ADITYA BIRLA

EMIL

Ref. No. A/ 462 /2023-24

Dated–01.06.2023
(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 October-2022 to March-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 **October-2022 to March-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

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 18.04.20129 (Original), F. No. J-11011/424/2011-IA-11 (I) on dated 17.03.2022 (Transfer of EC in favour of EMIL)

Period of Compliance Report: October-2022 to March-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

Annexure - A

11/10/2022

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 Filter Cake Storage Yard		√				√		
Near Crushing Plant		√				√		
Near Raw Material Stack Yard		√				√		
Nediguth Village				√				√

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	03.10.2022	OCPL/ AAQ/EMIL/01/10/22
2.	Sample 02	Near Crushing Plant	03.10.2022	OCPL/ AAQ/EMIL/02/10/22
3.	Sample 03	Near Raw Material Stack Yard	03.10.2022	OCPL/ AAQ/EMIL/03/10/22
4.	Sample 04	Nedigutha Village	04.10.2022	OCPL/ AAQ/EMIL/04/10/22
5.	Sample 05	Near Filter cake storage yard	06.10.2022	OCPL/ AAQ/EMIL/05/10/22
6.	Sample 06	Near Crushing Plant	06.10.2022	OCPL/ AAQ/EMIL/06/10/22
7.	Sample 07	Near Raw Material Stack Yard	06.10.2022	OCPL/ AAQ/EMIL/07/10/22
8.	Sample 08	Nedigutha Village	07.10.2022	OCPL/ AAQ/EMIL/08/10/22
9.	Sample 09	Near Filter cake storage yard	10.10.2022	OCPL/ AAQ/EMIL/09/10/22
10.	Sample 10	Near Crushing Plant	10.10.2022	OCPL/ AAQ/EMIL/10/10/22
11.	Sample 11	Near Raw Material Stack Yard	10.10.2022	OCPL/ AAQ/EMIL/11/10/22
12.	Sample 12	Nedigutha Village	11.10.2022	OCPL/ AAQ/EMIL/12/10/22
13.	Sample 13	Near Filter cake storage yard	13.10.2022	OCPL/ AAQ/EMIL/13/10/22
14.	Sample 14	Near Crushing Plant	13.10.2022	OCPL/ AAQ/EMIL/14/10/22
15.	Sample 15	Near Raw Material Stack Yard	13.10.2022	OCPL/ AAQ/EMIL/15/10/22
16.	Sample 16	Nedigutha Village	14.10.2022	OCPL/ AAQ/EMIL/16/10/22

17.	Sample 17	Near Filter cake storage yard	17.10.2022	OCPL/ AAQ/EMIL/17/10/22
18.	Sample 18	Near Crushing Plant	15.09.2022	OCPL/ AAQ/EMIL/18/10/22
19.	Sample 19	Near Raw Material Stack Yard	17.10.2022	OCPL/ AAQ/EMIL/19/10/22
20.	Sample 20	Nedigutha Village	18.10.2022	OCPL/ AAQ/EMIL/20/10/22
21.	Sample 21	Near Filter cake storage yard	20.10.2022	OCPL/ AAQ/EMIL/21/10/22
22.	Sample 22	Near Crushing Plant	20.10.2022	OCPL/ AAQ/EMIL/22/10/22
23.	Sample 23	Near Raw Material Stack Yard	20.10.2022	OCPL/ AAQ/EMIL/23/10/22
24.	Sample 24	Nedigutha Village	21.10.2022	OCPL/ AAQ/EMIL/24/10/22
25.	Sample 25	Near Filter cake storage yard	24.10.2022	OCPL/ AAQ/EMIL/25/10/22
26.	Sample 26	Near Crushing Plant	24.10.2022	OCPL/ AAQ/EMIL/26/10/22
27.	Sample 27	Near Raw Material Stack Yard	24.10.2022	OCPL/ AAQ/EMIL/27/10/22
28.	Sample 28	Nedigutha Village	25.10.2022	OCPL/ AAQ/EMIL/28/10/22
29.	Sample 29	Near Filter cake storage yard	27.10.2022	OCPL/ AAQ/EMIL/29/10/22
30.	Sample 30	Near Crushing Plant	27.10.2022	OCPL/ AAQ/EMIL/30/10/22
31.	Sample 31	Near Raw Material Stack Yard	27.10.2022	OCPL/ AAQ/EMIL/31/10/22
32.	Sample 32	Nedigutha Village	28.10.2022	OCPL/ AAQ/EMIL/32/10/22
33.	Sample 33	Near Filter cake storage yard	30.10.2022	OCPL/ AAQ/EMIL/33/10/22
34.	Sample 34	Near Crushing Plant	30.10.2022	OCPL/ AAQ/EMIL/34/10/22
35.	Sample 35	Near Raw Material Stack Yard	30.10.2022	OCPL/ AAQ/EMIL/35/10/22
36.	Sample 36	Nedigutha Village	31.09.2022	OCPL/ AAQ/EMIL/36/10/22

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit (µg/M^3)	Date									
		03.10.22	06.10.22	10.10.22	13.10.22	17.10.22	20.10.22	24.10.22	27.10.22	30.10.22	Avg
PM_{10}	100	83	85.5	84.4	82.5	89.3	80.5	84.5	85.2	85.2	84.5
$PM_{2.5}$	60	52.8	55.4	53	54.6	51	54.4	58	59.5	55.2	52.3
Sulphur Dioxide (SO_2)	80	32.4	38.1	36.7	41.6	38.2	39.5	38.2	35.4	37.2	36.5
Oxide of Nitrogen (NO_2)	80	32.7	31.6	29.1	33.2	35	36	32.5	28	28.4	30.2
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	178	166	162	172	175.3	171.8	169.3	165.5	166.1	169.5
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	30.6	31.4	34.2	29.2	32.6	38.2	33.5	29.4	35.6	30.6
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 Crushing Plant

Parameters	Limit (µg/ M^3)	DATE									
		03.10.22	06.10.22	10.10.22	13.10.22	17.10.22	20.10.22	24.10.22	27.10.22	30.10.22	Avg
PM_{10}	100	89.6	88.2	82.2	85.1	83.5	82.8	84.1	80.6	88.4	85
$PM_{2.5}$	60	53.2	55.6	56.2	51.6	50	52.9	55	48	45.9	52.1
Sulphur Dioxide (SO_2)	80	27.6	28.6	29	25.3	26.9	22.3	25.3	24.9	21.5	28
Oxide of Nitrogen (NO_2)	80	22.3	25.3	22	26.4	20.6	22	23.4	20.9	18.2	16
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	162.1	166.1	162.3	158	160	166	158.8	155.9	152.5	161
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	32.6	35	28.4	29.7	30.2	28	24.5	25.2	22.6	25.9
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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE									
		03.10.22	06.10.22	10.10.22	13.10.22	17.10.22	20.10.22	24.10.22	27.10.22	30.10.22	Avg
PM_{10}	100	85.3	84.3	85.2	84	79.1	80.2	75.2	75.2	78.6	74
$PM_{2.5}$	60	58.3	59.3	56.2	59.3	52.8	55.6	58.8	55.9	55.8	56.8
Sulphur Dioxide (SO_2)	80	25.3	24.3	26	20.6	24	23.6	22.6	20.22	21.6	24
Oxide of Nitrogen (NO_2)	80	24.2	23.6	26.8	22.5	23.6	23	25.6	21	20.9	25
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	166.5	161.2	155.8	156.2	159.5	154.9	157	151.6	155.8	152.9
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	29.5	25.2	28	30.2	25	26.8	25.8	27	24.8	27.5
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									
		04.10.22	07.10.22	11.10.22	14.10.22	18.10.22	21.10.22	25.10.22	28.10.22	31.10.22	Avg
PM_{10}	100	45.8	44	45	44.8	42.8	45.7	46.8	48	42.8	42
$PM_{2.5}$	60	44.2	45.3	42.5	42	45.2	44.7	45.6	44.8	41.5	40
Sulphur Dioxide (SO_2)	80	18.2	22	16.8	17.4	17.8	16	16.2	18.6	15.3	18
Oxide of Nitrogen (NO_2)	80	15	16.2	16.2	17.8	15.6	17.9	15	17.2	14	17
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	137.6	145	138.2	136.2	137.8	136	139.6	135.2	139	137
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	14.6	14.2	15	13.6	12	11.8	12.2	10.6	10.2	11.3
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 OCTOBER

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Beneficiation Plant Establishment Area				√		√	
First-Aid Room				√		√	
Security Office				√		√	
Administrative building				√		√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Beneficiation Plant Establishment Area	02.10.2022	OCPL/ NL/EMIL/01/10/22
2.	Sample 02	First-Aid Room	02.10.2022	OCPL/ NL/EMIL/02/10/22
3.	Sample 03	Security Office	02.10.2022	OCPL/ NL/EMIL/03/10/22
4.	Sample 04	Administrative building	02.10.2022	OCPL/ NL/EMIL/04/10/22
5.	Sample 05	Near Beneficiation Plant Establishment Area	07.10.2022	OCPL/ NL/EMIL/05/10/22
6.	Sample 06	First-Aid Room	07.10.2022	OCPL/ NL/EMIL/06/10/22
7.	Sample 07	Security Office	07.10.2022	OCPL/ NL/EMIL/07/10/22
8.	Sample 08	Administrative building	07.10.2022	OCPL/ NL/EMIL/08/10/22
9.	Sample 09	Near Beneficiation Plant Establishment Area	09.10.2022	OCPL/ NL/EMIL/09/10/22
10.	Sample 10	First-Aid Room	09.10.2022	OCPL/ NL/EMIL/10/10/22
11.	Sample 11	Security Office	09.10.2022	OCPL/ NL/EMIL/11/10/22
12.	Sample 12	Administrative building	09.10.2022	OCPL/ NL/EMIL/12/10/22
13.	Sample 13	Near Beneficiation Plant Establishment Area	14.10.2022	OCPL/ NL/EMIL/13/10/22
14.	Sample 14	First-Aid Room	14.10.2022	OCPL/ NL/EMIL/14/10/22
15.	Sample 15	Security Office	14.10.2022	OCPL/ NL/EMIL/15/10/22
16.	Sample 16	Administrative building	14.10.2022	OCPL/ NL/EMIL/16/10/22
17.	Sample 17	Near Beneficiation Plant Establishment Area	16.10.2022	OCPL/ NL/EMIL/17/10/22
18.	Sample 18	First-Aid Room	16.10.2022	OCPL/ NL/EMIL/18/10/22
19.	Sample 19	Security Office	16.10.2022	OCPL/ NL/EMIL/19/10/22
20.	Sample 20	Administrative building	16.10.2022	OCPL/ NL/EMIL/20/10/22
21.	Sample 21	Near Beneficiation Plant Establishment Area	21.10.2022	OCPL/ NL/EMIL/21/10/22
22.	Sample 22	First-Aid Room	21.10.2022	OCPL/ NL/EMIL/22/10/22
23.	Sample 23	Security Office	21.10.2022	OCPL/ NL/EMIL/23/10/22

24.	Sample 24	Administrative building	21.10.2022	OCPL/ NL/EMIL/24/10/22
25.	Sample 25	Near Beneficiation Plant Establishment Area	23.10.2022	OCPL/ NL/EMIL/25/10/22
26.	Sample 26	First-Aid Room	23.10.2022	OCPL/ NL/EMIL/26/10/22
27.	Sample 27	Security Office	23.10.2022	OCPL/ NL/EMIL/27/10/22
28.	Sample 28	Administrative building	23.10.2022	OCPL/ NL/EMIL/28/10/22
29.	Sample 29	Near Beneficiation Plant Establishment Area	28.10.2022	OCPL/ NL/EMIL/29/10/22
30.	Sample 30	First-Aid Room	28.10.2022	OCPL/ NL/EMIL/30/10/22
31.	Sample 31	Security Office	28.10.2022	OCPL/ NL/EMIL/31/10/22
32.	Sample 32	Administrative building	28.10.2022	OCPL/ NL/EMIL/32/10/22
33.	Sample 33	Near Beneficiation Plant Establishment Area	30.10.2022	OCPL/ NL/EMIL/33/10/22
34.	Sample 34	First-Aid Room	30.10.2022	OCPL/ NL/EMIL/34/10/22
35.	Sample 35	Security Office	30.10.2022	OCPL/ NL/EMIL/35/10/22
36.	Sample 36	Administrative building	30.10.2022	OCPL/ NL/EMIL/36/10/22

Date of Monitoring: 02.10.2022

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 Beneficiation Plant Establishment Area	54	61.2	64.3	58.9	37.2
2	First-Aid Room	52.6	55.2	55.2	48.2	35.2
3	Security Office	48.6	50.2	50.8	40.2	28.2
4	Administrative building	29.2	35	35.2	32	25.2
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: 07.10.2022

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 Beneficiation Plant Establishment Area	55	64.5	62.3	52.8	45.1
2	First-Aid Room	48.5	62.3	55.6	45	33
3	Security Office	42.6	65.3	53	48.2	35.2
4	Administrative building	30.3	35	38.2	29.3	24
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: 09.10.2022

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 Beneficiation Plant Establishment Area	54.2	65.3	66.8	46.8	32.2
2	First-Aid Room	45.2	56.2	56	48.5	30
3	Security Office	39	55	55.1	45	35
4	Administrative building	27.2	30.3	35.2	28.3	26.1
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: 14.10.2022

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 Beneficiation Plant Establishment Area	56.3	63.2	55	52.3	36.2
2	First-Aid Room	51.3	55	45.3	48	32.3
3	Security Office	45.3	50	45.9	40.3	34.2
4	Administrative building	29.3	35.2	35.3	26.9	25
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: 16.10.2022

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 Beneficiation Plant Establishment Area	56.3	65.2	62.2	45.9	36
2	First-Aid Room	45.2	48.6	52.8	46.6	28
3	Security Office	40.8	44	48	37.9	25
4	Administrative building	25.9	31.8	35.2	29.2	20.6
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: 21.10.2022

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 Beneficiation Plant Establishment Area	55.3	64.3	51.6	42.9	34.8
2	First-Aid Room	48.2	54.7	54.7	40.2	30.8
3	Security Office	45.3	45.9	51	38.5	33
4	Administrative building	36	36.2	38.1	32.6	25
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: 23.10.2022

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 Beneficiation Plant Establishment Area	62	64.2	55.3	48.6	48.2
2	First-Aid Room	58.3	48.6	47.4	42	32
3	Security Office	54.6	52	52	44.8	26.9
4	Administrative building	35	35.8	34.5	30.1	25
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: 28.10.2022

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 Beneficiation Plant Establishment Area	62	65.2	55.4	48	36
2	First-Aid Room	48.3	54.2	55	45.6	36
3	Security Office	52	38.7	56.2	45	31.9
4	Administrative building	28.6	33	36.8	28.2	26.3
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: 30.10.2022

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 Beneficiation Plant Establishment Area	50.2	65	55.3	48.3	45
2	First-Aid Room	54	54.2	48.5	42.5	30.2
3	Security Office	56.6	56.5	50.8	44.2	32.6
4	Administrative building	33	35	32.3	26	22
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 OCTOBER– 2022

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	JARPADA	04- 10 -2022	OCPL/SW/01/10/22
2.	Sample 02	NANDIGUTU	04- 10 -2022	OCPL/SW/02/10/22
3.	Sample 03	RESERVOUR POND INSIDE PLANT	04- 10 -2022	OCPL/SW/03/10/22
4.	Sample 04	DALKI NALA NEAR PLANT	04- 10 -2022	OCPL/SW/04/10/22
5.	Sample 05	NAIBHANGA	04- 10 -2022	OCPL/SW/05/10/22

Location: JARPADA

Lab Sample Code: OCPL/SW/01/10/22		**Report No.- OCPL/EMIL/01/10/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**JARPADA**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	04- 10 -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- 10 -2022
Sample type	Surface Water	Date of Analysis	06- 10 -2022
Required parameters	As described in W/O	Date of Issue of report	15- 10 -2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	26.6
4	pH	-	7.2
5	Total Suspended Solids	mg/L	84.8
6	Total Dissolved Solid	mg/L	918
7	Biochemical Oxygen Demand at 27°C	mg/L	7.2
8	Chemical Oxygen Demand	mg/L	1.2
9	Total Residual Chlorine	mg/L	0.67
10	Alkalinity	mg/L	92
11	Calcium	mg/L	61.5
12	Magnesium	mg/L	40.5
13	Total Hardness as CaCO3	mg/L	47.2
14	Electrical Conductivity	µs/cm	156.5
15	Turbidity	NTU	14.2
16	Arsenic as As	µg/L	ND

17	Lead as Pb	µg/L	<0.05
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.12
20	Zinc as Zn	µg/L	0.65
21	Fluoride as F	mg/L	<0.05
22	Iron as Fe	mg/L	16.1
23	Nitrate	mg/L	1.83
24	Sodium as Na	mg/L	4.2
25	Potassium as K	mg/L	2.8
26	Sulfate	mg/L	1.2
27	Nitrate as NO_3	mg/L	3.5
28	Total Silica as SiO_2	mg/L	6.2
29	Total dissolved Solid	mg/L	912

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NANDIGUTU

Lab Sample Code: OCPL/SW/02/10/22		**Report No.- OCPL/EMIL/02/10/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NANDIGUTU**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	04- 10 -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- 10 -2022
Sample type	Surface Water	Date of Analysis	06- 10 -2022
Required parameters	As described in W/O	Date of Issue of report	15- 10 -2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	26.9
4	pH	-	7.3
5	Total Suspended Solids	mg/L	55.6
6	Total Dissolved Solid	mg/L	838
7	Biochemical Oxygen Demand at 27°C	mg/L	4.8
8	Chemical Oxygen Demand	mg/L	2.1
9	Total Residual Chlorine	mg/L	0.82
10	Alkalinity	mg/L	42.2
11	Calcium	mg/L	44.2
12	Magnesium	mg/L	53.1
13	Total Hardness as CaCO3	mg/L	49.7
14	Electrical Conductivity	µs/cm	94
15	Turbidity	NTU	36.2

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	<0.05
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.21
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	19.4
23	Nitrate	mg/L	3.1
24	Sodium as Na	mg/L	1.86
25	Potassium as K	mg/L	0.22
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	3.6
28	Total Silica as SiO_2	mg/L	6.6
29	Total dissolved Solid	mg/L	842

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/10/22		**Report No.- OCPL/EMIL/03/10/22**	
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	04- 10 -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- 10 -2022
Sample type	Surface Water	Date of Analysis	06- 10 -2022
Required parameters	As described in W/O	Date of Issue of report	15- 10 -2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	2.2
2	Odour	-	Agreeable
3	Temperature	°C	24.62
4	pH	-	6.6
5	Total Suspended Solids	mg/L	174
6	Total Dissolved Solid	mg/L	1139
7	Biochemical Oxygen Demand at 27°C	mg/L	9.4
8	Chemical Oxygen Demand	mg/L	4.2
9	Total Residual Chlorine	mg/L	3.83
10	Alkalinity	mg/L	88.4
11	Calcium	mg/L	44.8
12	Magnesium	mg/L	42
13	Total Hardness as CaCO3	mg/L	171.4
14	Electrical Conductivity	µs/cm	185.5

15	Turbidity	NTU	62.8
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.03
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	36.7
23	Nitrate	mg/L	3.6
24	Sodium as Na	mg/L	18.2
25	Potassium as K	mg/L	3.4
26	Sulfate	mg/L	4.6
27	Nitrate as NO_3	mg/L	4.4
28	Total Silica as SiO_2	mg/L	22.8
29	Total dissolved Solid	mg/L	1133

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/10/22		**Report No.- OCPL/EMIL/04/10/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	04- 10 -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- 10 -2022
Sample type	Surface Water	Date of Analysis	06- 10 -2022
Required parameters	As described in W/O	Date of Issue of report	15- 10 -2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	25.2
4	pH	-	7.2
5	Total Suspended Solids	mg/L	52.6
6	Total Dissolved Solid	mg/L	782
7	Biochemical Oxygen Demand at 27°C	mg/L	4.2
8	Chemical Oxygen Demand	mg/L	1.6
9	Total Residual Chlorine	mg/L	0.18
10	Alkalinity	mg/L	52
11	Calcium	mg/L	28.6
12	Magnesium	mg/L	46.5
13	Total Hardness as CaCO3	mg/L	40.2
14	Electrical Conductivity	µs/cm	106.8
15	Turbidity	NTU	24

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	1.1
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	28.2
23	Nitrate	mg/L	21.4
24	Sodium as Na	mg/L	7.2
25	Potassium as K	mg/L	4.3
26	Sulfate	mg/L	6.2
27	Nitrate as NO_3	mg/L	26
28	Total Silica as SiO_2	mg/L	11.2
29	Total dissolved Solid	mg/L	782

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NAIBHANGA

Lab Sample Code: OCPL/SW/05/10/22		**Report No.- OCPL/EMIL/05/10/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NAIBHANGA**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	04- 10 -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- 10 -2022
Sample type	Surface Water	Date of Analysis	06- 10 -2022
Required parameters	As described in W/O	Date of Issue of report	15- 10 -2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	-	6.82
5	Total Suspended Solids	mg/L	52.4
6	Total Dissolved Solid	mg/L	967
7	Biochemical Oxygen Demand at 27°C	mg/L	4.18
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	28.5
11	Calcium	mg/L	40.23
12	Magnesium	mg/L	42.6
13	Total Hardness as CaCO3	mg/L	36.3
14	Electrical Conductivity	µs/cm	157.8
15	Turbidity	NTU	46.4

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	0.6
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	32.3
23	Nitrate	mg/L	2.4
24	Sodium as Na	mg/L	4.66
25	Potassium as K	mg/L	16.2
26	Sulfate	mg/L	3.15
27	Nitrate as NO_3	mg/L	5.2
28	Total Silica as SiO_2	mg/L	4.6
29	Total dissolved Solid	mg/L	966

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	JARPADA	08- 10 -2022	OCPL/SW/01/10/22
2.	Sample 02	NANDIGUTU	08- 10 -2022	OCPL/SW/02/10/22
3.	Sample 03	NAIBHANGA	08- 10 -2022	OCPL/SW/03/10/22
4.	Sample 04	PLANT- 1 (Near Canteen)	08- 10 -2022	OCPL/SW/04/10/22
5.	Sample 05	PLANT- 2 (Near Tailing Pond)	08- 10 -2022	OCPL/SW/05/10/22

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
			JARPADA	NANDIGUTU	NAIBHANGA	PLANT- 1 (Near Canteen)	PLANT- 2 (Near Tailing Pond)		
1	Colour	Pt-Co	1.2	0.8	1.1	1.1	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.5	25.5	24.3	25.5	25.1		
4	pH	-	7.1	7.2	7.1	7.1	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	55	51.5	58	61.3	48	300	600
6	Calcium	mg/L	12	14.5	16.2	16.3	15	75	200
7	Magnesium	mg/L	0.86	1.7	3.9	3.5	2.1	30	No relaxation
8	Chloride	mg/L	8.8	15	12.2	7.9	14	250	1000
9	Alkalinity	mg/L	22	25.8	14.2	22.5	14.2	200	600
10	Electrical Conductivity	µs/cm	62.1	74.3	65	64	73	--	--
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	0.08	0.11	0.02	ND	ND	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	0.03	0.04	0.04	50	No relaxation

15	Zinc as Zn	µg/L	76.7	58.7	55.3	59	75.7	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	34.1	19	18.4	16.2	32.5	300	1000
18	Nitrate	mg/L	0.04	0.13	0.02	0.15	0.04	45	100
19	Sodium as Na	mg/L	1.2	1.02	1.04	1.02	0.33	150	No relaxation
20	Potassium as K	mg/L	ND	ND	0.02	0.05	ND	12	No relaxation
21	Sulfate	mg/L	ND	0.03	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	0.87	0.42	1.5	0.7	0.6	--	--
24	Total dissolved Solid	mg/L	26	92.3	185	18.3	39	250	2000
25	Turbidity	NTU	0.24	0.2	0.2	0.17	0.15	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF OCTOBER – 2022

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	JARPADA	11- 10-2022	OCPL/GWL/01/10/22
7.	Sample 02	NANDIGUTU	11- 10-2022	OCPL/GWL/02/10/22
8.	Sample 03	NAIBHANGA	11- 10-2022	OCPL/GWL/03/10/22
9.	Sample 04	PLANT- 1 (Near Canteen)	11- 10-2022	OCPL/GWL/04/10/22
10.	Sample 05	PLANT- 2 (Near Tailing Pond)	11- 10-2022	OCPL/GWL/05/10/22

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	JARPADA	Dugwell	0.8	8.2	7.27	--
2	NANDIGUTU	Dugwell	1.2	9.5	7.52	--
3	NAIBHANGA	Dugwell	1.0	8.6	8.25	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.7	--
5	PLANT- 2 (Near Tailing Pond)	Bore-well	0.1	60	46.52	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

11/9/2022

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 Filter Cake Storage Yard			√		√		
Near Crushing Plant			√		√		
Near Raw Material Stack Yard			√		√		
Nediguth Village		√					√

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	01.11.2022	OCPL/ AAQ/EMIL/01/11/22
2.	Sample 02	Near Crushing Plant	01.11.2022	OCPL/ AAQ/EMIL/02/11/22
3.	Sample 03	Near Raw Material Stack Yard	01.11.2022	OCPL/ AAQ/EMIL/03/11/22
4.	Sample 04	Nedigutha Village	02.11.2022	OCPL/ AAQ/EMIL/04/11/22
5.	Sample 05	Near Filter cake storage yard	03.11.2022	OCPL/ AAQ/EMIL/05/11/22
6.	Sample 06	Near Crushing Plant	03.11.2022	OCPL/ AAQ/EMIL/06/11/22
7.	Sample 07	Near Raw Material Stack Yard	03.11.2022	OCPL/ AAQ/EMIL/07/11/22
8.	Sample 08	Nedigutha Village	05.11.2022	OCPL/ AAQ/EMIL/08/11/22
9.	Sample 09	Near Filter cake storage yard	08.11.2022	OCPL/ AAQ/EMIL/09/11/22
10.	Sample 10	Near Crushing Plant	08.11.2022	OCPL/ AAQ/EMIL/10/11/22
11.	Sample 11	Near Raw Material Stack Yard	08.11.2022	OCPL/ AAQ/EMIL/11/11/22
12.	Sample 12	Nedigutha Village	07.11.2022	OCPL/ AAQ/EMIL/12/11/22
13.	Sample 13	Near Filter cake storage yard	10.11.2022	OCPL/ AAQ/EMIL/13/11/22
14.	Sample 14	Near Crushing Plant	10.11.2022	OCPL/ AAQ/EMIL/14/11/22
15.	Sample 15	Near Raw Material Stack Yard	10.11.2022	OCPL/ AAQ/EMIL/15/11/22
16.	Sample 16	Nedigutha Village	12.11.2022	OCPL/ AAQ/EMIL/16/11/22

17.	Sample 17	Near Filter cake storage yard	15.11.2022	OCPL/ AAQ/EMIL/17/11/22
18.	Sample 18	Near Crushing Plant	15.11.2022	OCPL/ AAQ/EMIL/18/11/22
19.	Sample 19	Near Raw Material Stack Yard	15.11.2022	OCPL/ AAQ/EMIL/19/11/22
20.	Sample 20	Nedigutha Village	14.11.2022	OCPL/ AAQ/EMIL/20/11/22
21.	Sample 21	Near Filter cake storage yard	17.11.2022	OCPL/ AAQ/EMIL/21/11/22
22.	Sample 22	Near Crushing Plant	17.11.2022	OCPL/ AAQ/EMIL/22/11/22
23.	Sample 23	Near Raw Material Stack Yard	17.11.2022	OCPL/ AAQ/EMIL/23/11/22
24.	Sample 24	Nedigutha Village	19.11.2022	OCPL/ AAQ/EMIL/24/11/22
25.	Sample 25	Near Filter cake storage yard	22.11.2022	OCPL/ AAQ/EMIL/25/11/22
26.	Sample 26	Near Crushing Plant	22.11.2022	OCPL/ AAQ/EMIL/26/11/22
27.	Sample 27	Near Raw Material Stack Yard	22.11.2022	OCPL/ AAQ/EMIL/27/11/22
28.	Sample 28	Nedigutha Village	21.11.2022	OCPL/ AAQ/EMIL/28/11/22
29.	Sample 29	Near Filter cake storage yard	24.11.2022	OCPL/ AAQ/EMIL/29/11/22
30.	Sample 30	Near Crushing Plant	24.11.2022	OCPL/ AAQ/EMIL/30/11/22
31.	Sample 31	Near Raw Material Stack Yard	24.11.2022	OCPL/ AAQ/EMIL/31/11/22
32.	Sample 32	Nedigutha Village	26.11.2022	OCPL/ AAQ/EMIL/32/11/22
33.	Sample 33	Near Filter cake storage yard	29.11.2022	OCPL/ AAQ/EMIL/33/11/22
34.	Sample 34	Near Crushing Plant	29.11.2022	OCPL/ AAQ/EMIL/34/11/22
35.	Sample 35	Near Raw Material Stack Yard	29.11.2022	OCPL/ AAQ/EMIL/35/11/22
36.	Sample 36	Nedigutha Village	28.11.2022	OCPL/ AAQ/EMIL/36/11/22

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit (µg/M^3)	Date									
		01.11.22	03.11.22	08.11.22	10.11.22	15.11.22	17.11.22	22.11.22	24.11.22	29.11.22	Avg
PM_{10}	100	80.6	82.5	84	80.8	88.4	82.8	84	81	79.4	82.61
$PM_{2.5}$	60	56	52.4	48.7	48	46.8	45	50.4	47.8	49	49.34
Sulphur Dioxide (SO_2)	80	34	32.8	38.4	42	38.5	36	36.2	35.7	34.6	36.46
Oxide of Nitrogen (NO_2)	80	34.2	31	30.6	32	32.8	35.4	34	30.4	34	32.71
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	178	171.5	182.4	168.6	184.6	188	175	182.4	186.2	179.63
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	27.2	28.4	30	32	31.5	32.2	31.4	28	30.5	30.13
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 Crushing Plant

Parameters	Limit (µg/ M^3)	DATE									
		01.11.22	03.11.22	08.11.22	10.11.22	15.11.22	17.11.22	22.11.22	24.11.22	29.11.22	Avg
PM_{10}	100	82.5	84	84.6	86.2	84.8	80.8	84.5	84.4	86	84.2
$PM_{2.5}$	60	53.6	54	48.2	50.4	51.8	48.6	49	52.5	54.6	51.41
Sulphur Dioxide (SO_2)	80	29.6	30.5	32.4	31.2	26.6	26	24.5	28	24.6	28.15
Oxide of Nitrogen (NO_2)	80	21.2	24	26.8	28	27.6	22.6	22	20.5	21.6	23.81
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	165.6	166	158.4	168	172.8	168	155.8	158	170.2	164.75
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	28.6	32	34.4	28	30.4	28.6	30.5	28	26	29.61
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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE									
		01.11.22	03.11.22	08.11.22	10.11.22	15.11.22	17.11.22	22.11.22	24.11.22	29.11.22	Avg
PM_{10}	100	86.6	84	80.8	82.8	80	78.2	80	78	76.4	80.75
$PM_{2.5}$	60	58.4	54.6	50.4	56.8	58	48.2	52	54.8	51.8	53.88
Sulphur Dioxide (SO_2)	80	26.1	28	24.4	24	26.8	27	28.6	24	26	26.1
Oxide of Nitrogen (NO_2)	80	20.5	22	24.8	22.8	28.4	20.6	23	24.8	26	23.65
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	164	162	158	157.5	160.2	155	154.6	154.6	158.6	158.2
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	26	28.4	27	31.2	30	32.4	26	24.5	24	27.72
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									
		02.11.22	05.11.22	07.11.22	12.11.22	14.11.22	19.11.22	21.11.22	26.11.22	29.11.22	Avg
PM_{10}	100	45	46.2	45	45.2	42	44.6	46	47.5	43	44.94
$PM_{2.5}$	60	44.2	45.8	42.8	42	45.2	44.6	45	44.9	42.4	44.1
Sulphur Dioxide (SO_2)	80	19.6	20.4	18.6	17.5	18	17.8	16	18.2	17.4	18.16
Oxide of Nitrogen (NO_2)	80	18	16.4	18.2	17	15.6	17.9	16.6	18.4	15	17.01
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	142	148	146.2	136	140.4	142	145.4	140	145	142.77
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	14	16.2	15.6	14	12.4	12	14.6	14	12	13.86
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

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

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Beneficiation Plant Establishment Area				√		√	
First-Aid Room				√		√	
Security Office				√		√	
Administrative building				√		√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Beneficiation Plant Establishment Area	02.11.2022	OCPL/ NL/EMIL/01/11/22
2.	Sample 02	First-Aid Room	02.11.2022	OCPL/ NL/EMIL/02/11/22
3.	Sample 03	Security Office	02.11.2022	OCPL/ NL/EMIL/03/11/22
4.	Sample 04	Administrative building	02.11.2022	OCPL/ NL/EMIL/04/11/22
5.	Sample 05	Near Beneficiation Plant Establishment Area	06.11.2022	OCPL/ NL/EMIL/05/11/22
6.	Sample 06	First-Aid Room	06.11.2022	OCPL/ NL/EMIL/06/11/22
7.	Sample 07	Security Office	06.11.2022	OCPL/ NL/EMIL/07/11/22
8.	Sample 08	Administrative building	06.11.2022	OCPL/ NL/EMIL/08/11/22
9.	Sample 09	Near Beneficiation Plant Establishment Area	10.11.2022	OCPL/ NL/EMIL/09/11/22
10.	Sample 10	First-Aid Room	10.11.2022	OCPL/ NL/EMIL/10/11/22
11.	Sample 11	Security Office	10.11.2022	OCPL/ NL/EMIL/11/11/22
12.	Sample 12	Administrative building	10.11.2022	OCPL/ NL/EMIL/12/11/22
13.	Sample 13	Near Beneficiation Plant Establishment Area	13.11.2022	OCPL/ NL/EMIL/13/11/22
14.	Sample 14	First-Aid Room	13.11.2022	OCPL/ NL/EMIL/14/11/22
15.	Sample 15	Security Office	13.11.2022	OCPL/ NL/EMIL/15/11/22
16.	Sample 16	Administrative building	13.11.2022	OCPL/ NL/EMIL/16/11/22
17.	Sample 17	Near Beneficiation Plant Establishment Area	16.11.2022	OCPL/ NL/EMIL/17/11/22
18.	Sample 18	First-Aid Room	16.11.2022	OCPL/ NL/EMIL/18/11/22
19.	Sample 19	Security Office	16.11.2022	OCPL/ NL/EMIL/19/11/22
20.	Sample 20	Administrative building	16.11.2022	OCPL/ NL/EMIL/20/11/22
21.	Sample 21	Near Beneficiation Plant Establishment Area	19.11.2022	OCPL/ NL/EMIL/21/11/22
22.	Sample 22	First-Aid Room	19.11.2022	OCPL/ NL/EMIL/22/11/22
23.	Sample 23	Security Office	19.11.2022	OCPL/ NL/EMIL/23/11/22

24.	Sample 24	Administrative building	19.11.2022	OCPL/ NL/EMIL/24/11/22
25.	Sample 25	Near Beneficiation Plant Establishment Area	22.11.2022	OCPL/ NL/EMIL/25/11/22
26.	Sample 26	First-Aid Room	22.11.2022	OCPL/ NL/EMIL/26/11/22
27.	Sample 27	Security Office	22.11.2022	OCPL/ NL/EMIL/27/11/22
28.	Sample 28	Administrative building	22.11.2022	OCPL/ NL/EMIL/28/11/22
29.	Sample 29	Near Beneficiation Plant Establishment Area	26.11.2022	OCPL/ NL/EMIL/29/11/22
30.	Sample 30	First-Aid Room	26.11.2022	OCPL/ NL/EMIL/30/11/22
31.	Sample 31	Security Office	26.11.2022	OCPL/ NL/EMIL/31/11/22
32.	Sample 32	Administrative building	26.11.2022	OCPL/ NL/EMIL/32/11/22
33.	Sample 33	Near Beneficiation Plant Establishment Area	29.11.2022	OCPL/ NL/EMIL/33/11/22
34.	Sample 34	First-Aid Room	29.11.2022	OCPL/ NL/EMIL/34/11/22
35.	Sample 35	Security Office	29.11.2022	OCPL/ NL/EMIL/35/11/22
36.	Sample 36	Administrative building	29.11.2022	OCPL/ NL/EMIL/36/11/22

Date of Monitoring: 02.11.2022

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 Beneficiation Plant Establishment Area	55.6	63	66.2	56.8	37.2
2	First-Aid Room	50.2	62	60.4	52	32
3	Security Office	45.4	58	52.8	40.6	26
4	Administrative building	27.2	48	34	32	22.8
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: 06.11.2022

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 Beneficiation Plant Establishment Area	52.4	66	62.8	48.2	37
2	First-Aid Room	45.2	60	54	46.8	32.4
3	Security Office	44.8	68.4	57	48	30.4
4	Administrative building	32	36	32.4	25.5	22.8
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: 10.11.2022

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 Beneficiation Plant Establishment Area	54.2	68.6	65.2	44	27.6
2	First-Aid Room	48	54.6	56.4	48	30.2
3	Security Office	42.8	50	52	44.8	34.6
4	Administrative building	30	29.2	35.8	27	22.6
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: 13.11.2022

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 Beneficiation Plant Establishment Area	60.2	68.4	56	52.4	32
2	First-Aid Room	48.6	54.6	50.4	48.7	28.4
3	Security Office	50.5	49.7	48.6	38.8	34.6
4	Administrative building	24	34.6	35	26.2	19
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: 16.11.2022

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 Beneficiation Plant Establishment Area	56.2	68	62.6	47.2	34.3
2	First-Aid Room	45	48.6	52	46.6	26.8
3	Security Office	40.8	42.8	48	37.9	23
4	Administrative building	25.3	31.8	34	29	20
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: 19.11.2022

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 Beneficiation Plant Establishment Area	46.8	66	56.4	38	28.4
2	First-Aid Room	44	54.6	54	40.8	31
3	Security Office	52.4	45.9	54	38	30.2
4	Administrative building	31	35.9	38	32.6	29.4
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: 22.11.2022

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 Beneficiation Plant Establishment Area	64	68.4	55.2	46	38.8
2	First-Aid Room	56.4	48.2	47.4	41.4	32
3	Security Office	55	50.9	52	40.2	26
4	Administrative building	31	35.8	34	29.8	22.5
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: 26.11.2022

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 Beneficiation Plant Establishment Area	58	68.4	62.4	52.2	36.8
2	First-Aid Room	50.4	54	52.8	45.2	28
3	Security Office	52	40.5	55.8	42.7	31
4	Administrative building	30.2	34.2	36	20.6	26
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: 29.11.2022

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 Beneficiation Plant Establishment Area	54.8	66	52.6	42.4	38
2	First-Aid Room	54.2	54.5	48.2	42.8	29
3	Security Office	60.2	56.5	48	44	32.5
4	Administrative building	31.6	34.6	32.4	26	21.4
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 Nov – 2022

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	JARPADA	07- November - 2022	OCPL/SW/01/11/22
2.	Sample 02	NANDIGUTU	07- November - 2022	OCPL/SW/02/11/22
3.	Sample 03	RESERVOUR POND INSIDE PLANT	07- November - 2022	OCPL/SW/03/11/22
4.	Sample 04	DALKI NALA NEAR PLANT	07- November - 2022	OCPL/SW/04/11/22
5.	Sample 05	NAIBHANGA	07- November - 2022	OCPL/SW/05/11/22

Location: JARPADA

Lab Sample Code: OCPL/SW/01/11/22		**Report No.- OCPL/EMIL/01/11/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**JARPADA**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- November -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- November -2022
Sample type	Surface Water	Date of Analysis	08- November -2022
Required parameters	As described in W/O	Date of Issue of report	14- November -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24
4	pH	-	6.9
5	Total Suspended Solids	mg/L	82
6	Total Dissolved Solid	mg/L	869
7	Biochemical Oxygen Demand at 27°C	mg/L	7.2
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.68
10	Alkalinity	mg/L	86
11	Calcium	mg/L	58.2
12	Magnesium	mg/L	40
13	Total Hardness as CaCO3	mg/L	46.6
14	Electrical Conductivity	µs/cm	144.8
15	Turbidity	NTU	12.6

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	<0.05
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.11
20	Zinc as Zn	µg/L	0.68
21	Fluoride as F	mg/L	<0.05
22	Iron as Fe	mg/L	16.2
23	Nitrate	mg/L	1.8
24	Sodium as Na	mg/L	4.2
25	Potassium as K	mg/L	2.4
26	Sulfate	mg/L	1.2
27	Nitrate as NO_3	mg/L	3.1
28	Total Silica as SiO_2	mg/L	6.1
29	Total dissolved Solid	mg/L	869

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NANDIGUTU

Lab Sample Code: OCPL/SW/02/11/22		**Report No.- OCPL/EMIL/02/11/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NANDIGUTU**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- November -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- November -2022
Sample type	Surface Water	Date of Analysis	08- November -2022
Required parameters	As described in W/O	Date of Issue of report	14- November -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	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	23
4	pH	-	6.8
5	Total Suspended Solids	mg/L	44.2
6	Total Dissolved Solid	mg/L	814
7	Biochemical Oxygen Demand at 27°C	mg/L	4.2
8	Chemical Oxygen Demand	mg/L	2.1
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	38.8
11	Calcium	mg/L	42.5
12	Magnesium	mg/L	50.2
13	Total Hardness as CaCO3	mg/L	48.2
14	Electrical Conductivity	µs/cm	82

15	Turbidity	NTU	34.4
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	<0.05
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.21
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	19.4
23	Nitrate	mg/L	3.1
24	Sodium as Na	mg/L	1.86
25	Potassium as K	mg/L	0.22
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	3.6
28	Total Silica as SiO_2	mg/L	6.4
29	Total dissolved Solid	mg/L	814

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/11/22		**Report No.- OCPL/EMIL/03/11/22**	
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- November -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- November -2022
Sample type	Surface Water	Date of Analysis	08- November -2022
Required parameters	As described in W/O	Date of Issue of report	14- November -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	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	24.1
4	pH	-	6.8
5	Total Suspended Solids	mg/L	142
6	Total Dissolved Solid	mg/L	956
7	Biochemical Oxygen Demand at 27°C	mg/L	9.2
8	Chemical Oxygen Demand	mg/L	4.8
9	Total Residual Chlorine	mg/L	3.8
10	Alkalinity	mg/L	88.4
11	Calcium	mg/L	44.8
12	Magnesium	mg/L	42
13	Total Hardness as CaCO3	mg/L	171.4

14	Electrical Conductivity	µs/cm	186.5
15	Turbidity	NTU	62.8
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.03
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	35
23	Nitrate	mg/L	3.4
24	Sodium as Na	mg/L	16.4
25	Potassium as K	mg/L	3.4
26	Sulfate	mg/L	4.6
27	Nitrate as NO_3	mg/L	4.4
28	Total Silica as SiO_2	mg/L	20.4
29	Total dissolved Solid	mg/L	956

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/11/22		**Report No.- OCPL/EMIL/04/11/22**	
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- November -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- November -2022
Sample type	Surface Water	Date of Analysis	08- November -2022
Required parameters	As described in W/O	Date of Issue of report	14- November -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	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	22.8
4	pH	-	7.1
5	Total Suspended Solids	mg/L	46.5
6	Total Dissolved Solid	mg/L	732
7	Biochemical Oxygen Demand at 27°C	mg/L	4.1
8	Chemical Oxygen Demand	mg/L	1.6
9	Total Residual Chlorine	mg/L	0.18
10	Alkalinity	mg/L	50.2
11	Calcium	mg/L	26
12	Magnesium	mg/L	44.5
13	Total Hardness as CaCO3	mg/L	40.8

14	Electrical Conductivity	µs/cm	89.6
15	Turbidity	NTU	18.8
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	1.1
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	24.4
23	Nitrate	mg/L	16
24	Sodium as Na	mg/L	7.2
25	Potassium as K	mg/L	4.4
26	Sulfate	mg/L	6.2
27	Nitrate as NO_3	mg/L	22.4
28	Total Silica as SiO_2	mg/L	11.4
29	Total dissolved Solid	mg/L	732

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NAIBHANGA

Lab Sample Code: OCPL/SW/05/11/22		**Report No.- OCPL/EMIL/05/11/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NAIBHANGA**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	07- November - 2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	08- November - 2022
Sample type	Surface Water	Date of Analysis	08- November - 2022
Required parameters	As described in W/O	Date of Issue of report	14- November - 2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	22.4
4	pH	-	6.8
5	Total Suspended Solids	mg/L	48
6	Total Dissolved Solid	mg/L	876
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	0.6
10	Alkalinity	mg/L	28.5
11	Calcium	mg/L	40.2
12	Magnesium	mg/L	40.6
13	Total Hardness as CaCO3	mg/L	36.8
14	Electrical Conductivity	µs/cm	124

15	Turbidity	NTU	38.6
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	0.6
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	31
23	Nitrate	mg/L	2.4
24	Sodium as Na	mg/L	4.2
25	Potassium as K	mg/L	14
26	Sulfate	mg/L	3.1
27	Nitrate as NO_3	mg/L	5.2
28	Total Silica as SiO_2	mg/L	3.8
29	Total dissolved Solid	mg/L	876

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	JARPADA	08- 11 -2022	OCPL/SW/01/11/22
2.	Sample 02	NANDIGUTU	08- 11 -2022	OCPL/SW/02/11/22
3.	Sample 03	NAIBHANGA	08- 11 -2022	OCPL/SW/03/11/22
4.	Sample 04	PLANT- 1 (Near Canteen)	08- 11 -2022	OCPL/SW/04/11/22
5.	Sample 05	PLANT- 2 (Near Tailing Pond)	08- 11 -2022	OCPL/SW/05/11/22

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
			JARPADA	NANDIGUTU	NAIBHANGA	PLANT- 1 (Near Canteen)	PLANT- 2 (Near Tailing 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	-	7.1	6.9	7.2	6.8	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	50.2	48.6	55	61.8	40.8	300	600
6	Calcium	mg/L	11.4	14.5	16.2	16	15.2	75	200
7	Magnesium	mg/L	0.85	1.6	3.2	3.4	2.2	30	No relaxation
8	Chloride	mg/L	8.8	14.8	12.2	7.8	14.5	250	1000
9	Alkalinity	mg/L	22.2	26.8	14	22.5	13.8	200	600
10	Electrical Conductivity	µs/cm	60.5	74	56	62	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	0.01	10	No relaxation
13	Cadmium as Cd	µg/L	0.08	0.1	0.01	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	86.4	62	55.8	68	75.4	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	34.2	22	18.4	18.4	35.2	300	1000
18	Nitrate	mg/L	0.02	0.16	0.02	0.16	0.02	45	100
19	Sodium as Na	mg/L	1.1	1.02	1.04	1.01	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	0.02	200	400
22	Total Silica as SiO_2	mg/L	ND	0.06	0.04	0.06	0.2	--	--
23	Total suspended Solid	mg/L	0.88	0.42	1.2	0.8	0.4	--	--
24	Total dissolved Solid	mg/L	42	84.5	94.6	46	38	250	2000
25	Turbidity	NTU	0.22	0.41	0.12	0.18	0.22	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF Nov – 2022

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	JARPADA	11- 11-2022	OCPL/GWL/01/11/22
7.	Sample 02	NANDIGUTU	11- 11-2022	OCPL/GWL/02/11/22
8.	Sample 03	NAIBHANGA	11- 11-2022	OCPL/GWL/03/11/22
9.	Sample 04	PLANT- 1 (Near Canteen)	11- 11-2022	OCPL/GWL/04/11/22
10.	Sample 05	PLANT- 2 (Near Tailing Pond)	11- 11-2022	OCPL/GWL/05/11/22

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	JARPADA	Dugwell	0.8	8.2	7.29	--
2	NANDIGUTU	Dugwell	1.2	9.5	7.62	--
3	NAIBHANGA	Dugwell	1.0	8.6	8.4	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.8	--
5	PLANT- 2 (Near Tailing Pond)	Bore-well	0.1	60	46.66	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

1/10/2023

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 Filter Cake Storage Yard			√			√	
Near Crushing Plant			√			√	
Near Raw Material Stack Yard			√			√	
Nediguth Village		√					√

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	02.12.2022	OCPL/ AAQ/EMIL/01/12/22
2.	Sample 02	Near Crushing Plant	02.12.2022	OCPL/ AAQ/EMIL/02/12/22
3.	Sample 03	Near Raw Material Stack Yard	02.12.2022	OCPL/ AAQ/EMIL/03/12/22
4.	Sample 04	Nedigutha Village	03.12.2022	OCPL/ AAQ/EMIL/04/12/22
5.	Sample 05	Near Filter cake storage yard	06.12.2022	OCPL/ AAQ/EMIL/05/12/22
6.	Sample 06	Near Crushing Plant	06.12.2022	OCPL/ AAQ/EMIL/06/12/22
7.	Sample 07	Near Raw Material Stack Yard	06.12.2022	OCPL/ AAQ/EMIL/07/12/22
8.	Sample 08	Nedigutha Village	10.12.2022	OCPL/ AAQ/EMIL/08/12/22
9.	Sample 09	Near Filter cake storage yard	09.12.2022	OCPL/ AAQ/EMIL/09/12/22
10.	Sample 10	Near Crushing Plant	09.12.2022	OCPL/ AAQ/EMIL/10/12/22
11.	Sample 11	Near Raw Material Stack Yard	09.12.2022	OCPL/ AAQ/EMIL/11/12/22
12.	Sample 12	Nedigutha Village	05.12.2022	OCPL/ AAQ/EMIL/12/12/22
13.	Sample 13	Near Filter cake storage yard	13.12.2022	OCPL/ AAQ/EMIL/13/12/22
14.	Sample 14	Near Crushing Plant	13.12.2022	OCPL/ AAQ/EMIL/14/12/22
15.	Sample 15	Near Raw Material Stack Yard	13.12.2022	OCPL/ AAQ/EMIL/15/12/22
16.	Sample 16	Nedigutha Village	12.12.2022	OCPL/ AAQ/EMIL/16/12/22
17.	Sample 17	Near Filter cake storage	16.12.2022	OCPL/

		yard		AAQ/EMIL/17/12/22
18.	Sample 18	Near Crushing Plant	16.12.2022	OCPL/ AAQ/EMIL/18/12/22
19.	Sample 19	Near Raw Material Stack Yard	16.12.2022	OCPL/ AAQ/EMIL/19/12/22
20.	Sample 20	Nedigutha Village	17.12.2022	OCPL/ AAQ/EMIL/20/12/22
21.	Sample 21	Near Filter cake storage yard	20.12.2022	OCPL/ AAQ/EMIL/21/12/22
22.	Sample 22	Near Crushing Plant	20.12.2022	OCPL/ AAQ/EMIL/22/12/22
23.	Sample 23	Near Raw Material Stack Yard	20.12.2022	OCPL/ AAQ/EMIL/23/12/22
24.	Sample 24	Nedigutha Village	19.12.2022	OCPL/ AAQ/EMIL/24/12/22
25.	Sample 25	Near Filter cake storage yard	23.12.2022	OCPL/ AAQ/EMIL/25/12/22
26.	Sample 26	Near Crushing Plant	23.12.2022	OCPL/ AAQ/EMIL/26/12/22
27.	Sample 27	Near Raw Material Stack Yard	23.12.2022	OCPL/ AAQ/EMIL/27/12/22
28.	Sample 28	Nedigutha Village	24.12.2022	OCPL/ AAQ/EMIL/28/12/22
29.	Sample 29	Near Filter cake storage yard	27.12.2022	OCPL/ AAQ/EMIL/29/12/22
30.	Sample 30	Near Crushing Plant	27.12.2022	OCPL/ AAQ/EMIL/30/12/22
31.	Sample 31	Near Raw Material Stack Yard	27.12.2022	OCPL/ AAQ/EMIL/31/12/22
32.	Sample 32	Nedigutha Village	26.12.2022	OCPL/ AAQ/EMIL/32/12/22
33.	Sample 33	Near Filter cake storage yard	30.12.2022	OCPL/ AAQ/EMIL/33/12/22
34.	Sample 34	Near Crushing Plant	30.12.2022	OCPL/ AAQ/EMIL/34/12/22
35.	Sample 35	Near Raw Material Stack Yard	30.12.2022	OCPL/ AAQ/EMIL/35/12/22
36.	Sample 36	Nedigutha Village	31.12.2022	OCPL/ AAQ/EMIL/36/12/22

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit (µg/M^3)	Date									
		02.12.22	06.12.22	09.12.22	13.12.22	16.12.22	20.12.22	23.12.22	27.12.22	30.12.22	Avg
PM_{10}	100	80.5	82	86.2	86.2	84.8	80.8	84.5	84.4	84.6	83.77
$PM_{2.5}$	60	54	56.4	48.2	50.4	51.8	48.6	49	52.5	52.8	51.52
Sulphur Dioxide (SO_2)	80	28.8	32	32.4	31.2	25.5	26	24.5	28	26	28.26
Oxide of Nitrogen (NO_2)	80	22.5	26.8	24.6	28	27.6	22.6	22	20.5	23.4	24.22
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	168.2	166	158.4	157.4	172.8	168	155.8	162	172.4	164.55
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	30.5	34.8	36.2	32	30.4	28.6	30.5	29.5	28.8	31.25
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 Crushing Plant

Parameters	Limit (µg/ M^3)	DATE									
		02.12.22	06.12.22	09.12.22	13.12.22	16.12.22	20.12.22	23.12.22	27.12.22	30.12.22	Avg
PM_{10}	100	80.6	84.8	84	80.8	86.4	82.8	84	82	79.4	82.75
$PM_{2.5}$	60	56	52.4	48.5	48	46.8	46.9	50.4	47.8	52.4	49.91
Sulphur Dioxide (SO_2)	80	36.2	32.8	38.4	42	38.5	36	38.4	35.7	34.6	36.95
Oxide of Nitrogen (NO_2)	80	36.8	32.6	30.6	32	32.8	35.4	34	30.4	34	33.17
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	176.5	171.5	182.4	168.6	184.6	188	175	182.4	187	179.55
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	28.4	28.4	30	34.5	31.5	32.2	35.6	28	32.8	31.26
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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE									
		02.12.22	06.12.22	09.12.22	13.12.22	16.12.22	20.12.22	23.12.22	27.12.22	30.12.22	Avg
PM_{10}	100	87.4	86.2	82	82.4	78.8	76	81.5	82	80.4	81.85
$PM_{2.5}$	60	57	54.6	50.4	55.4	54	50.4	54.4	56	52.2	53.82
Sulphur Dioxide (SO_2)	80	27.8	26.2	26.5	27	26.8	28.4	28	26.9	27.2	27.2
Oxide of Nitrogen (NO_2)	80	22.8	24	24.8	22.8	28.4	22.5	24	26.4	25.8	24.61
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	165	166.5	159.4	160	162.8	158	154.6	154.6	164.6	160.6
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	28.5	28	24.4	32.8	34.4	36	30.8	34	29.8	30.96
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									
		03.12.22	05.12.22	10.12.22	12.12.22	17.12.22	19.12.22	24.12.22	26.12.22	31.12.22	Avg
PM_{10}	100	45.2	44.8	48	46.6	44.4	44.6	46	47.5	44.2	45.7
$PM_{2.5}$	60	44.2	44	42.8	46	45.8	45.2	44.6	44.9	45	44.72
Sulphur Dioxide (SO_2)	80	20.2	20	19.8	17.9	18	17.8	17.2	18.2	18	18.56
Oxide of Nitrogen (NO_2)	80	18.5	17.6	18.2	18.4	15.6	17.5	17	18.4	16.4	17.51
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	146.2	145.4	148	144.2	138	146.5	145.4	142	146.6	144.7
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12.5	15.8	15.6	14	14.6	15.2	14.6	16.2	14.4	14.76
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

ORGANIC CONSULTING PVT. LTD. Tested By: OCPL

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

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Beneficiation Plant Establishment Area				√		√	
First-Aid Room				√		√	
Security Office				√		√	
Administrative building				√		√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Main Gate Area	02.12.2022	OCPL/ NL/EMIL/01/12/22
2.	Sample 02	Near Back Gate Area	02.12.2022	OCPL/ NL/EMIL/02/12/22
3.	Sample 03	Near Palate Plant Area	02.12.2022	OCPL/ NL/EMIL/03/12/22
4.	Sample 04	Near IOBP Area	02.12.2022	OCPL/ NL/EMIL/04/12/22
5.	Sample 05	Near Main Gate Area	07.12.2022	OCPL/ NL/EMIL/05/12/22
6.	Sample 06	Near Back Gate Area	07.12.2022	OCPL/ NL/EMIL/06/12/22
7.	Sample 07	Near Palate Plant Area	07.12.2022	OCPL/ NL/EMIL/07/12/22
8.	Sample 08	Near IOBP Area	07.12.2022	OCPL/ NL/EMIL/08/12/22
9.	Sample 09	Near Main Gate Area	09.12.2022	OCPL/ NL/EMIL/09/12/22
10.	Sample 10	Near Back Gate Area	09.12.2022	OCPL/ NL/EMIL/10/12/22
11.	Sample 11	Near Palate Plant Area	09.12.2022	OCPL/ NL/EMIL/11/12/22
12.	Sample 12	Near IOBP Area	09.12.2022	OCPL/ NL/EMIL/12/12/22
13.	Sample 13	Near Main Gate Area	14.12.2022	OCPL/ NL/EMIL/13/12/22
14.	Sample 14	Near Back Gate Area	14.12.2022	OCPL/ NL/EMIL/14/12/22
15.	Sample 15	Near Palate Plant Area	14.12.2022	OCPL/ NL/EMIL/15/12/22
16.	Sample 16	Near IOBP Area	14.12.2022	OCPL/ NL/EMIL/16/12/22
17.	Sample 17	Near Main Gate Area	16.12.2022	OCPL/ NL/EMIL/17/12/22
18.	Sample 18	Near Back Gate Area	16.12.2022	OCPL/ NL/EMIL/18/12/22
19.	Sample 19	Near Palate Plant Area	16.12.2022	OCPL/ NL/EMIL/19/12/22
20.	Sample 20	Near IOBP Area	16.12.2022	OCPL/ NL/EMIL/20/12/22
21.	Sample 21	Near Main Gate Area	21.12.2022	OCPL/ NL/EMIL/21/12/22
22.	Sample 22	Near Back Gate Area	21.12.2022	OCPL/ NL/EMIL/22/12/22
23.	Sample 23	Near Palate Plant Area	21.12.2022	OCPL/ NL/EMIL/23/12/22
24.	Sample 24	Near IOBP Area	21.12.2022	OCPL/ NL/EMIL/24/12/22
25.	Sample 25	Near Main Gate Area	23.12.2022	OCPL/ NL/EMIL/25/12/22
26.	Sample 26	Near Back Gate Area	23.12.2022	OCPL/ NL/EMIL/26/12/22
27.	Sample 27	Near Palate Plant Area	23.12.2022	OCPL/ NL/EMIL/27/12/22
28.	Sample 28	Near IOBP Area	23.12.2022	OCPL/ NL/EMIL/28/12/22
29.	Sample 29	Near Main Gate Area	28.12.2022	OCPL/ NL/EMIL/29/12/22

30.	Sample 30	Near Back Gate Area	28.12.2022	OCPL/ NL/EMIL/30/12/22
31.	Sample 31	Near Palate Plant Area	28.12.2022	OCPL/ NL/EMIL/31/12/22
32.	Sample 32	Near IOBP Area	28.12.2022	OCPL/ NL/EMIL/32/12/22
33.	Sample 33	Near Main Gate Area	30.12.2022	OCPL/ NL/EMIL/33/12/22
34.	Sample 34	Near Back Gate Area	30.12.2022	OCPL/ NL/EMIL/34/12/22
35.	Sample 35	Near Palate Plant Area	30.12.2022	OCPL/ NL/EMIL/35/12/22
36.	Sample 36	Near IOBP Area	30.12.2022	OCPL/ NL/EMIL/36/12/22

Date of Monitoring: 02.12.2022

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	58.2	63.4	68	58.4	30.5
2	Near Back Gate Area	52.6	62.5	60.4	56.4	29
3	Near Palate Plant Area	46.4	58	58.4	40.6	26.2
4	Near IOBP Area	34	52	34.8	32.6	22.8
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: 07.12.2022

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	66.8	62.8	42	32.8
2	Near Back Gate Area	46.6	60	54	47	32.5
3	Near Palate Plant Area	51	68.4	57	48	29.6
4	Near IOBP Area	48.8	36	32.4	35.8	34
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: 09.12.2022

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	68.6	62	44.2	27.6
2	Near Back Gate Area	48.9	54.6	56.4	48	30.2
3	Near Palate Plant Area	56	50.4	52	44.8	34.6
4	Near IOBP Area	52.8	32.8	48	39	22.6
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: 14.12.2022

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	68.4	56	52.4	32
2	Near Back Gate Area	56.4	54.6	50.4	48.7	27
3	Near Palate Plant Area	54	52.5	48.6	38.8	42.6
4	Near IOBP Area	55.8	52	49.5	50	38
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: 16.12.2022

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	68	62.6	47.2	34.3
2	Near Back Gate Area	55.9	48.6	52	46.6	26.8
3	Near Palate Plant Area	45.8	42.8	55	37.9	32.5
4	Near IOBP Area	48	56	49	38	36.2
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: 21.12.2022

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	45.8	60.8	56.4	38	35
2	Near Back Gate Area	48.8	54.6	54	40.8	32
3	Near Palate Plant Area	46	48.8	58	37.9	38.4
4	Near IOBP Area	48.2	54	42	38	34
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: 23.12.2022

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	64	68.4	55.2	46	38.8
2	Near Back Gate Area	50.8	48.2	42.8	40.6	32.2
3	Near Palate Plant Area	55	50.9	52	40.2	38.6
4	Near IOBP Area	58	52	42	48.4	40.8
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: 28.12.2022

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	68.4	65.8	52.2	32.8
2	Near Back Gate Area	50.4	54.8	52.8	45.2	31.8
3	Near Palate Plant Area	54.6	46	52.4	42.7	36.8
4	Near IOBP Area	58	62.2	40.8	35	32.6
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: 30.12.2022

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	66.2	52.6	42.4	35
2	Near Back Gate Area	50.6	54.5	48.8	42.8	28
3	Near Palate Plant Area	60.8	56.5	48.5	56	36
4	Near IOBP Area	48	52.4	44.6	49	38.5
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

SURFACE WATER ANALYSIS FOR THE MONTH OF DECEMBER – 2022

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (UPPER AREA)	08- December - 2022	OCPL/SW/01/12/22
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	08- December - 2022	OCPL/SW/02/12/22
3.	Sample 03	RESERVOUR POND INSIDE PLANT	08- December - 2022	OCPL/SW/03/12/22
4.	Sample 04	DALKI NALA NEAR PLANT	08- December - 2022	OCPL/SW/04/12/22
5.	Sample 05	DHANURJAYPUR	08- December - 2022	OCPL/SW/05/12/22

Location: BAITARANI RIVER (Upper Area)

Lab Sample Code: OCPL/SW/01/12/22		**Report No.- OCPL/EMIL/01/12/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**MALDA VILLAGE**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	08- December -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	09- December -2022
Sample type	Surface Water	Date of Analysis	09- December -2022
Required parameters	As described in W/O	Date of Issue of report	17- December -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24.3
4	pH	-	6.8
5	Total Suspended Solids	mg/L	78
6	Total Dissolved Solid	mg/L	818
7	Biochemical Oxygen Demand at 27°C	mg/L	7.1
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.68
10	Alkalinity	mg/L	86.4
11	Calcium	mg/L	55
12	Magnesium	mg/L	38
13	Total Hardness as CaCO3	mg/L	42.8
14	Electrical Conductivity	µs/cm	135
15	Turbidity	NTU	11.8

16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	<0.05
18	Cadmium as Cd	µg/L	ND
19	Total Chromium as Cr	µg/L	0.11
20	Zinc as Zn	µg/L	0.64
21	Fluoride as F	mg/L	<0.05
22	Iron as Fe	mg/L	15.6
23	Nitrate	mg/L	1.4
24	Sodium as Na	mg/L	3.8
25	Potassium as K	mg/L	2.2
26	Sulfate	mg/L	1.4
27	Nitrate as NO_3	mg/L	3.04
28	Total Silica as SiO_2	mg/L	5.8
29	Total dissolved Solid	mg/L	818

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/12/22		**Report No.- OCPL/EMIL/02/12/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NEDIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	08- December -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	09- December -2022
Sample type	Surface Water	Date of Analysis	09- December -2022
Required parameters	As described in W/O	Date of Issue of report	17- December -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	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	22.1
4	pH	-	6.9
5	Total Suspended Solids	mg/L	46
6	Total Dissolved Solid	mg/L	788
7	Biochemical Oxygen Demand at 27°C	mg/L	4.5
8	Chemical Oxygen Demand	mg/L	1.04
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	26
11	Calcium	mg/L	22.2
12	Magnesium	mg/L	41
13	Total Hardness as CaCO3	mg/L	35.2
14	Electrical Conductivity	µs/cm	75.8

15	Turbidity	NTU	28
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	<0.05
19	Total Chromium as Cr	µg/L	<0.05
20	Zinc as Zn	µg/L	1.02
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	12.6
23	Nitrate	mg/L	2.2
24	Sodium as Na	mg/L	1.6
25	Potassium as K	mg/L	0.2
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	3.4
28	Total Silica as SiO_2	mg/L	4.4
29	Total dissolved Solid	mg/L	788

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/12/22		**Report No.- OCPL/EMIL/03/12/22**	
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	08- December -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	09- December -2022
Sample type	Surface Water	Date of Analysis	09- December -2022
Required parameters	As described in W/O	Date of Issue of report	17- December -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	1.7
2	Odour	-	Agreeable
3	Temperature	°C	23.6
4	pH	-	6.6
5	Total Suspended Solids	mg/L	158
6	Total Dissolved Solid	mg/L	1045
7	Biochemical Oxygen Demand at 27°C	mg/L	9.8
8	Chemical Oxygen Demand	mg/L	4.9
9	Total Residual Chlorine	mg/L	4.4
10	Alkalinity	mg/L	78.2
11	Calcium	mg/L	56.8
12	Magnesium	mg/L	42.4
13	Total Hardness as CaCO3	mg/L	162

14	Electrical Conductivity	µs/cm	156.3
15	Turbidity	NTU	58
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.04
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	32.8
23	Nitrate	mg/L	3.8
24	Sodium as Na	mg/L	21.4
25	Potassium as K	mg/L	4.2
26	Sulfate	mg/L	4.8
27	Nitrate as NO_3	mg/L	5.9
28	Total Silica as SiO_2	mg/L	16.6
29	Total dissolved Solid	mg/L	1045

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/12/22		**Report No.- OCPL/EMIL/04/12/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	08- December -2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	09- December -2022
Sample type	Surface Water	Date of Analysis	09- December -2022
Required parameters	As described in W/O	Date of Issue of report	17- December -2022
EMIL reference	WO No.-5010/ADMIN/5500000126	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	22.2
4	pH	-	7.1
5	Total Suspended Solids	mg/L	42.8
6	Total Dissolved Solid	mg/L	706
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	0.06
10	Alkalinity	mg/L	48.5
11	Calcium	mg/L	26.5
12	Magnesium	mg/L	42.6
13	Total Hardness as CaCO3	mg/L	41.4

14	Electrical Conductivity	µs/cm	90.4
15	Turbidity	NTU	20.5
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	<0.02
20	Zinc as Zn	µg/L	1.06
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	25
23	Nitrate	mg/L	16.2
24	Sodium as Na	mg/L	8.6
25	Potassium as K	mg/L	4.8
26	Sulfate	mg/L	6.5
27	Nitrate as NO_3	mg/L	21.4
28	Total Silica as SiO_2	mg/L	9.4
29	Total dissolved Solid	mg/L	706

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DHANURJAYPUR

Lab Sample Code: OCPL/SW/05/12/22		**Report No.- OCPL/EMIL/05/12/22**	
Sample description:		Test method	APHA 22nd edition
Sample location	**TALA SAHI**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	08- December - 2022
Sample quantity	1no.s X 1 Lit.	Date of sample received	09- December - 2022
Sample type	Surface Water	Date of Analysis	09- December - 2022
Required parameters	As described in W/O	Date of Issue of report	17- December - 2022
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	21.9
4	pH	-	6.9
5	Total Suspended Solids	mg/L	42.6
6	Total Dissolved Solid	mg/L	684
7	Biochemical Oxygen Demand at 27°C	mg/L	3.5
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	32
11	Calcium	mg/L	42.4
12	Magnesium	mg/L	38.6
13	Total Hardness as CaCO3	mg/L	35.4
14	Electrical Conductivity	µs/cm	76

15	Turbidity	NTU	28.6
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	0.4
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	14.2
23	Nitrate	mg/L	1.4
24	Sodium as Na	mg/L	2.2
25	Potassium as K	mg/L	2.6
26	Sulfate	mg/L	2.04
27	Nitrate as NO_3	mg/L	3.8
28	Total Silica as SiO_2	mg/L	3.2
29	Total dissolved Solid	mg/L	684

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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	15- December - 2022	OCPL/SW/01/12/22
2.	Sample 02	NEDIGUTH	15- December - 2022	OCPL/SW/02/12/22
3.	Sample 03	TALA SAHI	15- December - 2022	OCPL/SW/03/12/22
4.	Sample 04	PLANT- 1 (Near Canteen)	15- December - 2022	OCPL/SW/04/12/22
5.	Sample 05	PLANT- 2 (SLIME POND)	15- December - 2022	OCPL/SW/05/12/22

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	24.4	23.5	24.1	25.2	24.8		
4	pH	-	7.1	6.8	7.1	6.8	6.9	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	55	48.5	42.6	62	48.8	300	600
6	Calcium	mg/L	8	11.8	12.5	16.5	19.5	75	200
7	Magnesium	mg/L	0.8	1.4	3.1	4.2	4.9	30	No relaxation
8	Chloride	mg/L	8.6	14.8	14.5	7.88	14.8	250	1000
9	Alkalinity	mg/L	22.2	26.8	14	22.5	13.8	200	600
10	Electrical Conductivity	µs/cm	62	74	56.8	62	75.4	--	--
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	0.01	10	No relaxation

13	Cadmium as Cd	µg/L	0.06	0.1	ND	ND	0.01	3.0	No relaxation
14	Total Chromium as Cr	µg/L	ND	ND	0.02	0.04	0.02	50	No relaxation
15	Zinc as Zn	µg/L	86.4	62.5	50.6	68.8	76	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	34.8	24.5	21.4	20.2	34	300	1000
18	Nitrate	mg/L	0.02	0.1	0.02	0.18	0.08	45	100
19	Sodium as Na	mg/L	1.04	1.02	1.04	1.2	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	0.02	200	400
22	Total Silica as SiO_2	mg/L	ND	0.06	0.04	0.06	0.2	--	--
23	Total suspended Solid	mg/L	0.04	0.42	1.2	0.8	0.64	--	--
24	Total dissolved Solid	mg/L	38.8	42	36.8	60.2	58.5	250	2000
25	Turbidity	NTU	0.2	0.41	0.14	0.15	0.22	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

REPORT ON GROUND WATER LEVEL ANALYSISFOR THE MONTH OF DECEMBER – 2022

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	22- DECEMBER -2022	OCPL/GWL/01/12/22
7.	Sample 02	NEDIGUTH	22- DECEMBER -2022	OCPL/GWL/02/12/22
8.	Sample 03	TALA SAHI	22- DECEMBER -2022	OCPL/GWL/03/12/22
9.	Sample 04	PLANT- 1 (Near Canteen)	22- DECEMBER -2022	OCPL/GWL/04/12/22
10.	Sample 05	PLANT- 2 (SLIME POND)	22- DECEMBER -2022	OCPL/GWL/05/12/22

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	7.64	--
3	TALA SAHI	Dugwell	1.0	8.6	8.38	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.75	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.62	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

2/8/2023

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 Filter Cake Storage Yard		√			√		
Near Crushing Plant		√			√		
Near Raw Material Stack Yard		√			√		
Nadiguth Village			√			√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	02.01.2023	OCPL/ AAQ/EMIL/01/01/23
2.	Sample 02	Near Crushing Plant	02.01.2023	OCPL/ AAQ/EMIL/02/01/23
3.	Sample 03	Near Raw Material Stack Yard	02.01.2023	OCPL/ AAQ/EMIL/03/01/23
4.	Sample 04	Nedigutha Village	03.01.2023	OCPL/ AAQ/EMIL/04/01/23
5.	Sample 05	Near Filter cake storage yard	05.01.2023	OCPL/ AAQ/EMIL/05/01/23
6.	Sample 06	Near Crushing Plant	05.01.2023	OCPL/ AAQ/EMIL/06/01/23
7.	Sample 07	Near Raw Material Stack Yard	05.01.2023	OCPL/ AAQ/EMIL/07/01/23
8.	Sample 08	Nedigutha Village	06.01.2023	OCPL/ AAQ/EMIL/08/01/23
9.	Sample 09	Near Filter cake storage yard	09.01.2023	OCPL/ AAQ/EMIL/09/01/23
10.	Sample 10	Near Crushing Plant	09.01.2023	OCPL/ AAQ/EMIL/10/01/23
11.	Sample 11	Near Raw Material Stack Yard	09.01.2023	OCPL/ AAQ/EMIL/11/01/23
12.	Sample 12	Nedigutha Village	10.01.2023	OCPL/ AAQ/EMIL/12/01/23
13.	Sample 13	Near Filter cake storage yard	12.01.2023	OCPL/ AAQ/EMIL/13/01/23
14.	Sample 14	Near Crushing Plant	12.01.2023	OCPL/ AAQ/EMIL/14/01/23
15.	Sample 15	Near Raw Material Stack Yard	12.01.2023	OCPL/ AAQ/EMIL/15/01/23
16.	Sample 16	Nedigutha Village	13.01.2023	OCPL/ AAQ/EMIL/16/01/23
17.	Sample 17	Near Filter cake storage	16.01.2023	OCPL/

		yard		AAQ/EMIL/17/01/23
18.	Sample 18	Near Crushing Plant	16.01.2023	OCPL/ AAQ/EMIL/18/01/23
19.	Sample 19	Near Raw Material Stack Yard	16.01.2023	OCPL/ AAQ/EMIL/19/01/23
20.	Sample 20	Nedigutha Village	17.01.2023	OCPL/ AAQ/EMIL/20/01/23
21.	Sample 21	Near Filter cake storage yard	19.01.2023	OCPL/ AAQ/EMIL/21/01/23
22.	Sample 22	Near Crushing Plant	19.01.2023	OCPL/ AAQ/EMIL/22/01/23
23.	Sample 23	Near Raw Material Stack Yard	19.01.2023	OCPL/ AAQ/EMIL/23/01/23
24.	Sample 24	Nedigutha Village	20.01.2023	OCPL/ AAQ/EMIL/24/01/23
25.	Sample 25	Near Filter cake storage yard	23.01.2023	OCPL/ AAQ/EMIL/25/01/23
26.	Sample 26	Near Crushing Plant	23.01.2023	OCPL/ AAQ/EMIL/26/01/23
27.	Sample 27	Near Raw Material Stack Yard	23.01.2023	OCPL/ AAQ/EMIL/27/01/23
28.	Sample 28	Nedigutha Village	24.01.2023	OCPL/ AAQ/EMIL/28/01/23
29.	Sample 29	Near Filter cake storage yard	26.01.2023	OCPL/ AAQ/EMIL/29/01/23
30.	Sample 30	Near Crushing Plant	26.01.2023	OCPL/ AAQ/EMIL/30/01/23
31.	Sample 31	Near Raw Material Stack Yard	26.01.2023	OCPL/ AAQ/EMIL/31/01/23
32.	Sample 32	Nedigutha Village	27.01.2023	OCPL/ AAQ/EMIL/32/01/23
33.	Sample 33	Near Filter cake storage yard	30.01.2023	OCPL/ AAQ/EMIL/33/01/23
34.	Sample 34	Near Crushing Plant	30.01.2023	OCPL/ AAQ/EMIL/34/01/23
35.	Sample 35	Near Raw Material Stack Yard	30.01.2023	OCPL/ AAQ/EMIL/35/01/23
36.	Sample 36	Nedigutha Village	31.01.2023	OCPL/ AAQ/EMIL/36/01/23

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit (µg/M^3)	Date									
		02.01.23	05.01.23	09.01.23	12.01.23	16.01.23	19.01.23	23.01.23	26.01.23	30.01.23	Avg
PM_{10}	100	86.4	84	82.8	84.4	82.8	84.6	88.6	86	87.2	85.2
$PM_{2.5}$	60	55.8	58.2	56	54.4	54.8	52.4	56.2	56	58.6	55.82
Sulphur Dioxide (SO_2)	80	32.4	34.2	34	35.6	32.8	32.5	29.6	30.6	34.8	32.94
Oxide of Nitrogen (NO_2)	80	26.2	25.8	25	24.8	30.4	31.2	28	28.8	28.2	27.6
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	166.4	168	172.5	164.8	171	175	175.5	169.6	172	170.53
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	34	35.2	38.6	38	36.4	34.8	36.5	36	36.2	36.18
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 Crushing Plant

Parameters	Limit (µg/ M^3)	DATE									
		02.01.23	05.01.23	09.01.23	12.01.23	16.01.23	19.01.23	23.01.23	26.01.23	30.01.23	Avg
PM_{10}	100	82.6	84.8	86.2	86	88.6	84.5	86.8	85	86.2	85.63
$PM_{2.5}$	60	54.2	56	58.4	56.6	55.5	58.5	54	56.2	54.8	56.02
Sulphur Dioxide (SO_2)	80	36	38.2	37	40.4	42	42.8	44	39	44.2	40.4
Oxide of Nitrogen (NO_2)	80	34.8	35.2	38	40.5	38.5	40	41.2	40.8	39.8	38.75
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	186.8	185	188.4	184	184.6	182.4	180	182.4	186.4	184.44
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	30.4	32	34.2	34.8	36.2	34.8	35.6	32	34.4	33.82
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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE									
		02.01.23	05.01.23	09.01.23	12.01.23	16.01.23	19.01.23	23.01.23	26.01.23	30.01.23	Avg
PM_{10}	100	86.4	88	86.5	84.8	88.2	84.5	86.4	85.2	84	86
$PM_{2.5}$	60	54.2	54	56.4	58.4	58	58.5	55.2	56	60.2	56.76
Sulphur Dioxide (SO_2)	80	26	26.2	28.4	27	28.8	28.4	30.2	31	28.6	28.28
Oxide of Nitrogen (NO_2)	80	24.6	25	25.2	26.6	28.2	28.8	26	26.4	28	26.53
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	163.5	164	162.8	166.8	168	162.4	164	166.4	165	164.7
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	28	28.6	26.8	29.5	34.4	36	34.4	36.2	38	32.43
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

Checked By: OCPL

LOCATION: Nedigutha Village

Parameters	Limit (µg/M^3)	DATE									
		03.01.23	06.01.23	10.01.23	13.01.23	17.01.23	20.01.23	24.01.23	27.01.23	31.01.23	Avg
PM_{10}	100	42	44	46.5	45	44.4	46.2	46	48.2	41.3	44.84
$PM_{2.5}$	60	41.4	42.2	42.8	40.2	41.5	42	42.5	42.8	40.6	41.77
Sulphur Dioxide (SO_2)	80	18.2	18	19.2	20.4	19.5	20.6	18	16.4	16.8	18.56
Oxide of Nitrogen (NO_2)	80	16.2	16	18.8	16.2	18	18.2	16.4	18.2	16.8	17.2
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	144.2	148	142.8	140.8	144.8	145	144	142.6	142	143.8
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12	14.2	14	12.8	12.8	14.4	14	12.6	12.4	13.244
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

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

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area		√		√			
Near Back Gate Area		√		√			
Near Palate 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	02.01.2023	OCPL/ NL/EMIL/01/01/23
2.	Sample 02	Near Back Gate Area	02.01.2023	OCPL/ NL/EMIL/02/01/23
3.	Sample 03	Near Palate Plant Area	02.01.2023	OCPL/ NL/EMIL/03/01/23
4.	Sample 04	Near IOBP Area	02.01.2023	OCPL/ NL/EMIL/04/01/23
5.	Sample 05	Near Main Gate Area	04.01.2023	OCPL/ NL/EMIL/05/01/23
6.	Sample 06	Near Back Gate Area	04.01.2023	OCPL/ NL/EMIL/06/01/23
7.	Sample 07	Near Palate Plant Area	04.01.2023	OCPL/ NL/EMIL/07/01/23
8.	Sample 08	Near IOBP Area	04.01.2023	OCPL/ NL/EMIL/08/01/23
9.	Sample 09	Near Main Gate Area	09.01.2023	OCPL/ NL/EMIL/09/01/23
10.	Sample 10	Near Back Gate Area	09.01.2023	OCPL/ NL/EMIL/10/01/23
11.	Sample 11	Near Palate Plant Area	09.01.2023	OCPL/ NL/EMIL/11/01/23
12.	Sample 12	Near IOBP Area	09.01.2023	OCPL/ NL/EMIL/12/01/23
13.	Sample 13	Near Main Gate Area	11.01.2023	OCPL/ NL/EMIL/13/01/23
14.	Sample 14	Near Back Gate Area	11.01.2023	OCPL/ NL/EMIL/14/01/23
15.	Sample 15	Near Palate Plant Area	11.01.2023	OCPL/ NL/EMIL/15/01/23
16.	Sample 16	Near IOBP Area	11.01.2023	OCPL/ NL/EMIL/16/01/23
17.	Sample 17	Near Main Gate Area	16.01.2023	OCPL/ NL/EMIL/17/01/23
18.	Sample 18	Near Back Gate Area	16.01.2023	OCPL/ NL/EMIL/18/01/23
19.	Sample 19	Near Palate Plant Area	16.01.2023	OCPL/ NL/EMIL/19/01/23
20.	Sample 20	Near IOBP Area	16.01.2023	OCPL/ NL/EMIL/20/01/23
21.	Sample 21	Near Main Gate Area	17.01.2023	OCPL/ NL/EMIL/21/01/23
22.	Sample 22	Near Back Gate Area	17.01.2023	OCPL/ NL/EMIL/22/01/23
23.	Sample 23	Near Palate Plant Area	17.01.2023	OCPL/ NL/EMIL/23/01/23
24.	Sample 24	Near IOBP Area	17.01.2023	OCPL/ NL/EMIL/24/01/23
25.	Sample 25	Near Main Gate Area	23.01.2023	OCPL/ NL/EMIL/25/01/23
26.	Sample 26	Near Back Gate Area	23.01.2023	OCPL/ NL/EMIL/26/01/23
27.	Sample 27	Near Palate Plant Area	23.01.2023	OCPL/ NL/EMIL/27/01/23
28.	Sample 28	Near IOBP Area	23.01.2023	OCPL/ NL/EMIL/28/01/23

29.	Sample 29	Near Main Gate Area	25.01.2023	OCPL/ NL/EMIL/29/01/23
30.	Sample 30	Near Back Gate Area	25.01.2023	OCPL/ NL/EMIL/30/01/23
31.	Sample 31	Near Palate Plant Area	25.01.2023	OCPL/ NL/EMIL/31/01/23
32.	Sample 32	Near IOBP Area	25.01.2023	OCPL/ NL/EMIL/32/01/23
33.	Sample 33	Near Main Gate Area	30.01.2023	OCPL/ NL/EMIL/33/01/23
34.	Sample 34	Near Back Gate Area	30.01.2023	OCPL/ NL/EMIL/34/01/23
35.	Sample 35	Near Palate Plant Area	30.01.2023	OCPL/ NL/EMIL/35/01/23
36.	Sample 36	Near IOBP Area	30.01.2023	OCPL/ NL/EMIL/36/01/23

Date of Monitoring: 02.01.2023

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	55.6	60.5	62.2	56	28.4
2	Near Back Gate Area	50.6	60	60.8	52.2	23
3	Near Palate Plant Area	44	61.5	58.4	42	30
4	Near IOBP Area	38.2	56.7	34.8	48.6	22.8
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: 04.01.2023

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	64.2	58.4	40.6	36.4
2	Near Back Gate Area	46.2	66	54.8	44	32.5
3	Near Palate Plant Area	51.4	60.5	57	42.6	31.4
4	Near IOBP Area	46	36.8	32.4	35.8	30.2
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: 09.01.2023

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	54.4	68.6	62	44.2	28.8
2	Near Back Gate Area	44	54.6	56.4	48.9	30.2
3	Near Palate Plant Area	50.6	54.4	52.3	44.8	30
4	Near IOBP Area	48.9	32.8	44	39.8	29.4
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: 11.01.2023

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	57.4	68.4	60.6	54	35.5
2	Near Back Gate Area	52	54.6	50.4	48.7	27.9
3	Near Palate Plant Area	58.6	52.5	48.6	37	39
4	Near IOBP Area	56.3	50.4	52	54.8	36.6
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: 16.01.2023

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	68.2	65.4	45.6	39
2	Near Back Gate Area	48	39.6	46.2	40.6	22
3	Near Palate Plant Area	46.2	44.5	55	37.9	32.5
4	Near IOBP Area	40	50	49	38	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: 18.01.2023

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	40.2	62	54	36	25.9
2	Near Back Gate Area	44	48.7	51.8	38.4	28
3	Near Palate Plant Area	42.6	62	56	37.9	38.4
4	Near IOBP Area	50	60.4	58.7	40.6	32
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: 23.01.2023

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	60	58.8	60.2	50.2	40.6
2	Near Back Gate Area	48.8	50.6	40.8	38	36.2
3	Near Palate Plant Area	55	56.8	62.6	42	31.4
4	Near IOBP Area	57.6	52.2	48	44.8	38.4
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: 25.01.2023

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	42.2	56	61	58.4	33.6
2	Near Back Gate Area	34	54.8	48	44.2	25.4
3	Near Palate Plant Area	48.6	56.8	48.2	50.6	34
4	Near IOBP Area	52.4	58	44	45	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

Date of Monitoring: 30.01.2023

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	60.8	64.4	54.8	48	32.2
2	Near Back Gate Area	41	47.8	52	38.9	26
3	Near Palate Plant Area	62.4	60.4	68.8	62.5	31
4	Near IOBP Area	50.4	58	40.8	56	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

SURFACE WATER ANALYSIS FOR THE MONTH OF JANUARY – 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	09- JANUARY - 2023	OCPL/SW/01/01/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	09- JANUARY - 2023	OCPL/SW/02/01/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	09- JANUARY - 2023	OCPL/SW/03/01/23
4.	Sample 04	DALKI NALA NEAR PLANT	09- JANUARY - 2023	OCPL/SW/04/01/23
5.	Sample 05	NADIGUTH	09- JANUARY - 2023	OCPL/SW/05/01/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/01/23		**Report No.- OCPL/EMIL/01/01/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- JANUARY - 2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- JANUARY - 2023
Sample type	Surface Water	Date of Analysis	10- JANUARY - 2023
Required parameters	As described in W/O	Date of Issue of report	18- JANUARY - 2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24.8
4	pH	-	6.9
5	Total Suspended Solids	mg/L	72
6	Total Dissolved Solid	mg/L	769
7	Biochemical Oxygen Demand at 27°C	mg/L	6.4
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.62
10	Alkalinity	mg/L	86.2
11	Calcium	mg/L	42.2
12	Magnesium	mg/L	21.4
13	Total Hardness as CaCO3	mg/L	38.4
14	Electrical Conductivity	µs/cm	118
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	0.28
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	14.4
23	Nitrate	mg/L	1.26
24	Sodium as Na	mg/L	2.46
25	Potassium as K	mg/L	1.8
26	Sulfate	mg/L	1.24
27	Nitrate as NO_3	mg/L	2.28
28	Total Silica as SiO_2	mg/L	4.2
29	Total dissolved Solid	mg/L	769

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/01/23		**Report No.- OCPL/EMIL/02/01/23**	
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	09- JANUARY - 2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- JANUARY - 2023
Sample type	Surface Water	Date of Analysis	10- JANUARY - 2023
Required parameters	As described in W/O	Date of Issue of report	18- JANUARY - 2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	24.6
4	pH	-	6.7
5	Total Suspended Solids	mg/L	46
6	Total Dissolved Solid	mg/L	782
7	Biochemical Oxygen Demand at 27°C	mg/L	4.9
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	24.6
11	Calcium	mg/L	26.4
12	Magnesium	mg/L	38.6
13	Total Hardness as CaCO3	mg/L	32.4
14	Electrical Conductivity	µs/cm	64

15	Turbidity	NTU	34.5
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	1.04
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	16.4
23	Nitrate	mg/L	4.6
24	Sodium as Na	mg/L	2.2
25	Potassium as K	mg/L	0.8
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	4.2
28	Total Silica as SiO_2	mg/L	3.6
29	Total dissolved Solid	mg/L	782

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/01/23		**Report No.- OCPL/EMIL/03/01/23**	
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	09- JANUARY - 2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- JANUARY - 2023
Sample type	Surface Water	Date of Analysis	10- JANUARY - 2023
Required parameters	As described in W/O	Date of Issue of report	18- JANUARY - 2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	25.1
4	pH	-	6.6
5	Total Suspended Solids	mg/L	132
6	Total Dissolved Solid	mg/L	988
7	Biochemical Oxygen Demand at 27°C	mg/L	9.6
8	Chemical Oxygen Demand	mg/L	6.1
9	Total Residual Chlorine	mg/L	4.8
10	Alkalinity	mg/L	81.6
11	Calcium	mg/L	52
12	Magnesium	mg/L	48.4
13	Total Hardness as CaCO3	mg/L	155

14	Electrical Conductivity	µs/cm	169.6
15	Turbidity	NTU	54.6
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.06
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	34.2
23	Nitrate	mg/L	4.8
24	Sodium as Na	mg/L	34.4
25	Potassium as K	mg/L	6.6
26	Sulfate	mg/L	3.8
27	Nitrate as NO_3	mg/L	4.8
28	Total Silica as SiO_2	mg/L	18.4
29	Total dissolved Solid	mg/L	988

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/01/23		**Report No.- OCPL/EMIL/04/01/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- JANUARY - 2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- JANUARY - 2023
Sample type	Surface Water	Date of Analysis	10- JANUARY - 2023
Required parameters	As described in W/O	Date of Issue of report	18- JANUARY - 2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	23.8
4	pH	-	7.1
5	Total Suspended Solids	mg/L	35.4
6	Total Dissolved Solid	mg/L	682
7	Biochemical Oxygen Demand at 27°C	mg/L	3.6
8	Chemical Oxygen Demand	mg/L	1.8
9	Total Residual Chlorine	mg/L	0.12
10	Alkalinity	mg/L	36.2
11	Calcium	mg/L	21.8
12	Magnesium	mg/L	30
13	Total Hardness as CaCO3	mg/L	32.4

14	Electrical Conductivity	µs/cm	86.4
15	Turbidity	NTU	21.4
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	1.02
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	21.6
23	Nitrate	mg/L	14.8
24	Sodium as Na	mg/L	7.4
25	Potassium as K	mg/L	4.6
26	Sulfate	mg/L	6.2
27	Nitrate as NO_3	mg/L	6.6
28	Total Silica as SiO_2	mg/L	8.42
29	Total dissolved Solid	mg/L	682

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/01/23		**Report No.- OCPL/EMIL/05/01/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- JANUARY - 2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- JANUARY - 2023
Sample type	Surface Water	Date of Analysis	10- JANUARY - 2023
Required parameters	As described in W/O	Date of Issue of report	18- JANUARY - 2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	-	7.1
5	Total Suspended Solids	mg/L	44.8
6	Total Dissolved Solid	mg/L	656
7	Biochemical Oxygen Demand at 27°C	mg/L	3.2
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.42
10	Alkalinity	mg/L	34.2
11	Calcium	mg/L	31.8
12	Magnesium	mg/L	34
13	Total Hardness as CaCO3	mg/L	36.2
14	Electrical Conductivity	µs/cm	78.8

15	Turbidity	NTU	26.2
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	ND
20	Zinc as Zn	µg/L	0.06
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	12.8
23	Nitrate	mg/L	1.6
24	Sodium as Na	mg/L	1.04
25	Potassium as K	mg/L	2.86
26	Sulfate	mg/L	1.88
27	Nitrate as NO_3	mg/L	2.6
28	Total Silica as SiO_2	mg/L	2.2
29	Total dissolved Solid	mg/L	656

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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	11- JANUARY - 2023	OCPL/GW/01/01/23
2.	Sample 02	NEDIGUTH	11- JANUARY - 2023	OCPL/GW/02/01/23
3.	Sample 03	TALA SAHI	11- JANUARY - 2023	OCPL/GW/03/01/23
4.	Sample 04	PLANT- 1 (Near Canteen)	11- JANUARY - 2023	OCPL/GW/04/01/23
5.	Sample 05	PLANT- 2 (SLIME POND)	11- JANUARY - 2023	OCPL/GW/05/01/23

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	1.1	1.0	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.6	23.8	24.8	25.4	25.2		
4	pH	-	7.1	6.9	7.1	7.1	6.8	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	40.6	38.5	43	64.2	52.4	300	600
6	Calcium	mg/L	12.4	11.6	14	18.2	16.2	75	200
7	Magnesium	mg/L	1.14	1.62	2.8	4.4	4.2	30	No relaxation
8	Chloride	mg/L	9.6	11	12.4	28.6	21.4	250	1000
9	Alkalinity	mg/L	8.4	9.8	11.6	24.2	18	200	600
10	Electrical Conductivity	µs/cm	68.6	75.4	86	95.4	90.6	--	--
11	Arsenic as As	µg/L	ND	ND	ND	ND	0.01	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	0.01	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	0.02	50	No relaxation
15	Zinc as Zn	µg/L	48.2	36	41.4	68.8	82.6	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	14.8	12	11.4	20.2	34	300	1000
18	Nitrate	mg/L	0.02	0.1	0.02	0.11	0.08	45	100
19	Sodium as Na	mg/L	0.02	0.04	0.2	1.4	1.32	150	No relaxation
20	Potassium as K	mg/L	ND	ND	ND	ND	0.02	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	0.02	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	0.04	0.06	0.2	--	--
23	Total suspended Solid	mg/L	0.2	0.22	1.3	1.24	0.4	--	--
24	Total dissolved Solid	mg/L	32.4	38.5	32	48	42.4	250	2000
25	Turbidity	NTU	0.2	0.42	0.26	0.18	0.12	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	22- JANUARY - 2023	OCPL/GWL/01/01/23
7.	Sample 02	NEDIGUTH	22- JANUARY - 2023	OCPL/GWL/02/01/23
8.	Sample 03	TALA SAHI	22- JANUARY - 2023	OCPL/GWL/03/01/23
9.	Sample 04	PLANT- 1 (Near Canteen)	22- JANUARY - 2023	OCPL/GWL/04/01/23
10.	Sample 05	PLANT- 2 (SLIME POND)	22- JANUARY - 2023	OCPL/GWL/05/01/23

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	7.63	--
3	TALA SAHI	Dugwell	1.0	8.6	8.29	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.66	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.74	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

3/9/2023

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 Filter Cake Storage Yard		√			√		
Near Crushing Plant		√			√		
Near Raw Material Stack Yard		√			√		
Nadiguth Village			√			√	

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	02.02.2023	OCPL/ AAQ/EMIL/01/02/23
2.	Sample 02	Near Crushing Plant	02.02.2023	OCPL/ AAQ/EMIL/02/02/23
3.	Sample 03	Near Raw Material Stack Yard	02.02.2023	OCPL/ AAQ/EMIL/03/02/23
4.	Sample 04	Nedigutha Village	03.02.2023	OCPL/ AAQ/EMIL/04/02/23
5.	Sample 05	Near Filter cake storage yard	05.02.2023	OCPL/ AAQ/EMIL/05/02/23
6.	Sample 06	Near Crushing Plant	05.02.2023	OCPL/ AAQ/EMIL/06/02/23
7.	Sample 07	Near Raw Material Stack Yard	05.02.2023	OCPL/ AAQ/EMIL/07/02/23
8.	Sample 08	Nedigutha Village	06.02.2023	OCPL/ AAQ/EMIL/08/02/23
9.	Sample 09	Near Filter cake storage yard	09.02.2023	OCPL/ AAQ/EMIL/09/02/23
10.	Sample 10	Near Crushing Plant	09.02.2023	OCPL/ AAQ/EMIL/10/02/23
11.	Sample 11	Near Raw Material Stack Yard	09.02.2023	OCPL/ AAQ/EMIL/11/02/23
12.	Sample 12	Nedigutha Village	10.02.2023	OCPL/ AAQ/EMIL/12/02/23
13.	Sample 13	Near Filter cake storage yard	12.02.2023	OCPL/ AAQ/EMIL/13/02/23
14.	Sample 14	Near Crushing Plant	12.02.2023	OCPL/ AAQ/EMIL/14/02/23
15.	Sample 15	Near Raw Material Stack Yard	12.02.2023	OCPL/ AAQ/EMIL/15/02/23
16.	Sample 16	Nedigutha Village	13.02.2023	OCPL/ AAQ/EMIL/16/02/23

17.	Sample 17	Near Filter cake storage yard	16.02.2023	OCPL/ AAQ/EMIL/17/02/23
18.	Sample 18	Near Crushing Plant	16.02.2023	OCPL/ AAQ/EMIL/18/02/23
19.	Sample 19	Near Raw Material Stack Yard	16.02.2023	OCPL/ AAQ/EMIL/19/02/23
20.	Sample 20	Nedigutha Village	17.02.2023	OCPL/ AAQ/EMIL/20/02/23
21.	Sample 21	Near Filter cake storage yard	19.02.2023	OCPL/ AAQ/EMIL/21/02/23
22.	Sample 22	Near Crushing Plant	19.02.2023	OCPL/ AAQ/EMIL/22/02/23
23.	Sample 23	Near Raw Material Stack Yard	19.02.2023	OCPL/ AAQ/EMIL/23/02/23
24.	Sample 24	Nedigutha Village	20.02.2023	OCPL/ AAQ/EMIL/24/02/23
25.	Sample 25	Near Filter cake storage yard	23.02.2023	OCPL/ AAQ/EMIL/25/02/23
26.	Sample 26	Near Crushing Plant	23.02.2023	OCPL/ AAQ/EMIL/26/02/23
27.	Sample 27	Near Raw Material Stack Yard	23.02.2023	OCPL/ AAQ/EMIL/27/02/23
28.	Sample 28	Nedigutha Village	24.02.2023	OCPL/ AAQ/EMIL/28/02/23
29.	Sample 29	Near Filter cake storage yard	26.02.2023	OCPL/ AAQ/EMIL/29/02/23
30.	Sample 30	Near Crushing Plant	26.02.2023	OCPL/ AAQ/EMIL/30/02/23
31.	Sample 31	Near Raw Material Stack Yard	26.02.2023	OCPL/ AAQ/EMIL/31/02/23
32.	Sample 32	Nedigutha Village	27.02.2023	OCPL/ AAQ/EMIL/32/02/23

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit ($\mu g/M^3$)	Date								
		02.02.23	05.02.23	09.02.23	12.02.23	16.02.23	19.02.23	23.02.23	26.02.23	Avg
PM_{10}	100	87.3	84	82.8	84.4	81.8	84.4	88.6	86	84.9
$PM_{2.5}$	60	54.8	56.2	56.2	54.4	54.8	52.4	56.2	56.3	55.2
Sulphur Dioxide (SO_2)	80	32.4	34.2	34	35.6	32.8	32.5	29.6	30.6	32.7
Oxide of Nitrogen (NO_2)	80	25.2	25.8	25	24.8	30.4	31.2	28.6	28.8	27.5
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	168.4	168.3	169.5	166.8	169.9	172.3	175.5	169.6	170.0
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	34.2	35.2	38.6	38.1	36.4	34.8	36.5	36	36.2
Benzene(C6H6)	05	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
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	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 Crushing Plant

Parameters	Limit ($\mu g/M^3$)	DATE								
		02.02.23	05.02.23	09.02.23	12.02.23	16.02.23	19.02.23	23.02.23	26.02.23	Avg
PM_{10}	100	85.6	84.8	86.2	86	88.6	84.9	86.8	85.6	86.1
$PM_{2.5}$	60	54.2	56.6	58.4	56.6	55.5	58.5	54.3	56.2	56.3
Sulphur Dioxide (SO_2)	80	37.9	38.2	37	40.4	42	42.8	44.2	39.3	40.2
Oxide of Nitrogen (NO_2)	80	32.8	35.2	37.6	40.5	38.5	40	41.2	40.8	38.3
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	185.8	185	188.4	184	184.6	182.4	180.3	182.4	184.1
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	34.4	32.3	34.2	34.8	38.2	34.8	36.6	32.3	34.7
Benzene(C_6H_6)	05	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
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel (Ni) (ng/m3)	20	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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE								
		02.02.23	05.02.23	09.02.23	12.02.23	16.02.23	19.02.23	23.02.23	26.02.23	Avg
PM_{10}	100	87.4	88.3	87.5	84.8	89.2	84.5	86.8	85.7	86.8
$PM_{2.5}$	60	55.2	54.3	56.4	59.4	58	58.5	55.2	56.3	56.7
Sulphur Dioxide (SO_2)	80	26.3	26.2	28.4	27.6	28.8	28.4	30.2	31.3	28.4
Oxide of Nitrogen (NO_2)	80	25.6	25	25.2	26.6	28.2	28.8	26.3	26.4	26.5
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	164.5	164	162.8	166.8	168	162.4	164.3	166.4	164.9
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	28.3	28.6	26.8	29.5	34.4	36.6	34.4	36.2	31.9
Benzene(C6H6)	05	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
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	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 ($\mu g/M^3$)	DATE								
		03.02.23	06.02.23	10.02.23	13.02.23	17.02.23	20.02.23	24.02.23	27.02.23	Avg
PM_{10}	100	45.3	44	46.5	45.3	44.4	46.2	46	45.2	45.4
$PM_{2.5}$	60	41	46.2	42.8	40.2	41.5	42.3	42.5	42.3	42.4
Sulphur Dioxide (SO_2)	80	18.2	18.3	19.2	20.1	19.5	20.6	18.3	18.4	19.1
Oxide of Nitrogen (NO_2)	80	17.2	16.3	18.8	16.2	18	18.2	15.4	18.7	17.4
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	145.2	147.3	142	140.8	144.8	145.3	144	142.7	144.0
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12.3	14.2	14.3	12	12.8	14.4	14.3	12.5	13.4
Benzene(C_6H_6)	05	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
Arsenic (As) (ng/m3)	06	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel(Ni) (ng/m3)	20	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)

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area		√		√			
Near Back Gate Area		√		√			
Near Palate 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	02.02.2023	OCPL/ NL/EMIL/02/02/23
2.	Sample 02	Near Back Gate Area	02.02.2023	OCPL/ NL/EMIL/02/02/23
3.	Sample 03	Near Palate Plant Area	02.02.2023	OCPL/ NL/EMIL/03/02/23
4.	Sample 04	Near IOBP Area	02.02.2023	OCPL/ NL/EMIL/04/02/23
5.	Sample 05	Near Main Gate Area	04.02.2023	OCPL/ NL/EMIL/05/02/23
6.	Sample 06	Near Back Gate Area	04.02.2023	OCPL/ NL/EMIL/06/02/23
7.	Sample 07	Near Palate Plant Area	04.02.2023	OCPL/ NL/EMIL/07/02/23
8.	Sample 08	Near IOBP Area	04.02.2023	OCPL/ NL/EMIL/08/02/23
9.	Sample 09	Near Main Gate Area	09.02.2023	OCPL/ NL/EMIL/09/02/23
10.	Sample 10	Near Back Gate Area	09.02.2023	OCPL/ NL/EMIL/10/02/23
11.	Sample 11	Near Palate Plant Area	09.02.2023	OCPL/ NL/EMIL/11/02/23
12.	Sample 12	Near IOBP Area	09.02.2023	OCPL/ NL/EMIL/12/02/23
13.	Sample 13	Near Main Gate Area	11.02.2023	OCPL/ NL/EMIL/13/02/23
14.	Sample 14	Near Back Gate Area	11.02.2023	OCPL/ NL/EMIL/14/02/23
15.	Sample 15	Near Palate Plant Area	11.02.2023	OCPL/ NL/EMIL/15/02/23
16.	Sample 16	Near IOBP Area	11.02.2023	OCPL/ NL/EMIL/16/02/23
17.	Sample 17	Near Main Gate Area	16.02.2023	OCPL/ NL/EMIL/17/02/23
18.	Sample 18	Near Back Gate Area	16.02.2023	OCPL/ NL/EMIL/18/02/23
19.	Sample 19	Near Palate Plant Area	16.02.2023	OCPL/ NL/EMIL/19/02/23
20.	Sample 20	Near IOBP Area	16.02.2023	OCPL/ NL/EMIL/20/02/23
21.	Sample 21	Near Main Gate Area	17.02.2023	OCPL/ NL/EMIL/21/02/23
22.	Sample 22	Near Back Gate Area	17.02.2023	OCPL/ NL/EMIL/22/02/23
23.	Sample 23	Near Palate Plant Area	17.02.2023	OCPL/ NL/EMIL/23/02/23
24.	Sample 24	Near IOBP Area	17.02.2023	OCPL/ NL/EMIL/24/02/23
25.	Sample 25	Near Main Gate Area	23.02.2023	OCPL/ NL/EMIL/25/02/23
26.	Sample 26	Near Back Gate Area	23.02.2023	OCPL/ NL/EMIL/26/02/23
27.	Sample 27	Near Palate Plant Area	23.02.2023	OCPL/ NL/EMIL/27/02/23
28.	Sample 28	Near IOBP Area	23.02.2023	OCPL/ NL/EMIL/28/02/23
29.	Sample 29	Near Main Gate Area	25.02.2023	OCPL/ NL/EMIL/29/02/23
30.	Sample 30	Near Back Gate Area	25.02.2023	OCPL/ NL/EMIL/30/02/23
31.	Sample 31	Near Palate Plant Area	25.02.2023	OCPL/ NL/EMIL/31/02/23
32.	Sample 32	Near IOBP Area	25.02.2023	OCPL/ NL/EMIL/32/02/23

Date of Monitoring: 02.02.2023

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	58.6	62.5	61.2	56	26.2
2	Near Back Gate Area	51.6	60.3	61.8	52.3	25
3	Near Palate Plant Area	45	65.5	58.4	42.3	35.3
4	Near IOBP Area	45.2	56.3	55.8	49.6	25.8
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: 04.02.2023

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	58.3	65.2	58.5	47.6	34.4
2	Near Back Gate Area	47.2	67.3	54.8	44.3	32.7
3	Near Palate Plant Area	55.4	61.5	57.3	45.6	32.4
4	Near IOBP Area	46.3	36.8	32.5	35.7	35.2
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: 09.02.2023

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	54.7	65.6	62.3	47.2	29.8
2	Near Back Gate Area	44.6	55.6	57.4	47.9	30.2
3	Near Palate Plant Area	49.6	56.4	52.3	44.5	30.3
4	Near IOBP Area	47.9	32.8	44.3	39.8	29.4
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: 11.02.2023

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	62.4	68.5	60.6	54.3	38.5
2	Near Back Gate Area	52.3	59.6	50.7	49.7	33.9
3	Near Palate Plant Area	58.6	55.2	48.2	37.6	39.3
4	Near IOBP Area	57.3	50.4	52	55.8	36.8
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: 16.02.2023

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	52.3	59.6	50.7	49.7	33.9
2	Near Back Gate Area	48.3	39.6	46.2	40.6	22.3
3	Near Palate Plant Area	46.2	44.5	55	37.9	32.7
4	Near IOBP Area	40.2	50	49	38.6	38
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: 18.02.2023

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	62.4	68.7	60.6	54.3	38.5
2	Near Back Gate Area	52.3	59.6	50.7	49.2	33.9
3	Near Palate Plant Area	42.6	62	56	37.9	38.4
4	Near IOBP Area	50.3	60.4	58.7	40.6	32.6
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: 23.02.2023

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	60.3	58.8	60	50.2	41
2	Near Back Gate Area	48.8	50.6	40.8	38	36.2
3	Near Palate Plant Area	55.3	56.8	62.6	42.3	36.2
4	Near IOBP Area	57.6	52.2	48	44.8	38.4
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: 25.02.2023

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	42.2	56	61.3	58.4	33
2	Near Back Gate Area	62.4	68.5	60.6	54.3	38.5
3	Near Palate Plant Area	52.3	59.6	50.7	49.7	33.9
4	Near IOBP Area	52.4	58	44.6	45	29
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

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	BAITARANI RIVER (DHANURJAYPUR)	09- 02 -2023	OCPL/SW/01/02/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	09- 02 -2023	OCPL/SW/02/02/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	09- 02 -2023	OCPL/SW/03/02/23
4.	Sample 04	DALKI NALA NEAR PLANT	09- 02 -2023	OCPL/SW/04/02/23
5.	Sample 05	NADIGUTH	09- 02 -2023	OCPL/SW/05/02/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/02/23		**Report No.- OCPL/EMIL/01/02/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- 02 -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- 02 -2023
Sample type	Surface Water	Date of Analysis	10- 02 -2023
Required parameters	As described in W/O	Date of Issue of report	18- 02 -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24.9
4	pH	-	6.9
5	Total Suspended Solids	mg/L	72.1
6	Total Dissolved Solid	mg/L	769
7	Biochemical Oxygen Demand at 27°C	mg/L	6.4
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.62
10	Alkalinity	mg/L	86.2
11	Calcium	mg/L	42.3
12	Magnesium	mg/L	21.4
13	Total Hardness as CaCO3	mg/L	38.1
14	Electrical Conductivity	µs/cm	118.3
15	Turbidity	NTU	12
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	0.28
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	14.4
23	Nitrate	mg/L	1.26
24	Sodium as Na	mg/L	2.46
25	Potassium as K	mg/L	1.8
26	Sulfate	mg/L	1.24
27	Nitrate as NO_3	mg/L	2.3
28	Total Silica as SiO_2	mg/L	4.2
29	Total dissolved Solid	mg/L	756

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/02/23		**Report No.- OCPL/EMIL/02/02/23**	
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	09- 02 -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- 02 -2023
Sample type	Surface Water	Date of Analysis	10- 02 -2023
Required parameters	As described in W/O	Date of Issue of report	18- 02 -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	24
4	pH	-	6.7
5	Total Suspended Solids	mg/L	46.3
6	Total Dissolved Solid	mg/L	798
7	Biochemical Oxygen Demand at 27°C	mg/L	4.9
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.6
10	Alkalinity	mg/L	24
11	Calcium	mg/L	26.4
12	Magnesium	mg/L	38
13	Total Hardness as CaCO3	mg/L	32.4
14	Electrical Conductivity	µs/cm	64.3
15	Turbidity	NTU	34.5

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	1.04
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	16.4
23	Nitrate	mg/L	4.6
24	Sodium as Na	mg/L	2.2
25	Potassium as K	mg/L	0.8
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	4.2
28	Total Silica as SiO_2	mg/L	3.6
29	Total dissolved Solid	mg/L	789

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/02/23		**Report No.- OCPL/EMIL/03/02/23**	
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	09- 02 -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- 02 -2023
Sample type	Surface Water	Date of Analysis	10- 02 -2023
Required parameters	As described in W/O	Date of Issue of report	18- 02 -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	-	6.64
5	Total Suspended Solids	mg/L	132
6	Total Dissolved Solid	mg/L	898
7	Biochemical Oxygen Demand at 27°C	mg/L	9.6
8	Chemical Oxygen Demand	mg/L	6
9	Total Residual Chlorine	mg/L	4.8
10	Alkalinity	mg/L	81.6
11	Calcium	mg/L	52
12	Magnesium	mg/L	48
13	Total Hardness as CaCO3	mg/L	155.3
14	Electrical Conductivity	µs/cm	169.6

15	Turbidity	NTU	54.6
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.06
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	34.2
23	Nitrate	mg/L	4.8
24	Sodium as Na	mg/L	36
25	Potassium as K	mg/L	6.6
26	Sulfate	mg/L	3.8
27	Nitrate as NO_3	mg/L	4.82
28	Total Silica as SiO_2	mg/L	18
29	Total dissolved Solid	mg/L	869

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/02/23		**Report No.- OCPL/EMIL/04/02/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**DALKI NALA, NEAR PLANT**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- 02 -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- 02 -2023
Sample type	Surface Water	Date of Analysis	10- 02 -2023
Required parameters	As described in W/O	Date of Issue of report	18- 02 -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	23.8
4	pH	-	7
5	Total Suspended Solids	mg/L	35.4
6	Total Dissolved Solid	mg/L	785
7	Biochemical Oxygen Demand at 27°C	mg/L	3.6
8	Chemical Oxygen Demand	mg/L	1.8
9	Total Residual Chlorine	mg/L	0.12
10	Alkalinity	mg/L	36
11	Calcium	mg/L	21.8
12	Magnesium	mg/L	30.3
13	Total Hardness as CaCO3	mg/L	32.4
14	Electrical Conductivity	µs/cm	86.4
15	Turbidity	NTU	21.4

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	1.02
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	21.6
23	Nitrate	mg/L	14.8
24	Sodium as Na	mg/L	7.4
25	Potassium as K	mg/L	4.6
26	Sulfate	mg/L	6.2
27	Nitrate as NO_3	mg/L	6.1
28	Total Silica as SiO_2	mg/L	8.4
29	Total dissolved Solid	mg/L	859

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/02/23		**Report No.- OCPL/EMIL/05/02/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	09- 02 -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	10- 02 -2023
Sample type	Surface Water	Date of Analysis	10- 02 -2023
Required parameters	As described in W/O	Date of Issue of report	18- 02 -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	25.3
4	pH	-	7.2
5	Total Suspended Solids	mg/L	44.8
6	Total Dissolved Solid	mg/L	721
7	Biochemical Oxygen Demand at 27°C	mg/L	3.2
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.42
10	Alkalinity	mg/L	34.2
11	Calcium	mg/L	31.8
12	Magnesium	mg/L	34
13	Total Hardness as CaCO3	mg/L	36.2
14	Electrical Conductivity	µs/cm	78
15	Turbidity	NTU	26.2

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	ND
20	Zinc as Zn	µg/L	0.06
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	12.8
23	Nitrate	mg/L	1
24	Sodium as Na	mg/L	1.04
25	Potassium as K	mg/L	2.86
26	Sulfate	mg/L	1.86
27	Nitrate as NO_3	mg/L	2.6
28	Total Silica as SiO_2	mg/L	2.6
29	Total dissolved Solid	mg/L	754

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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	11- 02 -2023	OCPL/GW/01/02/23
2.	Sample 02	NEDIGUTH	11- 02 -2023	OCPL/GW/02/02/23
3.	Sample 03	TALA SAHI	11- 02 -2023	OCPL/GW/03/02/23
4.	Sample 04	PLANT- 1 (Near Canteen)	11- 02 -2023	OCPL/GW/04/02/23
5.	Sample 05	PLANT- 2 (SLIME POND)	11- 02 -2023	OCPL/GW/05/02/23

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	1.1	1.0	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.62	23.8	24.8	25.4	25.2		
4	pH	-	7.1	6.93	7.1	7.1	6.7	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	40.6	38.5	43	64.2	52.4	300	600
6	Calcium	mg/L	12.4	11.6	14.3	18.2	16.2	75	200
7	Magnesium	mg/L	1.14	1.62	2.8	4.4	4.2	30	No relaxation
8	Chloride	mg/L	9.6	11	12.4	28.6	21.4	250	1000
9	Alkalinity	mg/L	8.4	9.8	11.6	24.2	18	200	600
10	Electrical Conductivity	µs/cm	68.6	75.45	86	95.4	90.61	--	--
11	Arsenic as As	µg/L	ND	ND	ND	ND	0.01	10	No relaxation
12	Lead as Pb	µg/L	ND	ND	ND	ND	0.01	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	0.02	50	No relaxation

15	Zinc as Zn	µg/L	48.2	36	41.4	68.8	82.6	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	14.8	12.3	11.4	20.2	34	300	1000
18	Nitrate	mg/L	0.02	0.1	0.02	0.11	0.08	45	100
19	Sodium as Na	mg/L	0.02	0.03	0.2	1.4	1.32	150	No relaxation
20	Potassium as K	mg/L	ND	ND	ND	ND	0.02	12	No relaxation
21	Sulfate	mg/L	ND	ND	ND	ND	0.02	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	0.04	0.06	0.2	--	--
23	Total suspended Solid	mg/L	0.2	0.22	1.3	1.24	0.4	--	--
24	Total dissolved Solid	mg/L	32.4	38.5	32	48	42.4	250	2000
25	Turbidity	NTU	0.2	0.4	0.36	0.18	0.1	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

REPORT ON GROUND WATER LEVEL ANALYSIS

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	22- 02 -2023	OCPL/GWL/01/02/23
7.	Sample 02	NEDIGUTH	22- 02 -2023	OCPL/GWL/02/02/23
8.	Sample 03	TALA SAHI	22- 02 -2023	OCPL/GWL/03/02/23
9.	Sample 04	PLANT- 1 (Near Canteen)	22- 02 -2023	OCPL/GWL/04/02/23
10.	Sample 05	PLANT- 2 (SLIME POND)	22- 02 -2023	OCPL/GWL/05/02/23

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	0.85	8.1	7.29	--
2	NEDIGUTH	Dugwell	1.22	9.2	7.55	--
3	TALA SAHI	Dugwell	1.1	8.6	8.2	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	63	13.66	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60.1	46.5	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

3/31/2023

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 Filter Cake Storage Yard		√				√	
Near Crushing Plant		√				√	
Near Raw Material Stack Yard		√				√	
Nadiguth Village			√		√		

SUMMARY SHEET OF SAMPLING

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
1.	Sample 01	Near Filter cake storage yard	03.03.2023	OCPL/ AAQ/EMIL/01/03/23
2.	Sample 02	Near Crushing Plant	03.03.2023	OCPL/ AAQ/EMIL/02/03/23
3.	Sample 03	Near Raw Material Stack Yard	03.03.2023	OCPL/ AAQ/EMIL/03/03/23
4.	Sample 04	Nedigutha Village	02.03.2023	OCPL/ AAQ/EMIL/04/03/23
5.	Sample 05	Near Filter cake storage yard	06.03.2023	OCPL/ AAQ/EMIL/05/03/23
6.	Sample 06	Near Crushing Plant	06.03.2023	OCPL/ AAQ/EMIL/06/03/23
7.	Sample 07	Near Raw Material Stack Yard	06.03.2023	OCPL/ AAQ/EMIL/07/03/23
8.	Sample 08	Nedigutha Village	07.03.2023	OCPL/ AAQ/EMIL/08/03/23
9.	Sample 09	Near Filter cake storage yard	08.03.2023	OCPL/ AAQ/EMIL/09/03/23
10.	Sample 10	Near Crushing Plant	08.03.2023	OCPL/ AAQ/EMIL/10/03/23
11.	Sample 11	Near Raw Material Stack Yard	08.03.2023	OCPL/ AAQ/EMIL/11/03/23
12.	Sample 12	Nedigutha Village	09.03.2023	OCPL/ AAQ/EMIL/12/03/23
13.	Sample 13	Near Filter cake storage yard	10.03.2023	OCPL/ AAQ/EMIL/13/03/23
14.	Sample 14	Near Crushing Plant	10.03.2023	OCPL/ AAQ/EMIL/14/03/23
15.	Sample 15	Near Raw Material Stack Yard	10.03.2023	OCPL/ AAQ/EMIL/15/03/23
16.	Sample 16	Nedigutha Village	14.03.2023	OCPL/ AAQ/EMIL/16/03/23
17.	Sample 17	Near Filter cake storage	13.03.2023	OCPL/

		yard		AAQ/EMIL/17/03/23
18.	Sample 18	Near Crushing Plant	13.03.2023	OCPL/ AAQ/EMIL/18/03/23
19.	Sample 19	Near Raw Material Stack Yard	13.03.2023	OCPL/ AAQ/EMIL/19/03/23
20.	Sample 20	Nedigutha Village	16.03.2023	OCPL/ AAQ/EMIL/20/03/23
21.	Sample 21	Near Filter cake storage yard	15.03.2023	OCPL/ AAQ/EMIL/21/03/23
22.	Sample 22	Near Crushing Plant	15.03.2023	OCPL/ AAQ/EMIL/22/03/23
23.	Sample 23	Near Raw Material Stack Yard	15.03.2023	OCPL/ AAQ/EMIL/23/03/23
24.	Sample 24	Nedigutha Village	21.03.2023	OCPL/ AAQ/EMIL/24/03/23
25.	Sample 25	Near Filter cake storage yard	17.03.2023	OCPL/ AAQ/EMIL/25/03/23
26.	Sample 26	Near Crushing Plant	17.03.2023	OCPL/ AAQ/EMIL/26/03/23
27.	Sample 27	Near Raw Material Stack Yard	17.03.2023	OCPL/ AAQ/EMIL/27/03/23
28.	Sample 28	Nedigutha Village	23.03.2023	OCPL/ AAQ/EMIL/28/03/23
29.	Sample 29	Near Filter cake storage yard	20.03.2023	OCPL/ AAQ/EMIL/29/03/23
30.	Sample 30	Near Crushing Plant	20.03.2023	OCPL/ AAQ/EMIL/30/03/23
31.	Sample 31	Near Raw Material Stack Yard	20.03.2023	OCPL/ AAQ/EMIL/31/03/23
32.	Sample 32	Nedigutha Village	28.03.2023	OCPL/ AAQ/EMIL/32/03/23
33.	Sample 33	Near Filter cake storage yard	22.03.2023	OCPL/ AAQ/EMIL/33/03/23
34.	Sample 34	Near Crushing Plant	22.03.2023	OCPL/ AAQ/EMIL/34/03/23
35.	Sample 35	Near Raw Material Stack Yard	22.03.2023	OCPL/ AAQ/EMIL/35/03/23
36.	Sample 36	Nedigutha Village	30.03.2023	OCPL/ AAQ/EMIL/36/03/23

LOCATION: Near Filter Cake Storage Yard

Parameters	Limit (µg/M^3)	Date									
		03.03.23	06.03.23	08.03.23	10.03.23	13.03.23	15.03.23	17.03.23	20.03.23	22.03.23	Avg
PM_{10}	100	88.8	86	84.9	88	86.2	90.6	88.2	88.6	92.6	88.21
$PM_{2.5}$	60	57.4	58.8	59.2	59	58.6	52.4	58	54.8	56.4	52.17
Sulphur Dioxide (SO_2)	80	36.2	34.8	35	38.4	38	36.8	38.4	34.6	38.6	36.75
Oxide of Nitrogen (NO_2)	80	27.4	28	28.8	36.6	31.5	32.4	30.6	32	34.2	31.27
Lead (Pb)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO) (8 Hrs)	2000	172.4	172	174.8	170.6	171	176.8	177.4	175.8	174.6	173.93
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia (NH_3)	400	35.8	36.4	38	38.2	36.8	36.4	37.2	35.9	38	36.96
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 Crushing Plant

Parameters	Limit (µg/ M^3)	DATE									
		03.03.23	06.03.23	08.03.23	10.03.23	13.03.23	15.03.23	17.03.23	20.03.23	22.03.23	Avg
PM_{10}	100	86.2	84	84.4	86.8	88.6	84.5	86.8	84.8	88.2	86.03
$PM_{2.5}$	60	55.8	56	59.2	58	56.8	58.5	56.4	56.2	54.9	56.97
Sulphur Dioxide (SO_2)	80	41.6	40.2	38.9	42	40.8	42.8	44	41.9	46.2	42.04
Oxide of Nitrogen (NO_2)	80	38.2	36.4	38.8	42.8	40	41.9	42.6	41.8	44.2	40.74
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	184.8	188	188.4	186.6	185.4	182.4	182.4	186.6	188.2	185.8
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	34.2	36.6	35.4	36.9	36.2	35.8	35.6	34.5	36	35.68
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 Raw Material Stack Yard

Parameters	Limit ($\mu g/M^3$)	DATE									
		03.03.23	06.03.23	08.03.23	10.03.23	13.03.23	15.03.23	17.03.23	20.03.23	22.03.23	Avg
PM_{10}	100	88.2	86.8	88.6	88.9	90.2	84.6	92.8	92.6	94.2	89.65
$PM_{2.5}$	60	60	52.8	58	54.2	54.8	55.2	55.4	58	56.4	54.33
Sulphur Dioxide (SO_2)	80	24.8	28	26.2	28.6	28.8	30.2	27.9	32	32.4	28.76
Oxide of Nitrogen (NO_2)	80	25.8	26	28.4	27.5	28.2	30.4	28	27.8	29	27.9
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	164.6	168	162.4	170.5	172	174.8	169.6	166.4	168	168.4
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	32.8	34	36.2	34.8	34	35.6	36.9	34	38.8	35.23
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									
		02.03.23	07.03.23	09.03.23	14.03.23	16.03.23	21.03.23	23.03.23	28.03.23	30.03.23	Avg
PM_{10}	100	42.2	44.5	45.2	46.4	46.6	45.5	44.2	44	45.8	44.93
$PM_{2.5}$	60	42.4	44	43.2	44.6	42.5	42.4	42.5	42.8	42	42.93
Sulphur Dioxide (SO_2)	80	18.4	15.9	20.4	20.4	21.6	18.5	18	17.2	16.5	18.54
Oxide of Nitrogen (NO_2)	80	17	17.9	18.2	18	17.6	17.5	16.8	17.9	18.8	17.74
Lead (Pb)	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Monoxide (CO)(8 Hrs)	2000	145.6	146.8	144.4	142.8	144.8	146	140.4	142.6	141.2	143.84
Ozone(O3)	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ammonia(NH_3)	400	12.8	12.6	14	14.4	14.8	16	12.2	11.6	12	13.37
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 MARCH

LOCATION AND WEEKLY MONITORING SCHEDULE

Location	SUN	MON	TUE	WED	THU	FRI	SAT
Near Main Gate Area				√			√
Near Back Gate Area				√			√
Near Palate 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	04.03.2023	OCPL/ NL/EMIL/01/03/23
2.	Sample 02	Near Back Gate Area	04.03.2023	OCPL/ NL/EMIL/02/03/23
3.	Sample 03	Near Palate Plant Area	04.03.2023	OCPL/ NL/EMIL/03/03/23
4.	Sample 04	Near IOBP Area	04.03.2023	OCPL/ NL/EMIL/04/03/23
5.	Sample 05	Near Main Gate Area	08.03.2023	OCPL/ NL/EMIL/05/03/23
6.	Sample 06	Near Back Gate Area	08.03.2023	OCPL/ NL/EMIL/06/03/23
7.	Sample 07	Near Palate Plant Area	08.03.2023	OCPL/ NL/EMIL/07/03/23
8.	Sample 08	Near IOBP Area	08.03.2023	OCPL/ NL/EMIL/08/03/23
9.	Sample 09	Near Main Gate Area	11.03.2023	OCPL/ NL/EMIL/09/03/23
10.	Sample 10	Near Back Gate Area	11.03.2023	OCPL/ NL/EMIL/10/03/23
11.	Sample 11	Near Palate Plant Area	11.03.2023	OCPL/ NL/EMIL/11/03/23
12.	Sample 12	Near IOBP Area	11.03.2023	OCPL/ NL/EMIL/12/03/23
13.	Sample 13	Near Main Gate Area	15.03.2023	OCPL/ NL/EMIL/13/03/23
14.	Sample 14	Near Back Gate Area	15.03.2023	OCPL/ NL/EMIL/14/03/23
15.	Sample 15	Near Palate Plant Area	15.03.2023	OCPL/ NL/EMIL/15/03/23
16.	Sample 16	Near IOBP Area	15.03.2023	OCPL/ NL/EMIL/16/03/23
17.	Sample 17	Near Main Gate Area	18.03.2023	OCPL/ NL/EMIL/17/03/23
18.	Sample 18	Near Back Gate Area	18.03.2023	OCPL/ NL/EMIL/18/03/23
19.	Sample 19	Near Palate Plant Area	18.03.2023	OCPL/ NL/EMIL/19/03/23
20.	Sample 20	Near IOBP Area	18.03.2023	OCPL/ NL/EMIL/20/03/23
21.	Sample 21	Near Main Gate Area	22.03.2023	OCPL/ NL/EMIL/21/03/23
22.	Sample 22	Near Back Gate Area	22.03.2023	OCPL/ NL/EMIL/22/03/23
23.	Sample 23	Near Palate Plant Area	22.03.2023	OCPL/ NL/EMIL/23/03/23
24.	Sample 24	Near IOBP Area	22.03.2023	OCPL/ NL/EMIL/24/03/23
25.	Sample 25	Near Main Gate Area	25.03.2023	OCPL/ NL/EMIL/25/03/23
26.	Sample 26	Near Back Gate Area	25.03.2023	OCPL/ NL/EMIL/26/03/23
27.	Sample 27	Near Palate Plant Area	25.03.2023	OCPL/ NL/EMIL/27/03/23
28.	Sample 28	Near IOBP Area	25.03.2023	OCPL/ NL/EMIL/28/03/23

29.	Sample 29	Near Main Gate Area	29.03.2023	OCPL/ NL/EMIL/29/03/23
30.	Sample 30	Near Back Gate Area	29.03.2023	OCPL/ NL/EMIL/30/03/23
31.	Sample 31	Near Palate Plant Area	29.03.2023	OCPL/ NL/EMIL/31/03/23
32.	Sample 32	Near IOBP Area	29.03.2023	OCPL/ NL/EMIL/32/03/23
33.	Sample 33	Near Main Gate Area	31.03.2023	OCPL/ NL/EMIL/33/03/23
34.	Sample 34	Near Back Gate Area	31.03.2023	OCPL/ NL/EMIL/34/03/23
35.	Sample 35	Near Palate Plant Area	31.03.2023	OCPL/ NL/EMIL/35/03/23
36.	Sample 36	Near IOBP Area	31.03.2023	OCPL/ NL/EMIL/36/03/23

Date of Monitoring: 04.03.2023

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	57.6	60.5	62.8	56.2	25
2	Near Back Gate Area	50.8	62	60.8	52.2	23.4
3	Near Palate Plant Area	44.4	61.5	58.4	42	34
4	Near IOBP Area	32	56.7	34.8	48.6	24
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: 08.03.2023

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	58.6	65	52.4	38	32.5
2	Near Back Gate Area	46.8	66	54.8	44.9	32.5
3	Near Palate Plant Area	56.2	62.4	57.8	42.6	28.6
4	Near IOBP Area	45.8	36.8	35	36	30.5
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: 11.03.2023

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	55.4	62.8	64.6	45	27
2	Near Back Gate Area	44.8	54.6	56.4	48.9	20.5
3	Near Palate Plant Area	48.7	53.4	52.3	46.2	27.5
4	Near IOBP Area	45.6	32.8	44.8	39.8	21.4
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: 15.03.2023

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	55.9	66	64.8	44.6	32
2	Near Back Gate Area	56.4	54.6	54.5	48.7	27.3
3	Near Palate Plant Area	50.6	52.5	51.2	37.8	32
4	Near IOBP Area	51.8	52	52	55.9	28.6
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: 18.03.2023

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	64	68.2	50.6	34
2	Near Back Gate Area	46.4	39.2	48	40.8	20.6
3	Near Palate Plant Area	40.6	40.7	55.6	37.6	36.4
4	Near IOBP Area	38.3	48.7	46.8	38	35
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: 22.03.2023

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	42.3	62.8	58.8	38.5	27.7
2	Near Back Gate Area	44.9	48.7	51.8	38.5	30.5
3	Near Palate Plant Area	46.6	62.4	56.2	37.9	40.4
4	Near IOBP Area	48.8	64.8	58.7	42.6	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: 25.03.2023

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	61.4	60.8	62	54.2	38
2	Near Back Gate Area	46.2	52	42	38	38
3	Near Palate Plant Area	50.6	58.8	62.6	42	34.5
4	Near IOBP Area	55	52.6	41.4	44.9	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: 29.03.2023

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	62.4	58.6	61.2	36
2	Near Back Gate Area	38	50.4	48.5	44.2	28
3	Near Palate Plant Area	52.6	54	46.2	50.6	34.4
4	Near IOBP Area	57.5	56.2	42.5	45.2	29.6
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: 31.03.2023

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	63.5	66	52.9	48.2	30.7
2	Near Back Gate Area	41.8	45.2	38.2	35	31.5
3	Near Palate Plant Area	64.6	65.8	68.8	62.2	24.8
4	Near IOBP Area	52.4	58.9	38.9	46.5	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

SURFACE WATER ANALYSIS FOR THE MONTH OF MARCH – 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- MARCH - 2023	OCPL/SW/01/03/23
2.	Sample 02	BAITARANI RIVER (NEAR PLANT AREA)	05- MARCH - 2023	OCPL/SW/02/03/23
3.	Sample 03	RESERVOUR POND INSIDE PLANT	05- MARCH - 2023	OCPL/SW/03/03/23
4.	Sample 04	DALKI NALA NEAR PLANT	05- MARCH - 2023	OCPL/SW/04/03/23
5.	Sample 05	NADIGUTH	05- MARCH - 2023	OCPL/SW/05/03/23

Location: BAITARANI RIVER (DHANURJAYPUR)

Lab Sample Code: OCPL/SW/01/03/23		**Report No.- OCPL/EMIL/01/03/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**BAITARANI RIVER (DHANURJAYPUR)**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- MARCH -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- MARCH -2023
Sample type	Surface Water	Date of Analysis	06- MARCH -2023
Required parameters	As described in W/O	Date of Issue of report	14- MARCH -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	Sample condition at receipt	Ok

ANALYSIS RESULT

Sl. No.	**TEST PARAMETER**	**UOM**	**Results**
1	Colour	Pt-Co	<1
2	Odour	-	Agreeable
3	Temperature	°C	24.9
4	pH	-	6.9
5	Total Suspended Solids	mg/L	70.6
6	Total Dissolved Solid	mg/L	741
7	Biochemical Oxygen Demand at 27°C	mg/L	6.2
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.52
10	Alkalinity	mg/L	84.6
11	Calcium	mg/L	44
12	Magnesium	mg/L	36.2
13	Total Hardness as CaCO3	mg/L	46.6
14	Electrical Conductivity	µs/cm	136
15	Turbidity	NTU	12.2
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	0.24
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	11.5
23	Nitrate	mg/L	1.04
24	Sodium as Na	mg/L	1.8
25	Potassium as K	mg/L	1.62
26	Sulfate	mg/L	1.06
27	Nitrate as NO_3	mg/L	2.5
28	Total Silica as SiO_2	mg/L	4.6
29	Total dissolved Solid	mg/L	741

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: BAITARANI RIVER (NEAR PLANT AREA)

Lab Sample Code: OCPL/SW/02/03/23		**Report No.- OCPL/EMIL/02/03/23**	
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- MARCH -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- MARCH -2023
Sample type	Surface Water	Date of Analysis	06- MARCH -2023
Required parameters	As described in W/O	Date of Issue of report	14- MARCH -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	-	6.8
5	Total Suspended Solids	mg/L	43.2
6	Total Dissolved Solid	mg/L	764
7	Biochemical Oxygen Demand at 27°C	mg/L	4.2
8	Chemical Oxygen Demand	mg/L	1.4
9	Total Residual Chlorine	mg/L	0.28
10	Alkalinity	mg/L	21.6
11	Calcium	mg/L	20.2
12	Magnesium	mg/L	34.6
13	Total Hardness as CaCO3	mg/L	32.8
14	Electrical Conductivity	µs/cm	58.6
15	Turbidity	NTU	36.6

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	1.2
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	15.2
23	Nitrate	mg/L	4.8
24	Sodium as Na	mg/L	2.06
25	Potassium as K	mg/L	0.4
26	Sulfate	mg/L	<0.01
27	Nitrate as NO_3	mg/L	4.1
28	Total Silica as SiO_2	mg/L	2.8
29	Total dissolved Solid	mg/L	764

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: RESERVOUR POND INSIDE PLANT PREMISES

Lab Sample Code: OCPL/SW/03/03/23		**Report No.- OCPL/EMIL/03/03/23**	
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- MARCH -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- MARCH -2023
Sample type	Surface Water	Date of Analysis	06- MARCH -2023
Required parameters	As described in W/O	Date of Issue of report	14- MARCH -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	25.6
4	pH	-	6.6
5	Total Suspended Solids	mg/L	136
6	Total Dissolved Solid	mg/L	932
7	Biochemical Oxygen Demand at 27°C	mg/L	9.6
8	Chemical Oxygen Demand	mg/L	6.4
9	Total Residual Chlorine	mg/L	4.2
10	Alkalinity	mg/L	84.5
11	Calcium	mg/L	56.8
12	Magnesium	mg/L	52.2
13	Total Hardness as CaCO3	mg/L	162.6
14	Electrical Conductivity	µs/cm	208.5

15	Turbidity	NTU	56.6
16	Arsenic as As	µg/L	ND
17	Lead as Pb	µg/L	ND
18	Cadmium as Cd	µg/L	0.08
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	4.2
24	Sodium as Na	mg/L	32.4
25	Potassium as K	mg/L	6.2
26	Sulfate	mg/L	3.4
27	Nitrate as NO_3	mg/L	4.08
28	Total Silica as SiO_2	mg/L	16.2
29	Total dissolved Solid	mg/L	932

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: DALKI NALA, NEAR PLANT

Lab Sample Code: OCPL/SW/04/03/23		**Report No.- OCPL/EMIL/04/03/23**	
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- MARCH -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- MARCH -2023
Sample type	Surface Water	Date of Analysis	06- MARCH -2023
Required parameters	As described in W/O	Date of Issue of report	14- MARCH -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	24.6
4	pH	-	6.9
5	Total Suspended Solids	mg/L	32.6
6	Total Dissolved Solid	mg/L	638
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	0.1
10	Alkalinity	mg/L	32.5
11	Calcium	mg/L	20.8
12	Magnesium	mg/L	24.6
13	Total Hardness as CaCO3	mg/L	26.4
14	Electrical Conductivity	µs/cm	108.6
15	Turbidity	NTU	24.8

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	1.02
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	18.6
23	Nitrate	mg/L	16.2
24	Sodium as Na	mg/L	6.4
25	Potassium as K	mg/L	4.2
26	Sulfate	mg/L	6.8
27	Nitrate as NO_3	mg/L	4.4
28	Total Silica as SiO_2	mg/L	6.88
29	Total dissolved Solid	mg/L	638

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

Location: NADIGUTH

Lab Sample Code: OCPL/SW/05/03/23		**Report No.- OCPL/EMIL/05/03/23**	
Sample description:		Test method	APHA 22nd edition
Sample location	**NADIGUTH**	Sample collected by	OCPL representative
Location	Keonjhar, Odisha	Date of Sampling	05- MARCH -2023
Sample quantity	1no.s X 1 Lit.	Date of sample received	06- MARCH -2023
Sample type	Surface Water	Date of Analysis	06- MARCH -2023
Required parameters	As described in W/O	Date of Issue of report	14- MARCH -2023
EMIL reference	WO No.- 5010/ADMIN/5500000126	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	25.6
4	pH	-	7.1
5	Total Suspended Solids	mg/L	42
6	Total Dissolved Solid	mg/L	622
7	Biochemical Oxygen Demand at 27°C	mg/L	3.1
8	Chemical Oxygen Demand	mg/L	1.1
9	Total Residual Chlorine	mg/L	0.4
10	Alkalinity	mg/L	32.4
11	Calcium	mg/L	28.2
12	Magnesium	mg/L	30.5
13	Total Hardness as CaCO3	mg/L	32.8
14	Electrical Conductivity	µs/cm	60.2
15	Turbidity	NTU	21.2
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	ND
20	Zinc as Zn	µg/L	0.02
21	Fluoride as F	mg/L	ND
22	Iron as Fe	mg/L	11.5
23	Nitrate	mg/L	1.4
24	Sodium as Na	mg/L	1.6
25	Potassium as K	mg/L	2.42
26	Sulfate	mg/L	1.6
27	Nitrate as NO_3	mg/L	2.1
28	Total Silica as SiO_2	mg/L	2.08
29	Total dissolved Solid	mg/L	622

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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- MARCH - 2023	OCPL/GW/01/03/23
2.	Sample 02	NEDIGUTH	12- MARCH - 2023	OCPL/GW/02/03/23
3.	Sample 03	TALA SAHI	12- MARCH - 2023	OCPL/GW/03/03/23
4.	Sample 04	PLANT- 1 (Near Canteen)	12- MARCH - 2023	OCPL/GW/04/03/23
5.	Sample 05	PLANT- 2 (SLIME POND)	12- MARCH - 2023	OCPL/GW/05/03/23

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	0.9	1.0	1.0	1.2		
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable		
3	Temperature	°C	24.8	24.2	24.6	25.8	25.8		
4	pH	-	7.1	6.9	7.1	6.9	6.8	6.5- 8.5	No relaxation
5	Total Hardness (as $CaCO_3$)	mg/L	40.2	39.6	38.3	58.9	56.4	300	600
6	Calcium	mg/L	14.8	15.4	14.2	16	16.8	75	200
7	Magnesium	mg/L	1.6	1.42	2.1	4.6	4.8	30	No relaxation
8	Chloride	mg/L	11.6	11.8	14.2	18.6	22.5	250	1000
9	Alkalinity	mg/L	7.2	8.46	10.4	18.6	21.2	200	600
10	Electrical Conductivity	µs/cm	58.6	76.2	88.6	86	91.5	--	--
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	0.01	50	No relaxation
15	Zinc as Zn	µg/L	52.4	32.8	48	56.6	61.2	5000	No relaxation
16	Fluoride as F	mg/L	ND	ND	ND	ND	ND	1.0	1.9
17	Iron as Fe	µg/L	11.5	8.2	14	21.6	26.8	300	1000
18	Nitrate	mg/L	0.02	0.1	0.02	0.11	0.08	45	100
19	Sodium as Na	mg/L	0.02	0.02	0.2	1.08	1.32	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	0.02	200	400
22	Total Silica as SiO_2	mg/L	ND	ND	0.02	ND	0.02	--	--
23	Total suspended Solid	mg/L	0.2	0.22	1.4	1.2	0.4	--	--
24	Total dissolved Solid	mg/L	36.4	42.5	40.6	48.8	44.8	250	2000
25	Turbidity	NTU	0.2	0.22	0.06	0.01	0.02	5	10

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

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

SUMMARY SHEET OF MONITORING:

Sl No.	Sample Nos.	Location	Date of Sampling	Lab Sample Code
6.	Sample 01	MALDA VILLAGE	18- MARCH - 2023	OCPL/GWL/01/03/23
7.	Sample 02	NEDIGUTH	18- MARCH - 2023	OCPL/GWL/02/03/23
8.	Sample 03	TALA SAHI	18- MARCH - 2023	OCPL/GWL/03/03/23
9.	Sample 04	PLANT- 1 (Near Canteen)	18- MARCH - 2023	OCPL/GWL/04/03/23
10.	Sample 05	PLANT- 2 (SLIME POND)	18- MARCH - 2023	OCPL/GWL/05/03/23

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	7.27	--
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	13.64	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.72	--

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL