ADITYA BIRLA

EMIL

Ref. No. A/ 490 /2023-24

Dated–01.12.2023
(By e-mail)

To

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

Sub: Submission of half-yearly EC compliance status for the period April-2023 to September-2023 in respect of 1 MTPA Iron Ore Beneficiation Plant at Village-Basantapur, Tehsil-Jhumpura, District-Keonjhar of Essel Mining & Industries Limited.

Ref: 1. Environment Clearance (EC) Vide letter F. No. J-11015/51/2008-IA-II (M) on dated 30.03.2022.
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 Beneficiation Plant at Village-Basantapur, Tehsil-Jhumpura, District-Keonjhar for the period of **April-2023 to September-2023.**

This is for favour of your kind information.

Thanking you,

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

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

Encl: As above.

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

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HALF YEARLY COMPLIANCE REPORT OF ENVIRONMENTAL CLEARANCE CONDITIONS

Name of the Project: Compliances to the conditions of the Environmental Clearance for Iron Ore Beneficiation Plant located in Village – Basantpur, Sub-division – Champua, Tehsil- Barbil, District – Keonjhar, Odisha of M/s. Essel Mining & Ind. Ltd.

EC Approval Letter: F. No. J-11015/51/2008-IA-II (M) on dated 18.06.2010 (Original), F. No. J-11015/51/2008-IA-II (M) on dated 27.09.2011 (Transfer of EC to PMPL) and F. No. J-11015/51/2008-IA-II (M) on dated 30.03.2022 (Transfer of EC to EMIL)

Period of Compliance Report: April-2023 to September-2023

Sl. No.	Conditions	Compliance
	Specific conditions	
(i)	The project proponent shall obtain prior Consent to Establish and Consent to operate for the project from the State Pollution Control Board, Orissa and shall effectively implement all the conditions stipulated therein.	Consent to Establish obtained from OSPCB vide letter no-22029/Ind-ll-NOC-4812 dated on 24.12.2010 and the latest Consent to Operate is obtained from OSPCB vide letter no-4886/lND-I-CON-6459 dated 28.03.2023 with validity up to 31.03.2024. The conditions stipulated in the Consent order issued from SPCB, Odisha are being implemented effectively.
(ii)	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby Baitarni River.	Zero discharge concept is being adapted in the plant. All the process water is being recycled to the process through concentrate thickener. Adequate safe guard measures have been taken and proper water recovery system /spill way system has been developed for recycle and reuse of the spill water generated from the plant. No water including the surface runoff generated during monsoon is discharged outside the plant premises. The surface runoff is impounded in the rain water harvesting pond within the plant. Hence, the probability of natural water resources are getting affected by spill water is zero.

Sl. No.	Conditions	Compliance
(iii)	The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission.	The raw materials in form of Iron Ore fines of size 0-10mm that are being procured from the nearby mines for beneficiation are already conditioned with water. It is established that the iron ore fines that are reaching at the project site contains 5 to 10% moisture. Fixed water sprinklers arrangement have been made at material stack yard area, loading and unloading points for conditioning of the ore as well as to control the fugitive dust emission. Besides, material feeding point to the beneficiation plant and discharge chutes of the conveyor are fitted with dry fog system to prevent the fugitive dust emission.
(iv)	No activity relating to the project shall be undertaken within 500m of HFL of River Baitarni.	The Plant is far away from the bank of river Baitarani. No activity has been carried out within 500 meter of HFL of the river Baitarani.
(v)	Raw material for beneficiation shall be obtained from the mines existing within 30 km of the plant.	Efforts have been made to procure the raw materials especially iron ore fines from the nearby mines located within 30 km of the plant site. Other raw materials like coke, limestone, Bentonite etc. being not available in the locality, same are procured from outside the state.
(vi)	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as crusher zone, loading and unloading point and all transfer points during handling of the ore. Extensive water sprinkling shall be carried out on roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	The dust control measures at haulage roads, approach road to material stack yard and loading & unloading areas is being carried out with fixed type water sprinklers. In addition to above, mobile water is also deployed to arrest the dust getting airborne due to vehicular movement. All the material feeding points to the plant and discharge chutes of the conveyer are equipped with Dry Fog System. SP is operational at Indurating Furnace area and Bag Filter arrangement have been made at proportionating Building to control the fugitive dust emission. All the necessary air pollution control measures are being strictly followed to control the air pollutant emission to maintain it well within the norms prescribed by CPCB. The air quality at the plant site is well within the prescribed standards of OSPCB /CPCB. Ambient air quality report attached as **Annexure - A.**

Sl. No.	Conditions	Compliance
(vii)	The reject generated during the beneficiation process shall be stacked at earmarked dump site only and it should not be kept active for a long period and their phase-wise stabilization shall be carried out. There shall be one external reject dump in an area of 12.536ha. The maximum height of the dumps shall not exceed 30m having 3 terraces of 10m each and the overall slope of the dump shall be maintained to 28°. The dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. The reject dump shall be suitably rehabilitated with coco-coir/geo textile to prevent erosion and prevention of fine particles getting airborne. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	12.536 Ha area within plant premise earmarked for dumping of rejects generated during iron ore beneficiation process and the rejects are being stacked in the area taking all adequate environment protection measures such as the reject dump is being compacted and conditioned in regular interval of time to avoid any sort of fugitive emission getting airborne. The maximum height of the dumps is being kept within 30 m having 3 terraces of 10 m each and the overall slope of the dump is being maintained at below 28°. The dump will be scientifically vegetated with suitable native species once it attains the maturity the same shall be suitably rehabilitated with coco-coir/geo textile to prevent erosion and prevention of fine particles getting airborne. The compliance reports are being submitted to the MoEF Regional Office, BBSR and MoEF &CC, New Delhi on six monthly basis.
(viii)	Catch drains and siltation ponds of appropriate size shall be constructed around the reject dump to prevent run off of water and flow of sediments directly into the Baitarni River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the reject dump to prevent run off of water and flow of sediments directly into the Baitarni River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide	Retaining wall (150mtr Length, 200mm width & 2mtr height), catch drains/garland drain (60mtr Length, 500mm width & 500mm depth), with Siltation pond (2mtr Length, 2mtr width & 2.5mtr depth), has been constructed around the earmarked reject dump/tailing cake disposal area to collect the runoff water during rain. The water collected in the siltation pond is being recycled and reused in the plant. The drains and pond is cleaned regularly to accommodate the surface runoff water collection more effective. No water is discharged outside the plant premises. One Rain Water Harvesting structure having holding capacity of 212250 m^3 have been constructed to store the surface runoff water within the plant premise. This water thus collected is being used inside the plant premises for different purposes.

Sl. No.	Conditions	Compliance
	adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	
(ix)	As part of the post project monitoring of ambient air quality, there shall be at least one monitoring station within 500m of the project in predominant down wind direction.	Ambient Air Quality (AAQ) monitoring has been carried out in core as well as buffer zone at 4 locations and these locations has been decided in consultation with Regional Officer, SPCB, Odisha. Based on the predominant wind direction, one AAQ monitoring location has been established within 500m of the project site in Nediguth Village.
(x)	The tailing pond/slime pond shall be lined with impervious lining.	Filter Press with concentrated thickener are being used in place of Tailing Pond to handle slime water but an emergency tailing pond has been constructed to collect the slime water during excessive flow of slime water in to the Thickener & Filter Press. The Emergency tailing pond has been constructed with Cement Concrete. The tailings generated from the filter press in form of dry cake are being disposed off in the earmarked tailing disposal area. The tailing disposal area is properly lined with impervious clay liner.
(xi)	The ground water quality around the tailing pond/slime pond shall be monitored regularly and records maintained.	One monitoring station is established in between the emergency slime pond area and nearby Baitarani river. Ground Water quality monitoring is being carried out on regular interval inside the plant premises and records are maintained. Ground Water Quality Monitoring Report is attached in **Annexure- A.**

Sl. No.	Conditions	Compliance
(xii)	The garland drain shall be constructed around the tailing/slime pond.	Concentrated thickener & Filter Press are being used in the plant for handling slime water /tailing water. The slime water is being sent to the concentrated thickener and from there the recovered water is being recycled to the process and concentrated tailing is being sent to filter press from thickener for the formation of filter cake for onward disposal at the earmarked site inside the plant premises. However, an emergency tailing slime pond has been constructed to handle any sort of emergency situation and pond is made with Cement Concrete.
(xiii)	The decanted water from the tailing/ slime pond shall be re-circulated and there should be zero discharge from the slime/tailing pond.	Filter Press technology and concentrated thickener has been used in process to handle the slime water generated from the process. The slime water is being recycled to the process through the concentrated thickener and the tailings are being sent to filter press for making tailing cake. No slime pond is required for the plant. Only an emergency slime pond has been made to handle any sort of emergency situation. The plant is designed with zero effluent discharge. The decanted water from the emergency slime pond is being recycled to the process through concentrated thickener.

Sl. No.	Conditions	Compliance
(xiv)	The groundwater quality around the tailing/ slime pond shall be monitored regularly. The monitoring network shall be designed in consultation with State Ground Water Board /Central Ground Water Authority. There shall be at least one monitoring station between the tailing/slime pond and the river	Concentrated thickener & Filter Press are used in the plant for handling slime water /tailing water. The slime water is being sent to the concentrated thickener and from there the recovered water is being recycled to the process and concentrated tailing is being sent to filter press from thickener for the formation of filter cake for onward disposal at a earmarked site inside the plant premises. No tailing pond/slime pond is required for the plant. However, an emergency slime pond has been constructed to handle any sort of emergency situation and pond is made with Cement Concrete to avoid any seepage / percolation to contaminate the ground water. Presently, Ground Water monitoring is being carried out inside the plant premises to check the quality of ground water. One monitoring station is in between the emergency slime pond area and river which has been constructed with consultation of the OSPCB officials.
(xv)	Plantation shall be raised in an area of 10.65ha including a green belt of at least 10m width all around the plant by planting the native species in consultation with the local DFO/ Agriculture Department.	Total project area of our integrated plant is 79.77 Acres. 33% of total area which is 26.32 acres which is covered with plantation of about 26,500 saplings of different varieties. The major plantation area is along the boundary of the plant covering 10 m width. This is done in consultation with the local forest dept. officials.
(xvi)	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	A Report on Rain Water Harvesting in the project area has been prepared in consultation with the Regional Director, CGWA, Bhubaneswar and same have been implemented at the site.
(xvii)	Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers in and around the project area during the beneficiation process. The periodic monitoring [(at least four times in a	One number of water Reservoir having holding capacity of 212250 m^3 have been constructed. During rainy season, surface runoff of the plant area is channelized & collected in the reservoir for industrial use.

Sl. No.	Conditions	Compliance
	year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	The reservoir is serving the dual purpose of storage as well as augmentation of ground water potential through recharge. A Hydro-geological study has also been carried out in consultation with CGWB, Odisha. The area is falling under Safe Category as per CGWA notification. Both ground water level & quality are being monitored in and around the plant premises on quarterly basis and the results are being submitted to the Regional Office, MoEF&CC, Bhubaneswar and MoEFCC, New Delhi, Regional Director, CGWB, Bhubaneswar and Member Secretary, Central Ground Water Authority, New Delhi.
(xviii)	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and groundwater) required for the project.	Dept. of Water Resources, Govt. of Odisha allocated 0.305cusec of surface water from the river Baitarani for meeting the requirement of process water. Requisite NOC obtained from the Central Ground Water Authority, New Delhi for withdrawal of Ground water to the tune of 0.35 cusec for the project. NOC obtained from CGWA Attached in **Annexure-B**
(xix)	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Hydro-geological study has been carried out in consultation with CGWB, Odisha for the Plant site covering the core and buffer zone. The area is falling under Safe Category as per the CGWA notification. A Report on Rain Water Harvesting in the project area has been prepared in consultation with the Regional Director, CGWB, Bhubaneswar which is being implemented. One number of rain water harvesting structure having capacity of 212250 m^3 has been constructed. During rainy season, surface runoff of the plant area is channelized & collected in the reservoir for use in plant operation.

Sl. No.	Conditions	Compliance
		The reservoir is serving the dual purpose of storage as well as augmentation of ground water potential through recharge.
(xx)	Appropriate mitigative measures shall be taken to prevent pollution of the Baitarni River in consultation with the State Pollution Control Board.	The plant is designed with Zero Discharge Concept. No effluent / runoff water is being discharged from the plant premises to the Baitarani River. In consultation with the OSPCB officials, appropriate measures have been taken to recycle & re-use the waste water to prevent pollution of Baitarani river.
(xxi)	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.	The vehicles are maintained properly to ensure emission levels within permissible limit and the monitoring is done regularly for the emission of the vehicles to ascertain that the emissions from vehicles meet the pollution norms. Mineral carrying trucks are not allowed to entry/exit the plant premises without tarpaulin cover and is being monitored by security personnel at the exit gate. Similarly, Security personnel also do not allow the vehicle to enter into the premise without having valid PUC. The overloading matter is being checked at the Govt. managed weigh bridge at the exit point of the plant.
(xxii)	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	The dust control measures at mineral stack yard and loading & unloading areas are being carried out with fixed type water sprinklers. In addition to above, mobile water sprinklers are also deployed to arrest the dust getting airborne along the haulage road. All the material feeding points to the plant and discharge chutes of the conveyer are equipped with Dry Fog System to arrest the suspended dust. ESP is operational at Indurating Furnace area and Bag Filter arrangement have been made at proportionating Building to control the fugitive dust emission. Periodical maintenance of the Pollution Control Equipments are being undertaken in-house for their smooth operation.

Sl. No.	Conditions	Compliance
(xxiii)	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during the beneficiation process .	Staff quarters or Colony has not been constructed yet within the plant premise. However, a very negligible quantity of effluents/sewage generated from the Plant office/Admin Office (i.e. from the daily water use of employees and workers) is being discharged to the soak pit via septic tank constructed as per BIS specification. All the process water is being recycled to the process through Concentrate thickener so construction of ETP is not needed. The waste water (i.e. Slime Water) generated from the beneficiation process is being recycled to the process completely for re-use.
(xxiv)	The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 km from the proposed project.	Sample survey to generate data on pre-project community health status within a radius of 1 km from the project was carried out during EIA study. Periodical health Check-up is being organised in the nearby villages through mobile Health Care Unit supported with doctors & paramedics.
(xxv)	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed. Health records of the workers shall be maintained.	Health Surveillance Programme in frequent interval for all the employees and workers are being carried out and records are being maintained. The beneficiation process is wet beneficiation process. No such health hazards have been reported related to dust. Moreover, adequate measures has been taken to abate the dust generation in material stack yard, loading and unloading point, discharge chutes of conveyor etc.
(xxvi)	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-employment and Periodical medical check-up for all the employees and workers are being carried out and records are being maintained.

Sl. No.	Conditions	Compliance
(xxvii)	The R&R of the project affected people shall be carried out as per the NPRR. The plan shall be prepared within three months in consultation with State Government and a copy submitted.	The private lands involved in the project site have been purchased with the mutual agreement with the local villagers and Gram panchayat. The existing R& R Plan of the State Govt. is not applicable to the project. No SC/ST Land or Home stead land is involved in the project area, So R&R Plan is not envisaged.
(xxviii)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of flora and endangered fauna namely elephant, sloth bear, python, peacock etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	This is not a mining unit. On the other hand, it is an industry for production of iron ore pellets and no such endangered fauna noticed in the plant premises.
(xxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	For construction worker all necessary arrangements such as infrastructure facilities i.e. temporary housing/shelter room, toilets, fuel for cooking, drinking water facility, First-aid facility were made. At present the plant is in operational stage.
(xxx)	The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM_{10}), NO_X in the ambient air within the impact zone shall be monitored periodically. Further, quality of discharged water	Ambient Air Quality (AAQ) monitoring is being carried out at 4 locations covering core and buffer zone which is observed to be well within the NAAQ Standards.

Sl. No.	Conditions	Compliance
	shall also be monitored [TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	The process water being used is recycled and reused in the process itself. Hence, there is no discharge of any effluents out site the plant premises. However, the surface water quality monitoring is being carried out at 5 locations including the reservoir pond within the plant premise. The status of compliance of the environmental clearance conditions, including results of monitored data are being uploaded in our company's website and the URL is http://www.esselmining.com/sustainability/environmental_reports.html and are updated periodically. All the environmental monitoring reports are being displayed electronically at the Main Gate of the Plant.
General Conditions		
(i)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Approval will be sought from MoEF&CC before any expansion / modification of the plant.
(ii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM_{10}), NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Ambient Air Quality (AAQ) monitoring is being carried out at 4 locations twice in a week covering core and buffer zone. The frequency of monitoring, location of monitoring stations is being done in consultation with Regional Officer, OSPCB, Keonjhar. The results are observed to be well within the NAAQ standard.
(iii)	Data on ambient air quality RSPM (Particulate matter with size less than 10 micron i.e., PM_{10}), & NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	The AAQ monitoring reports, Water Quality analysis report and Noise Monitoring Reports are being submitted to Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board on six monthly basis.

Sl. No.	Conditions	Compliance
(iv)	Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.	All the Plant machineries have been designed as per Industrial specification to control the noise level within the limit. Adequate measures are being taken to limit the noise level within the prescribed limit given by statutory authorities. Ear plugs and Ear muffs are being provided to the workers and employees engaged in operations of HEMM and high noise generating machines / locations.
(v)	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	The plant is designed and being operated with zero discharge concept. The waste water generated from the process is being treated and recycled to the process through concentrated thickener. Adequate safe guard measures have been taken and proper water recovery system /spill way system has been developed for recycle and reuse of the spill water generated from the plant. No water is discharged outside the plant premises. The domestic waste water generated from the plant (i.e. from the daily water use of employees and workers) is being discharged to the soak pit via septic tank constructed as per specification.

Sl. No.	Conditions	Compliance
(vi)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Adequate dust suppression measures are being taken to arrest the dust getting air borne. In addition to above, dust masks are provided to the workers & employees working in these area. The HR & Safety Department is made responsible to create awareness & provide necessary training to the workers and employees with adequate safety appliances for maintaining occupational health and safety in the workplace. Health Surveillance Programme in frequent interval for all the employees and workers are being carried out to observe any contraction due to exposure to dust and if observed, corrective action is being taken immediately.
(vii)	Separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	A Environment Management Cell with qualified personnel from Environmental back ground is working under the guidance of a Senior Executive for proper management of environment in and around the plant premises and for the compliance of all statutory requirements.
(viii)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	The Consent to Establish from the State Pollution Board, Bhubaneswar was granted on 24/12/2010. Environmental Clearance granted in the name of Hari Machine on 18/06/2010 which was transferred to PMPL on 27/09/2011 and subsequently transferred to EMIL on 30/03/2022. Consent to Operate has been obtained on dated 01.05.2013 and subsequently renewed on dated 28.03.2023 valid till 31.03.2024.
(ix)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	An amount of 5.2 Crores as fixed cost and 0.50 Crores as recurring cost for 5 years was kept separately for environment management in the 1.0 MTPA Iron Ore Beneficiation Plant. The entire environmental pollution control infrastructure has already been installed.

Sl. No.	Conditions	Compliance
(x)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Six monthly progress status reports to the conditions given in the Environment Clearance are being submitted to the Regional Office of MoEF with a copy to MoEF&CC, New Delhi as stipulated.
(xi)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental 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 Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.	Six monthly progress status report to the conditions given in the Environment Clearance and monitoring results of different environment parameters carried out are being submitted to the Regional Office of MoEF at Bhubaneswar with a copy to MoEF, New Delhi, Zonal Office of CPCB at Kolkata, West Bengal and SPCB, Odisha as stipulated. The status of compliance of the environmental clearance conditions, including results of monitored data are being uploaded in our company's website (http://esselmining.com/sustainability/environmental_reports.html) and are updated periodically. However, one LED type electronic display board has been installed in front of the main gate in public domain for display of monitored data.
(xii)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	The copy of the environmental Clearance letter was submitted in the office Basantpur GP. The clearance letter has also been put on the website of the Company.
(xiii)	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.	The same had been duly complied post obtaining the EC.

Sl. No.	Conditions	Compliance
(xiv)	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	Environment Statement in prescribed Form-V for each financial year i.e. ending at 31st March is being submitted to State Pollution Control Board. It is being uploaded in the company's website along with the status of compliance of environmental clearance conditions.
(xv)	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at **http://envfor.nic.in** and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Advertisement of Environment Clearance was published in the local newspapers (both in English and Odia) regarding grant of clearance to the 1.0 MTPA Beneficiation Plant of M/s Pro Minerals Pvt. Ltd. within 7 days from the date of issuance of Environmental Clearance.

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

5/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

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

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: Near ECR -1

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

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

LOCATION: Near Canteen

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

*ND: Not Detectable

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

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

LOCATION: Near Admin Building

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

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

LOCATION: Nedigoth Village

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

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

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

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

Date of Monitoring: 05.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 07.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 12.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 14.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 19.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 21.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 24.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 26.04.2023

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

Instrument used: Larson Devis

Date of Monitoring: 28.04.2023

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

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF APRIL– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

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

Location: BAITARANI RIVER (DHANURJAYPUR)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

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

SUMMARY SHEET OF MONITORING:

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

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia. (m)	Depth of the well (m)	Depth of the water table BGL (M)	Remarks
1	MALDA VILLAGE	Dugwell	0.8	8.2	7.26	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.61	--
3	TALA SAHI	Dugwell	1.0	8.6	8.27	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.62	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.72	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF APRIL – 2023

LOCATION AND MONITORING SCHEDULE

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

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

6/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

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

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: Near ECR -1

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

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

LOCATION: Near Canteen

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

*ND: Not Detectable

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

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

ORECNIC CONSULTING PVT. LTD. Tested By: OCPL

LOCATION: Near Admin Building

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

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

LOCATION: Nedigutha Village

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

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

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

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

Date of Monitoring: 03.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 05.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 10.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 12.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 17.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 19.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 24.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 26.05.2023

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

Instrument used: Larson Devis

Date of Monitoring: 31.05.2023

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

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF MAY– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

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

Location: BAITARANI RIVER (DHANURJAYPUR)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

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

SUMMARY SHEET OF MONITORING:

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

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia. (m)	Depth of the well (m)	Depth of the water table BGL (M)	Remarks
1	MALDA VILLAGE	Dugwell	0.8	8.2	7.22	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.58	--
3	TALA SAHI	Dugwell	1.0	8.6	8.14	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.54	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.65	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF MAY – 2023

LOCATION AND MONITORING SCHEDULE

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

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Tested By: OCPL

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

7/10/2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

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

Contents

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: Near ECR -1

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

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

LOCATION: Near Canteen

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

*ND: Not Detectable

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

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

LOCATION: Near Admin Building

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

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

LOCATION: Nedigutha Village

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

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

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

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

Date of Monitoring: 02.06.2023

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

Instrument used: Larson Devis

Tested By: OCPL

Date of Monitoring: 05.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 09.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 12.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 16.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 19.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 23.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 26.06.2023

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

Instrument used: Larson Devis

Date of Monitoring: 30.06.2023

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

Instrument used: Larson Devis

SURFACE WATER ANALYSIS FOR THE MONTH OF JUNE– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

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

Location: BAITARANI RIVER (DHANURJAYPUR)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

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

SUMMARY SHEET OF MONITORING:

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

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia. (m)	Depth of the well (m)	Depth of the water table BGL (M)	Remarks
1	MALDA VILLAGE	Dugwell	0.8	8.2	7.16	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.42	--
3	TALA SAHI	Dugwell	1.0	8.6	8.11	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.23	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.34	--

Sampling By: Mr. Hrusikesh Das

REPORT ON STACK MONITORINGFOR THE MONTH OF JUNE – 2023

LOCATION AND MONITORING SCHEDULE

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

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

July 2023

Monthly Report on Environmental Monitoring

FOR M/S ESSEL MINING & INDUSTRIES LTD

Iron Ore Beneficiation & Pelletisation Plant

M/S ESSEL MINING & INDUSTRIES LTD.

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

Contents

ESSEL MINING & INDUSTRIES LIMITED

AAQ REPORT

JULY – 2023

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: Near ECR -1

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

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

LOCATION: Near Canteen

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

*ND: Not Detectable

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

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

LOCATION: Near Admin Building

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

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

LOCATION: Nedigutha Village

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

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

ESSEL MINING & INDUSTRIES LIMITED

NOISE MONITORING REPORT

JULY – 2023

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

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

Date of Monitoring: 03.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 07.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 10.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 14.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 17.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 21.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 24.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 28.07.2023

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

Instrument used: Larson Devis

Date of Monitoring: 31.07.2023

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

Instrument used: Larson Devis

ESSEL MINING & INDUSTRIES LIMITED

SURFACE WATER QUALITY REPORT

JULY – 2023

SURFACE WATER ANALYSIS FOR THE MONTH OF JULY– 2023

SUMMARY SHEET OF SAMPLING (SURFACE WATER):

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

Location: BAITARANI RIVER (DHANURJAYPUR)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: BAITARANI RIVER (NEAR PLANT AREA)

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: RESERVOUR POND INSIDE PLANT PREMISES

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: DALKI NALA, NEAR PLANT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

Location: NADIGUTH

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

GROUND WATER QUALITY REPORT

JULY – 2023

GROUND WATER MONITORING REPORT

SUMMARY SHEET OF SAMPLING (GROUND WATER):

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

GROUND WATER LEVEL REPORT

JULY – 2023

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

SUMMARY SHEET OF MONITORING:

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

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia. (m)	Depth of the well (m)	Depth of the water table BGL (M)	Remarks
1	MALDA VILLAGE	Dugwell	0.8	8.2	7.28	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.51	--
3	TALA SAHI	Dugwell	1.0	8.6	8.22	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	13.69	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	46.5	--

Sampling By: Mr. Hrusikesh Das

ESSEL MINING & INDUSTRIES LIMITED

STACK ANALYSIS REPORT

JULY – 2023

REPORT ON STACK MONITORINGFOR THE MONTH OF JULY – 2023

LOCATION AND MONITORING SCHEDULE

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

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

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

08/09/202

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

M/S ESSEL MINING & INDUSTRIES LTD.

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

CONTENTS

AMBIENT AIR MONITORING REPORT FOR THE MONTH OF AUGUST-2023

AMBIENT AIR MONITORING DATA

LOCATION AND WEEKLY MONITORING SCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: NEAR ECR -1

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

*ND: Not Detectable

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

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

LOCATION: NEAR CANTEEN

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

*ND: Not Detectable

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

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

LOCATION: NEAR ADMIN BUILDING

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

*ND: Not Detectable

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

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

LOCATION: NEDIGUTHA VILLAGE

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

*ND: Not Detectable

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

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

NOISE LEVEL MONITORING REPORT FOR THE MONTH OF AUGUST-2023

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

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

SUMMARY SHEET OF SAMPLING

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

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

Date of Monitoring: 03.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 07.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 10.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 14.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 17.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 21.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 24.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 28.08.2023

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

Instrument used: Larson Devis

Date of Monitoring: 31.08.2023

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

Instrument used: Larson Devis

SURFACE WATER ANALYSIS REPORT FOR THE MONTH OF AUGUST-2023

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

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

Location: BAITARANI RIVER (DHANURJAYPUR)

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

ANALYSIS RESULT

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

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

Location: BAITARANI RIVER (NEAR PLANT AREA)

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

ANALYSIS RESULT

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

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

Location: RESERVOUR POND INSIDE PLANT PREMISES

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

ANALYSIS RESULT

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

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

Location: DALKI NALA, NEAR PLANT

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

ANALYSIS RESULT

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

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

Location: NADIGUTH

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

ANALYSIS RESULT

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

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

GROUND WATER ANALYSIS REPORT FOR THE MONTH OF AUGUST-2023

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

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

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

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

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

Sampling By: Mr. Hrusikesh Das

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

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

SUMMARY SHEET OF MONITORING:

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

MONITORING RESULT

Sl No.	Name of the location	Type of well	Dia. (m)	Depth of the well (m)	Depth of the water table BGL (M)	Remarks
1	MALDA VILLAGE	Dugwell	0.8	8.2	6.86	--
2	NEDIGUTH	Dugwell	1.2	9.5	7.1	--
3	TALA SAHI	Dugwell	1.0	8.6	7.42	--
4	PLANT- 1 (Near Canteen)	Bore-well	0.1	62	12.2	--
5	PLANT- 2 (SLIME POND)	Bore-well	0.1	60	44.84	--

Sampling By: Mr. Hrusikesh Das

STACK MONITORING REPORT FOR THE MONTH OF AUGUST-2023

REPORT ON STACK MONITORINGFOR THE MONTH OF AUGUST – 2023

LOCATION AND MONITORING SCHEDULE

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

TEST REPORT

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

ANALYSIS RESULT

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

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

Sampling By: Mr. Hrusikesh Das

TEST REPORT

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

ANALYSIS RESULT

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

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

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

08/10/2023

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

M/S ESSEL MINING & INDUSTRIES LTD.

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

CONTENTS

AMBIENT AIR MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

AMBIENTAIRMONITORINGDATAL

OCATION AND WEEKLYMONITORINGSCHEDULE

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

SUMMARY SHEET OF SAMPLING

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

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

LOCATION: NEAR ECR-1

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

*ND:NotDetectable

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

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

LOCATION: NEAR CANTEEN

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

*ND:NotDetectable

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

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

LOCATION: NEAR ADMIN. BUILDING

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

*ND:NotDetectable

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

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

LOCATION:NEDIGUTHAVILLAGE

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

*ND:Not Detectable

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

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

NOISE LEVEL MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

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

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

SUMMARYSHEETOFSAMPLING

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

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

DateofMonitoring:03.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:07.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:10.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:14.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:17.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:21.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:24.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:28.09.2023

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

Instrumentused:LarsonDevis

DateofMonitoring:30.09.2023

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

Instrumentused:LarsonDevis

SURFACE WATER ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

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

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

Location:BAITARANIRIVER(DHANURJAYPUR)

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

ANALYSISRESULT

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

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

Location:BAITARANIRIVER(NEARPLANTAREA)

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

ANALYSISRESULT

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

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

Location:RESERVOURPONDINSIDEPLANTPREMISES

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

ANALYSISRESULT

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

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

Location: DALKINALA,NEARPLANT

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

ANALYSISRESULT

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

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

Location:NADIGUTH

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

ANALYSISRESULT

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

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

GROUND WATER ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

GROUNDWATERMONITORINGREPORTSUMMARYSHEETOFSAMPLING(GROUNDWATER):

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

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

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

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

Sampling By: Mr. Hrusikesh Das

GROUND WATER LEVEL ANALYSIS REPORTFOR THE MONTH OF SEPTEMBER-2023

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

SUMMARYSHEETOFMONITORING:

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

MONITORINGRESULT

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

SamplingBy:Mr.HrusikeshDas

STACK MONITORING REPORTFOR THE MONTH OF SEPTEMBER-2023

REPORTONSTACKMONITORINGFOR THEMONTHOFSEPTEMBER–2023

LOCATIONANDMONITORINGSCHEDULE

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

TESTREPORT

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

ANALYSISRESULT

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

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

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

SamplingBy:Mr.HrusikeshDas

TESTREPORT

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

ANALYSISRESULT

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

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

Sampling By: Mr. Hrusikesh Das

TESTREPORT

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

ANALYSISRESULT

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

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

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