAQ/EMIL/10/09/23
11.	Sample11	NearAdminBuilding	08.09.2023	OCPL/AAQ/EMIL/11/09/23
12.	Sample12	Nedigutha Village	09.09.2023	OCPL/AAQ/EMIL/12/09/23
13.	Sample13	NearECR-1	12.09.2023	OCPL/AAQ/EMIL/13/09/23
14.	Sample14	Near Canteen	12.09.2023	OCPL/AAQ/EMIL/14/09/23
15.	Sample15	NearAdminBuilding	12.09.2023	OCPL/AAQ/EMIL/15/09/23
16.	Sample16	Nedigutha Village	13.09.2023	OCPL/AAQ/EMIL/16/09/23

17.	Sample17	NearECR-1	15.09.2023	OCPL/AAQ/EMIL/17/09/23
18.	Sample18	Near Canteen	15.09.2023	OCPL/AAQ/EMIL/18/09/23
19.	Sample19	NearAdminBuilding	15.09.2023	OCPL/AAQ/EMIL/19/09/23
20.	Sample20	Nedigutha Village	16.09.2023	OCPL/AAQ/EMIL/20/09/23
21.	Sample21	NearECR-1	19.09.2023	OCPL/AAQ/EMIL/21/09/23
22.	Sample22	Near Canteen	19.09.2023	OCPL/AAQ/EMIL/22/09/23
23.	Sample23	NearAdminBuilding	19.09.2023	OCPL/AAQ/EMIL/23/09/23
24.	Sample24	Nedigutha Village	20.09.2023	OCPL/AAQ/EMIL/24/09/23
25.	Sample25	NearECR-1	22.09.2023	OCPL/AAQ/EMIL/25/09/23
26.	Sample26	Near Canteen	22.09.2023	OCPL/AAQ/EMIL/26/09/23
27.	Sample27	NearAdminBuilding	22.09.2023	OCPL/AAQ/EMIL/27/09/23
28.	Sample28	Nedigutha Village	23.09.2023	OCPL/AAQ/EMIL/28/09/23
29.	Sample29	NearECR-1	26.09.2023	OCPL/AAQ/EMIL/29/09/23
30.	Sample30	Near Canteen	26.09.2023	OCPL/AAQ/EMIL/30/09/23
31.	Sample31	NearAdminBuilding	26.09.2023	OCPL/AAQ/EMIL/31/09/23
32.	Sample32	Nedigutha Village	27.09.2023	OCPL/AAQ/EMIL/32/09/23
33.	Sample33	NearECR-1	29.09.2023	OCPL/AAQ/EMIL/33/09/23
34.	Sample34	Near Canteen	29.09.2023	OCPL/AAQ/EMIL/34/09/23
35.	Sample35	NearAdminBuilding	29.09.2023	OCPL/AAQ/EMIL/35/09/23
36.	Sample36	Nedigutha Village	30.09.2023	OCPL/AAQ/EMIL/36/09/23

LOCATION: NEAR ECR-1

Parameters	Limit(µg/M3)	Date									
		01.09.23	05.09.23	08.09.23	12.09.23	15.09.23	19.09.23	22.09.23	26.09.23	29.09.23	Avg
PM10	100	86.4	84	82.8	84.4	78.4	76	78.4	78	76.2	80.51
PM2.5	60	55.8	58.2	56	54.4	42.6	41.8	42.8	44.6	43.8	48.88
Sulphur Dioxide (SO2)	80	32.4	34.2	34	35.6	16	15.8	16	15.6	16.8	24.04
Oxide ofNitrogen (NO2)	80	26.2	25.8	25	24.8	16	16.6	15.8	18.4	18	20.73
Lead(Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CarbonMonoxide (CO) (8Hrs)	2000	175.2	179	178.4	182	182.6	158.4	156.4	158.2	161.4	170.17
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH3)	400	32.4	30.8	30.2	28.2	30.2	39	39.6	39.2	37.8	34.15
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Pyrene (BaP) Particulatephaseonly(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic(As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND:NotDetectable

NameofthecalibratedInstrument:RDS– BL– 460 &Envirotech-APM-550

MeasurementofPM10&PM2.5,SO2,NO2,&COhasbeendone aspertheISCodeIS:5182 PartIV,II,VI,X&XVIIrespectively

LOCATION: NEAR CANTEEN

Parameters	**Limit (µg/ M^3)**	DATE									
		01.09.23	05.09.23	08.09.23	12.09.23	15.09.23	19.09.23	22.09.23	26.09.23	29.09.23	Avg
PM10	100	78.4	76.2	78.6	94.8	84.5	88.4	91.2	89.6	88.5	85.57
$PM_{2.5}$	60	44	43.4	42	58.6	57.4	71.4	69.8	71.4	70.6	58.73
Sulphur Dioxide (SO_2)	80	15.2	16.4	15.8	46	45.5	37.8	38	37.9	39.2	32.42
Oxide ofNitrogen (NO_2)	80	18.2	17.6	16.2	44.8	41	32.2	29.8	28	31.5	28.81
Lead(Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide(CO)(8Hrs)	2000	182	182.6	178.8	176	180	182.6	189.5	191	194.2	184.07
Ozone(O_3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	48	45.2	52.4	30.8	30.2	47.8	30.2	56	30.2	41.2
Benzene(C_6H_6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Pyrene(BaP)Particulatephase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic(As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND:NotDetectable

NameofthecalibratedInstrument:RDS– BL– 460 &Envirotech-APM-550

MeasurementofPM10&$PM_{2.5}$,SO_2,NO_2,&COhasbeendone aspertheISCodeIS:5182 PartIV,II,VI,X&XVIIrespectively

LOCATION: NEAR ADMIN. BUILDING

Parameters	Limit (□g/ M³)	DATE									
		01.09.23	05.09.23	08.09.23	12.09.23	15.09.23	19.09.23	22.09.23	26.09.23	29.09.23	Avg
PM10	100	88	88.6	89.8	89	94	88.9	78.4	76.4	78	85.67
PM2.5	60	57.8	58	56.4	55.8	57.5	54.8	44	44.5	46	52.75
Sulphur Dioxide (SO2)	80	28	28.6	27.5	26.8	42.5	42	16.8	18	18.8	27.66
Oxideof Nitrogen(NO2)	80	27.6	28	28.2	28	46.5	38	20.4	18.4	20.6	28.41
Lead(Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CarbonMonoxide(CO)(8Hrs)	2000	169.8	170	171.4	171	168.5	170.4	154	152.8	148	163.98
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH3)	400	38.4	40.2	42	40.6	36.4	38	40.4	38.6	42.6	39.68
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a) Pyrene(BaP) Particulatephase only(ng/m3)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic(As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND:NotDetectable

NameofthecalibratedInstrument:RDS– BL– 460&Environtech-APM-550

MeasurementofPM10&PM2.5,SO2,NO2,&COhasbeendone aspertheISCodeIS:5182 PartIV,II,VI,X&XVIIrespectively

LOCATION:NEDIGUTHAVILLAGE

Parameters	Limit (µg/M3)	DATE									
		02.09.23	06.09.23	09.09.23	13.09.23	16.09.23	20.09.23	23.09.23	27.09.23	30.09.23	Avg
PM10	100	55	54	55.6	57.2	56	48.8	48	48	46.4	52.11
PM2.5	60	48	48.8	46.5	47.9	49.6	38.4	36.8	37.6	38.4	43.55
Sulphur Dioxide (SO2)	80	18	20	18.6	18	19.5	11	12.4	11.2	11.8	15.61
Oxide ofNitrogen (NO2)	80	19.5	21	18.5	18.8	19.6	11.2	11.8	12	11.6	16
Lead(Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CarbonMonoxide (CO)(8Hrs)	2000	134	132.4	132.6	134.8	132.2	140	139.6	141.2	146	136.97
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH3)	400	7.4	7.2	8	6.4	7.6	12.5	12.8	12	14	9.76
Benzene(C6H6)	05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Pyrene(BaP)	01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Particulate phaseonly(ng/m3)											
Arsenic(As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND:Not Detectable

NameofthecalibratedInstrument:RDS–BL –460&Environtech-APM-550

Measurement of PM10& PM2.5, SO2, NO2, &CO has been done as per the IS Code IS: 5182 PartIV,II,VI,X&XVIIrespectively

NOISE LEVEL MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

NOISE LEVEL MONITORING RESULT (IN DBA) FOR THE MONTH OF SEPTEMBER LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
NearMainGateArea	✓				✓		
NearBack GateArea	✓				✓		
NearPelletPlantArea	✓				✓		
Near IOBPArea	✓				✓		

SUMMARYSHEETOFSAMPLING

Sl No.	Sample Nos.	Location	Date ofSampling	LabSampleCode
1.	Sample01	NearMainGateArea	03.09.2023	OCPL/NL/EMIL/01/09/23
2.	Sample02	NearBackGateArea	03.09.2023	OCPL/NL/EMIL/02/09/23
3.	Sample03	NearPelletPlantArea	03.09.2023	OCPL/NL/EMIL/03/09/23
4.	Sample04	Near IOBPArea	03.09.2023	OCPL/NL/EMIL/04/09/23
5.	Sample05	NearMainGateArea	07.09.2023	OCPL/NL/EMIL/05/09/23
6.	Sample06	NearBackGateArea	07.09.2023	OCPL/NL/EMIL/06/09/23
7.	Sample07	NearPelletPlantArea	07.09.2023	OCPL/NL/EMIL/07/09/23
8.	Sample08	Near IOBPArea	07.09.2023	OCPL/NL/EMIL/08/09/23
9.	Sample09	NearMainGateArea	10.09.2023	OCPL/NL/EMIL/09/09/23
10.	Sample10	NearBackGateArea	10.09.2023	OCPL/NL/EMIL/10/09/23
11.	Sample11	NearPelletPlantArea	10.09.2023	OCPL/NL/EMIL/11/09/23
12.	Sample12	Near IOBPArea	10.09.2023	OCPL/NL/EMIL/12/09/23
13.	Sample13	NearMainGateArea	14.09.2023	OCPL/NL/EMIL/13/09/23
14.	Sample14	NearBackGateArea	14.09.2023	OCPL/NL/EMIL/14/09/23
15.	Sample15	NearPelletPlantArea	14.09.2023	OCPL/NL/EMIL/15/09/23

16.	Sample16	Near IOBPArea	14.09.2023	OCPL/NL/EMIL/16/09/23
17.	Sample17	NearMainGateArea	17.09.2023	OCPL/NL/EMIL/17/09/23
18.	Sample18	NearBackGateArea	17.09.2023	OCPL/NL/EMIL/18/09/23
19.	Sample19	NearPelletPlantArea	17.09.2023	OCPL/NL/EMIL/19/09/23
20.	Sample20	Near IOBPArea	17.09.2023	OCPL/NL/EMIL/20/09/23
21.	Sample21	NearMainGateArea	21.09.2023	OCPL/NL/EMIL/21/09/23
22.	Sample22	NearBackGateArea	21.09.2023	OCPL/NL/EMIL/22/09/23
23.	Sample23	NearPelletPlantArea	21.09.2023	OCPL/NL/EMIL/23/09/23
24.	Sample24	Near IOBPArea	21.09.2023	OCPL/NL/EMIL/24/09/23
25.	Sample25	NearMainGateArea	24.09.2023	OCPL/NL/EMIL/25/09/23
26.	Sample26	NearBackGateArea	24.09.2023	OCPL/NL/EMIL/26/09/23
27.	Sample27	NearPelletPlantArea	24.09.2023	OCPL/NL/EMIL/27/09/23
28.	Sample28	Near IOBPArea	24.09.2023	OCPL/NL/EMIL/28/09/23
29.	Sample29	NearMainGateArea	28.09.2023	OCPL/NL/EMIL/29/09/23
30.	Sample30	NearBackGateArea	28.09.2023	OCPL/NL/EMIL/30/09/23
31.	Sample31	NearPelletPlantArea	28.09.2023	OCPL/NL/EMIL/31/09/23
32.	Sample32	Near IOBPArea	28.09.2023	OCPL/NL/EMIL/32/09/23
33.	Sample33	NearMainGateArea	30.09.2023	OCPL/NL/EMIL/33/09/23
34.	Sample34	NearBackGateArea	30.09.2023	OCPL/NL/EMIL/34/09/23
35.	Sample35	NearPelletPlantArea	30.09.2023	OCPL/NL/EMIL/35/09/23
36.	Sample36	Near IOBPArea	30.09.2023	OCPL/NL/EMIL/36/09/23

DateofMonitoring:03.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	Near Main GateArea	55.3	81.6	62.2	88.7	79.9
2	NearBackGate Area	54.2	54.3	66.8	61.2	63.3
3	Near PelletPlant Area	69.9	66.3	88.3	84.4	71.2
4	Near IOBPA rea	79.1	88.1	78.2	89.3	88.7
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:07.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	79.1	89.1	77.9	88.2	81.3
2	NearBackGate Area	77.3	89.2	77.3	59.2	88.1
3	Near PelletPlant Area	61.3	69.2	88.1	87.2	70.2
4	Near IOBPA rea	71.2	78.3	89.2	96.2	59.9
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:10.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	51.5	89.3	88.2	76.3	89.3
2	NearBackGate Area	56.6	72.5	66.9	69.3	71.3
3	Near PelletPlant Area	86.2	89.8	81.2	84.5	98.3
4	Near IOBPArea	81.3	87.9	95.2	98.2	71.3
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:14.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	52.2	66.3	71.3	69.3	66.3
2	NearBackGate Area	51.3	58.6	69.3	51.9	54.2
3	Near PelletPlant Area	61.3	89.9	89.2	88.6	78.9
4	Near IOBPArea	77.6	78.3	88.2	81.1	73.2
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:17.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	55.6	69.3	66.3	54.5	59.3
2	NearBackGate Area	49.3	58.5	59.8	59.3	54.2
3	Near PelletPlant Area	54.8	75.2	91.9	79.3	73.8
4	Near IOBPArea	56.7	81.1	88.2	88.2	89.2
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:21.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	69.3	55.3	61.2	77.3	64.2
2	NearBackGate Area	60	61.2	60.2	58.9	61.9
3	Near PelletPlant Area	77.8	77.2	77.8	91.3	89.9
4	Near IOBPA rea	79.3	99.3	79.9	88.2	88.3
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:24.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	55.3	69.3	63.02	56.9	55.9
2	NearBackGate Area	56.4	59.4	66.3	54.2	51.4
3	Near PelletPlant Area	89.3	88.9	84.9	77.2	78.8
4	Near IOBPArea	71.3	79.5	73.5	89.3	91.3
5	**Ambient Noise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:28.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	61.3	67.7	78.2	56.3	51.2
2	NearBackGate Area	66.8	61.6	54.3	46.8	55.4
3	Near PelletPlant Area	69.2	88	81.1	88.6	74.6
4	Near IOBPArea	83.5	96.3	99.7	71.9	79
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

DateofMonitoring:30.09.2023

S.L No	Station	Day 6.00-7.00am	Day1 0.00-11.00am	Day 3.00-4.00pm	Evening6.00-7.00pm	Night 10.00-11.00pm
1	NearMainGateArea	58.5	69.2	77.1	41.2	61.3
2	NearBackGate Area	78.2	57.3	54.6	47.3	66.3
3	Near PelletPlant Area	93.2	76.1	81.2	71.1	76
4	Near IOBPArea	88.9	74.5	88.3	77.3	79.3
5	**AmbientNoise Standard**	**DayTime(indB(A))Leq**			**NightTime(indB(A))Leq**	
i	Industrial	75.0			70.0	

Instrumentused:LarsonDevis

SURFACE WATER ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

SURFACE WATER ANALYSIS FOR THE MONTH OF SEPTEMBER2023
SUMMARY SHEETOFSAMPLING(SURFACE WATER):

Sl No.	Sample Nos.	Location	DateofSampling	LabSampleCode
1.	Sample01	BAITARANI RIVER (DHANURJAYPUR)	09-September-2023	OCPL/SW/01/09/23
2.	Sample02	BAITARANI RIVER (NEARPLANTAREA)	09-September-2023	OCPL/SW/02/09/23
3.	Sample03	RESERVOUR POND INSIDEPLANT	09-September-2023	OCPL/SW/03/09/23
4.	Sample04	DALKI NALANEARPLANT	09-September-2023	OCPL/SW/04/09/23
5.	Sample05	NADIGUTH	09-September-2023	OCPL/SW/05/09/23

Location:BAITARANIRIVER(DHANURJAYPUR)

LabSampleCode: OCPL/SW/01/09/23		**ReportNo.-OCPL/EMIL/01/09/23**	
Sampledescription:		Testmethod	APHA22nd edition
Samplelocation	**BAITARANIRIVER (DHANURJAYPUR)**	Samplecollectedby	OCPL representative
Location	Keonjhar,Odisha	DateofSampling	09-September-2023
Samplequantity	1no.sX1Lit.	Dateofsamplereceived	10-September-2023
Sampletype	SurfaceWater	DateofAnalysis	10-September-2023
Required parameters	AsdescribedinW/O	DateofIssueof report	19-September-2023
EMILreference	WO No.-1060/ADMIN/5500004339	Sampleconditionat receipt	Ok

ANALYSISRESULT

Sl. No.	**TESTPARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.5
2	Odour	-	Agreeable
3	Temperature	°C	24.4
4	pH	-	7.1
5	TotalSuspendedSolids	mg/L	28.4
6	TotalDissolved Solid	mg/L	651
7	BiochemicalOxygenDemand at27°C	mg/L	6.3
8	ChemicalOxygenDemand	mg/L	3.8
9	TotalResidualChlorine	mg/L	3.9
10	Alkalinity	mg/L	136.4
11	Calcium	mg/L	47
12	Magnesium	mg/L	28.5
13	TotalHardnessas CaCO3	mg/L	58

14	ElectricalConductivity	µs/cm	136
15	Turbidity	NTU	7.1
16	ArsenicasAs	µg/L	0.25
17	LeadasPb	µg/L	<0.5
18	CadmiumasCd	µg/L	1.6
19	TotalChromiumasCr	µg/L	<0.5
20	Zincas Zn	µg/L	4.8
21	FluorideasF	mg/L	0.42
22	IronasFe	mg/L	16.5
23	Nitrate	mg/L	4.2
24	SodiumasNa	mg/L	4.7
25	Potassiumas K	mg/L	1.8
26	Sulfate	mg/L	0.58
27	NitrateasNO3	mg/L	3.9
28	TotalSilica asSiO2	mg/L	6.1
29	TotaldissolvedSolid	mg/L	651

Location:BAITARANIRIVER(NEARPLANTAREA)

LabSampleCode: OCPL/SW/02/09/23		**ReportNo.-OCPL/EMIL/02/09/23**	
Sampledescription:		Testmethod	APHA22nd edition
Samplelocation	**BAITARANIRIVER (NEARPLANTAREA)**	Samplecollectedby	OCPL representative
Location	Keonjhar,Odisha	DateofSampling	09-September-2023
Samplequantity	1no.sX1Lit.	Dateofsample received	10-September-2023
Sampletype	SurfaceWater	DateofAnalysis	10-September-2023
Requiredp arameters	AsdescribedinW/O	DateofIssueofreport	19-September-2023
EMILreference	WONo.-1060/ADMIN/5500004339	Sampleconditionatr eceipt	Ok

ANALYSISRESULT

Sl. No.	**TESTPARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24.8
4	pH	-	7.2
5	TotalSuspendedSolids	mg/L	22.6
6	TotalDissolved Solid	mg/L	594
7	BiochemicalOxygenDemand at27°C	mg/L	4.6
8	ChemicalOxygenDemand	mg/L	2.8
9	TotalResidualChlorine	mg/L	1.9
10	Alkalinity	mg/L	52
11	Calcium	mg/L	22.4
12	Magnesium	mg/L	11
13	TotalHardness asCaCO3	mg/L	78.6

14	ElectricalConductivity	µs/cm	95.4
15	Turbidity	NTU	18.5
16	ArsenicasAs	µg/L	0.14
17	LeadasPb	µg/L	0.26
18	CadmiumasCd	µg/L	2.1
19	TotalChromiumasCr	µg/L	<0.5
20	Zincas Zn	µg/L	18.8
21	FluorideasF	mg/L	0.22
22	IronasFe	mg/L	24.8
23	Nitrate	mg/L	4.3
24	SodiumasNa	mg/L	2.6
25	Potassiumas K	mg/L	5.9
26	Sulfate	mg/L	<0.01
27	NitrateasNO3	mg/L	3.8
28	TotalSilica asSiO2	mg/L	8.4
29	TotaldissolvedSolid	mg/L	594

Location:RESERVOURPONDINSIDEPLANTPREMISES

LabSampleCode: OCPL/SW/03/09/23		**ReportNo.-OCPL/EMIL/03/09/23**	
Sampledescription:		Testmethod	APHA22nd edition
Samplelocation	**RESERVOUR PONDINSIDEPLANT PREMISES**	Samplecollectedby	OCPL representative
Location	Keonjhar,Odisha	DateofSampling	09-September-2023
Samplequantity	1no.sX1Lit.	Dateofsamplereceived	10-September-2023
Sampletype	SurfaceWater	DateofAnalysis	10-September-2023
Requiredparameters	AsdescribedinW/O	DateofIssueofreport	19-September-2023
EMILreference	WONo.-1060/ADMIN/5500004339	Sampleconditionatreceipt	OK

ANALYSISRESULT

Sl. No.	**TESTPARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.3
2	Odour	-	Agreeable
3	Temperature	°C	26.2
4	pH	-	6.8
5	TotalSuspendedSolids	mg/L	76
6	TotalDissolved Solid	mg/L	846.5
7	BiochemicalOxygenDemand at27°C	mg/L	18
8	ChemicalOxygenDemand	mg/L	8.8
9	TotalResidualChlorine	mg/L	14.2
10	Alkalinity	mg/L	143
11	Calcium	mg/L	48
12	Magnesium	mg/L	51.4

13	TotalHardnessas CaCO3	mg/L	166
14	ElectricalConductivity	µs/cm	271
15	Turbidity	NTU	48
16	ArsenicasAs	µg/L	0.65
17	LeadasPb	µg/L	<0.5
18	CadmiumasCd	µg/L	12.2
19	TotalChromiumasCr	µg/L	<0.5
20	Zincas Zn	µg/L	<0.5
21	FluorideasF	mg/L	0.82
22	IronasFe	mg/L	49
23	Nitrate	mg/L	4.2
24	SodiumasNa	mg/L	11.8
25	Potassiumas K	mg/L	3.6
26	Sulfate	mg/L	7.4
27	NitrateasNO3	mg/L	5
28	TotalSilica asSiO2	mg/L	6.6
29	TotaldissolvedSolid	mg/L	846.5

Location: DALKINALA,NEARPLANT

LabSampleCode: OCPL/SW/04/09/23		**ReportNo.-OCPL/EMIL/04/09/23**	
Sampledescription:		Testmethod	APHA22nd edition
Samplelocation	**DALKI NALA, NEARPLANT**	Samplecollectedby	OCPLrepresentative
Location	Keonjhar,Odisha	DateofSampling	09-September-2023
Samplequantity	1no.sX1Lit.	Dateofsamplereceived	10-September-2023
Sampletype	SurfaceWater	DateofAnalysis	10-September-2023
Requiredparameters	AsdescribedinW/O	DateofIssueofreport	19-September-2023
EMILreference	WONo.-1060/ADMIN/5500004339	Sampleconditionatreceipt	Ok

ANALYSISRESULT

Sl. No.	**TESTPARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.5
2	Odour	-	Agreeable
3	Temperature	°C	24.4
4	pH	-	7.1
5	TotalSuspendedSolids	mg/L	39
6	TotalDissolved Solid	mg/L	608
7	BiochemicalOxygenDemand at27°C	mg/L	6.1
8	ChemicalOxygenDemand	mg/L	2.8
9	TotalResidualChlorine	mg/L	2.4
10	Alkalinity	mg/L	132
11	Calcium	mg/L	48.5
12	Magnesium	mg/L	26
13	TotalHardnessas CaCO3	mg/L	87.3
14	ElectricalConductivity	µs/cm	236.8
15	Turbidity	NTU	26.5

16	ArsenicasAs	µg/L	ND
17	LeadasPb	µg/L	ND
18	CadmiumasCd	µg/L	ND
19	TotalChromiumasCr	µg/L	ND
20	Zincas Zn	µg/L	11.4
21	FluorideasF	mg/L	0.26
22	IronasFe	mg/L	29
23	Nitrate	mg/L	8.4
24	SodiumasNa	mg/L	7.8
25	Potassiumas K	mg/L	5.9
26	Sulfate	mg/L	9
27	NitrateasNO3	mg/L	16.2
28	TotalSilica asSiO_2	mg/L	11.5
29	TotaldissolvedSolid	mg/L	608

Location:NADIGUTH

LabSampleCode: OCPL/SW/05/09/23		**ReportNo.-OCPL/EMIL/05/09/23**	
Sampledescription:		Testmethod	APHA22nd edition
Samplelocation	**NADIGUTH**	Samplecollectedby	OCPL representative
Location	Keonjhar,Odisha	DateofSampling	09-September-2023
Samplequantity	1no.sX1Lit.	Dateofsamplereceived	10-September-2023
Sampletype	SurfaceWater	DateofAnalysis	10-September-2023
Required parameters	AsdescribedinW/O	DateofIssueof report	19-September-2023
EMILreference	WO No.-1060/ADMIN/5500004339	Sampleconditionat receipt	Ok

ANALYSISRESULT

Sl. No.	**TESTPARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.9
2	Odour	-	Agreeable
3	Temperature	°C	24.6
4	pH	-	7.1
5	TotalSuspendedSolids	mg/L	14
6	TotalDissolved Solid	mg/L	572
7	BiochemicalOxygenDemand at27°C	mg/L	3.6
8	ChemicalOxygenDemand	mg/L	2.2
9	TotalResidualChlorine	mg/L	1.7
10	Alkalinity	mg/L	62
11	Calcium	mg/L	17.5
12	Magnesium	mg/L	15
13	TotalHardnessasCaCO3	mg/L	44.8
14	ElectricalConductivity	µs/cm	85.6
15	Turbidity	NTU	26
16	ArsenicasAs	µg/L	ND

17	LeadasPb	µg/L	ND
18	CadmiumasCd	µg/L	ND
19	TotalChromiumasCr	µg/L	ND
20	Zincas Zn	µg/L	<0.5
21	FluorideasF	mg/L	0.12
22	IronasFe	mg/L	25.4
23	Nitrate	mg/L	4.6
24	SodiumasNa	mg/L	5.8
25	Potassiumas K	mg/L	32.4
26	Sulfate	mg/L	6.1
27	Nitrate as NO_3	mg/L	4
28	Total Silica as SiO_2	mg/L	3.2
29	TotaldissolvedSolid	mg/L	572

GROUND WATER ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

GROUNDWATERMONITORINGREPORTSUMMARYSHEETOFSAMPLING(GROUNDWATER):

Sl No.	Sample Nos.	Location	DateofSampling	LabSampleCode
1.	Sample01	MALDAVILLAGE	16-September-2023	OCPL/GW/01/09/23
2.	Sample02	NEDIGUTH	16-September-2023	OCPL/GW/02/09/23
3.	Sample03	TALASAHI	16-September-2023	OCPL/GW/03/09/23
4.	Sample04	PLANT-1(NearCanteen)	16-September-2023	OCPL/GW/04/09/23
5.	Sample05	PLANT-2(SLIMEPOND)	16-September-2023	OCPL/GW/05/09/23

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

Sl. No.	TESTPARAMETER	UOM	Results					BIS Desirablelimit	Permissiblelimitwiththe absenceofalternatesource
			MALDA VILLAGE	NEDIGUTH	TALASAHI	PLANT-1 (NearCanteen)	PLANT-2 (SLIMEPOND)		
1	Colour	Pt-Co	1.2	0.9	1.1	1.2	1.1		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	25.6	25.8	26.2	25.5	25.2		
4	pH	-	7.1	7.1	7.2	7.2	6.9	6.5-8.5	Norelaxation
5	TotalHardness (asCaCO3)	mg/L	50.8	51.6	56.2	61.8	42.4	300	600
6	Calcium	mg/L	12.4	17.5	16.2	16	14.8	75	200
7	Magnesium	mg/L	0.85	2.6	3.5	3.1	2.2	30	Norelaxation
8	Chloride	mg/L	14.4	18	12.6	8.2	11.7	250	1000
9	Alkalinity	mg/L	21.4	26	16.8	22.5	14.6	200	600
10	ElectricalConductivity	µs/cm	68	72	59.4	62.6	74	--	--
11	ArsenicasAs	µg/L	ND	ND	ND	0.01	ND	10	Norelaxation
12	Leadas Pb	µg/L	ND	ND	ND	ND	0.02	10	Norelaxation
13	Cadmium asCd	µg/L	0.08	0.11	0.02	ND	0.02	3.0	Norelaxation
14	TotalChromium asCr	µg/L	ND	ND	0.02	0.04	0.04	50	Norelaxation

15	ZincasZn	µg/L	78.5	66.8	60.4	84.2	88.4	5000	Norelaxation
16	FluorideasF	mg/L	ND	ND	ND	ND	ND	ND	1.9
17	IronasFe	µg/L	22.8	18.4	14	16.6	28.4	300	1000
18	Nitrate	mg/L	0.04	0.2	0.02	0.14	0.06	45	100
19	SodiumasNa	mg/L	1.08	1.1	1.02	1.02	0.42	150	Norelaxation
20	Potassium asK	mg/L	ND	ND	0.01	0.05	ND	12	Norelaxation
21	Sulfate	mg/L	ND	0.02	0.08	ND	0.06	200	400
22	TotalSilicaas SiO_2	mg/L	ND	0.11	0.02	0.02	0.2	--	--
23	TotalsuspendedSolid	mg/L	0.82	0.42	1.4	0.8	0.48	--	--
24	Total dissolvedSolid	mg/L	214	186	197	239	227	250	2000
25	Turbidity	NTU	0.3	0.42	0.2	0.18	0.12	5	10

Sampling By: Mr. Hrusikesh Das

GROUND WATER LEVEL ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF SEPTEMBER–2023

SUMMARYSHEETOFMONITORING:

Sl No.	Sample Nos.	Location	DateofSampling	LabSampleCode
6.	Sample01	MALDAVILLAGE	19-September-2023	OCPL/GWL/01/09/23
7.	Sample02	NEDIGUTH	19-September-2023	OCPL/GWL/02/09/23
8.	Sample03	TALASAHI	19-September-2023	OCPL/GWL/03/09/23
9.	Sample04	PLANT-1(NearCanteen)	19-September-2023	OCPL/GWL/04/09/23
10.	Sample05	PLANT-2(SLIMEPOND)	19-September-2023	OCPL/GWL/05/09/23

MONITORINGRESULT

SlNo.	Nameofthelocation	Typeofwell	Dia. (m)	Depthofthewell (m)	Depthofthewater tableBGL(M)	Remarks
1	MALDAVILLAGE	Dugwell	0.8	8.2	6.72	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.14	--
3	TALASAHI	Dugwell	1.0	8.6	7.36	--
4	PLANT-1(Near Canteen)	Bore-well	0.1	62	12.15	--
5	PLANT-2(SLIME POND)	Bore-well	0.1	60	38.2	--

SamplingBy:Mr.HrusikeshDas

STACK MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

REPORTONSTACKMONITORINGFOR THEMONTHOFSEPTEMBER–2023

LOCATIONANDMONITORINGSCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
DGStack-1					✓		
DGStack-2					✓		
Stack-1(PelletPlantProcessStack)							✓
Stack-2(PelletPlantDedustingStack)							✓

TESTREPORT

Name&AddressoftheClient:	**ReportNo.**:OCPL/BBS/38
M/S ESSEL MINING & INDUSTRIES LTD.	**Date :**20.09.2023
Keonjhar, Odisha, India	**SampleNo.**:OCPL/EMIL/2023-24/09
	Sample Description: DG Flue Gas Monitoring
	Date of Sampling: 07.09.2023

ANALYSISRESULT

A.	**Generalinformation aboutstack:**	
1.	Stackconnectedto	:DG-1
2.	Emissiondueto	:Burning of Diesel
3.	Materialofconstructionofstack	:MS
4.	ShapeofStack	:Circular
5.	Serialno.	:N15E226771
6.	Boiler/Furnace/DG/KilnCapacity	:1250KVA

B.	**Physicalcharacteristicsofstack:**			
1.	HeightoftheStackfromGroundlevel		:9m	
2.	Diameterofthestackatsamplingpoint		:400mm	
3.	HeightoftheSamplingPointfromGroundlevel		:7m	
4.	Type		:HCKI634Z1	
C. 1.	**Analysis/Characteristicofstack:** Fuelused :LDO		2.FuelConsumption:NA	
D .	**Resultsofsampling&analysisofgaseousemission**	**Result**	**Limit**	**Method**
1.	Temperature of Emission(°C)	116.5	--	IS11255(PartIII),2008RA 2018
2.	Barometricpressure(mmofHg)	329	--	USEPAPart2- 25/09/1996
3.	Velocityofgas(m/sec.)	17.08	--	IS11255(PartIII),2008RA 2018
4.	Quantity of Gas Flow(Nm^3/hr)	1134	--	IS11255(PartIII),2008RA 2018
5.	Concentration of Moisture(%)	<2.0	--	USEPA(Part-4)
6.	Concentration of Oxygen(%v/v)	9.2	--	IS13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide (mg/Nm^3)	26.86	--	IS13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide(%v/v)	6.1	--	IS13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide(mg/Nm^3)	145.9	600	IS11255(PartII),1985RA 2014
10.	Concentration of Nitrogen Dioxide(mg/Nm^3)	92.8	300	IS11255(Part7),2005RA 2017

11.	Concentration of Particulate Matters(mg/Nm^3)	44.7	50	IS11255(PartI):1985,RA 2014
E.	**<u>Pollutioncontroldevice</u>** Details of pollution control devices attached with the stack :NA			
F.	**Remarks**:Nil			

SamplingBy:Mr.HrusikeshDas

TESTREPORT

Name&AddressoftheClient:	**ReportNo.**:OCPL/BBS/39
M/SESSELMINING&INDUSTRIESLTD	**Date** :20.09.2023
Keonjhar,Odisha,India	**SampleNo.**:OCPL/EMIL/2023-24/10
	SampleDescription:DGFlueGasMonitoring
	DateofSampling :07.09.2023

ANALYSISRESULT

A.	**Generalinformation aboutstack:**			
1.	Stackconnectedto	:DG-2		
2.	Emissiondueto	:Burning of Diesel		
3.	Materialofconstructionofstack	:MS		
4.	ShapeofStack	:Circular		
5.	Serialno.	:N15H319963		
6.	Boiler/Furnace/DG/KilnCapacity	:1250KVA		
B.	**Physicalcharacteristicsofstack:**			
1.	HeightoftheStackfromGroundlevel	:9m		
2.	Diameterofthestackatsamplingpoint	:400mm		
3.	HeightoftheSamplingPointfromGroundlevel	:7m		
4.	Type	:HCKI634Z1		
C. 1.	**Analysis/Characteristicofstack:** Fuelused :LDO	2.FuelConsumption:NA		
D .	**Resultsofsampling&analysisofgaseousemission**	**Result**	**Limit**	**Method**
1.	Temperature ofEmission(°C)	134.4		IS11255(Part III),2008RA2018

2.	Barometric pressure (mm of Hg)	286		USEPAPart2-25/09/1996
3.	Velocityofgas (m/sec.)	24.5		IS11255(Part III),2008RA2018
4.	Quantity of Gas Flow(Nm^3/hr)	1841		IS11255(Part III),2008RA2018
5.	Concentration of Moisture(%)	<2.0		USEPA(Part-4)
6.	Concentration of Oxygen(%v/v)	8.2		IS13270:1992,Ref:2009
7.	Concentration of Carbon Monoxide(mg/Nm^3)	32.4		IS13270:1992,Ref:2009
8.	Concentration of Carbon Dioxide(%v/v)	19.5		IS13270:1992,Ref:2009
9.	Concentration of Sulphur Dioxide(mg/Nm^3)	147.2	600	IS11255(Part II),1985RA2014
10.	Concentration of Nitrogen Dioxide(mg/Nm^3)	93.8	300	IS11255(Part 7),2005RA2017
11.	Concentration of Particulate Matters (mg/Nm^3)	47.8	50	IS11255(Part I):1985,RA2014
E.	**<u>Pollutioncontroldevice</u>** Details of pollution control devices attached with the stack :NA			
F.	**Remarks**:Nil			

Sampling By: Mr. Hrusikesh Das

TESTREPORT

StackNo.	StackDescription	Emissiondueto	DateofSampling
Stack-1	Pelletplantprocessstack	Burningoffurnaceoil	09:09:2023
Stack-2	Pellet plantdedustingstack	Electricity	09:09:2023

ANALYSISRESULT

StackNo.	StackDescription	Stackheight (inmeter)	Emission M^3/Hr.	Temperature(°C)	VelocityNM ^{3}/Hr
1	Pelletplantprocess stack	80	6846	120.4	35946
2	Pelletplantdedustin gstack	60	6988	114.5	36256

Stack No.	StackDescription	Carbonmo noxide**(C O)** Mg/nm^3	Carbondi oxide**(CO 2)** %v/v	PM Concentration Mg/nm^3		**SO2** Mg/nm^3	**NO2** Mg/nm^3
				PM10	**PM 2.5**		
NormsasperSPCB		1	NA	150	150	NA	NA
1	Pelletplantproc essstack	<0.2	9.8	166.5	121	208	82.4
2	Pelletplantde-dustingstack	<0.2	7.5	125.4	135.9	236	78.6

- Measurement of PM has been done as per IS Code IS: 11255 Part 1.
- No. of the calibrated stack kit used: Thermo Environmental Instruments TEI-401