JINDAL
COKE LIMITED

JCL/JRD/ENV/2024-25/16

Date:28.11.2024

To

Deputy Director General of Forests (C)
Ministry of Environment, Forest & Climate Change
Regional Office (EZ)
A/3, Chandrasekharpur
Bhubaneswar-751023

Sub: Half Yearly Compliance Report of Environment Clearance for the period from April, 2024 to September, 2024.

Ref: 1. Environment Clearance vide Letter No. IA-J-11011/111/2018-IA-II(I), dated 9th May 2022 for Expansion of Coke production from 0.425 MTPA to 0.78 MTPA by installation of a new Stamp charged by-product recovery type Coke Oven Battery.

2. Environment Clearance vide Letter No . IA-J-11011/111/2018-IA-II(I), dated 25.05.2018 for 0.425 MTPA Coke Oven Battery (Recovery Type).

Dear Sir,

With reference to the above Environment Clearances, please find enclosed herewith the half yearly compliance of the stipulated conditions for the period from April, 2024 to September, 2024.

The soft copy of the same has also been sent to email –id *roez.bsr-mef@nic.in.*

Thanking You,

Yours faithfully,
For **Jindal Coke Limited**

Deepak Agiwal
Head - COBP

Enc: As Above

CC:

1. The Director, Industry – I, MOEF&CC, Indira Paryavaran, Jor Bagh Road, Aliganj, New Delhi – 110003.
2. The In-Charge, Central Pollution Control Board, 502, Southernd Conclave 1582, Rajdanga Main Road, Kolkata – 700017.

GOVT. OF INDIA
MoEF & CC Integrated R.O.
Bhubaneswar-751023
10 DEC 2024
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JINDAL COKE LIMITED

HALF YEARLY EC COMPLIANCE REPORT

APRIL, 2024 TO SEPTEMBER, 2024

Kalinganagar Industrial Complex, Duburi, Dist. Jajpur - 755026, Odisha, India,
Tel: +91 06726 266031 – 33 ;Fax: +91 06726 266006; E-mail: info@jindalcoke.com

Status of compliance report of environment clearance conditions for Expansion of Coke production from 0.425 MTPA to 0.78 MTPA by installation of a new Stamp charged by-product recovery type Coke Oven Battery within the existing steel plant. (*EC Identification No.: EC22A008OR150400, Ref: IA-J-11011/111/2018-IA-II(I), dated 9th May 2022*

A. SPECIFIC CONDITIONS:

S. No.	Condition	Compliance
i.	Coke Dry Quenching (CDQ) and Zero Liquid Discharge (ZLD) facilities shall be installed in the Coke Oven Plant as committed by PP.	Battery # 2 has been designed for Coke Dry Quenching (CDQ) and Zero Liquid Discharge (ZLD).
ii.	Tar sludge from BOD plant of Coke Oven shall be reused in coke oven plant	Tar sludge generated from BOD plant of Coke Oven Battery is being reused in coke oven plant.
iii.	Coke Oven Gas shall be desulfurized	The coke oven gas is presently being desulfurized in Desulphurization unit.
iv.	Out of 24 acres area for green belt development, project proponent has developed green belt in 15 acres area. Remaining 9 acres area of green belt shall be completed by December, 2022. Three tier Green Belt shall be developed after consult with local forest department with native species all along the periphery of the project site of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years.	Three tier greenbelt with density 2500 per ha has been developed.
v.	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	All the effort is being taken to control soil erosion. The roads are being paved and in vacant area plantation is being done to control dust pollution.
vi.	PM10 values are almost near the threshold limit, the PP shall prepare and implement a project specific Air Quality Management Plan with best practices. Develop a control strategy and incorporates in the pollution control measures. Emission control measures related to transportation shall include with the use of cleaner fuels.	Ambient air quality is a combined effect of internal & external factors. To control internal factors dust extraction and suppression techniques are implemented wherever applicable. The ambient air quality is being monitored through online and offline methods.
vii.	The progress made in the implementation of Corporate Environment Responsibility (CER) related activities shall be submitted along with six monthly compliance report to the concerned IRO and also be uploaded on the company web site.	The implementation status of the Corporate Environment Responsibility (CER) related activities are enclosed as **Annexure – I.** Which is being submitted along with the Six monthly compliance report and uploaded on the website.
viii.	All stockyards shall be having impervious flooring and shall be equipped with water spray system for dust suppression. Stock	Storm water drains all along the JCL complex have been constructed and inter connected. Surface runoffs from all source of JCL complex

S. No.	Condition	Compliance
	yards shall also have garland drains to trap the run off material.	are routed through these storm water drains for further treatment in common SRTS of JSL.
ix.	All internal roads and connecting roads from project site to main highway shall be developed and maintained with suitable Million Axle Standard (MSA) as per the traffic load due to existing and proposed project	All the internal roads and connecting road from project site to main highway are made with RCC/PCC.
x.	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Regional Office of the MoEF&CC.	NIT Rourkela has completed performance test of all pollution control devices. On receipt of final report, the same will be submitted to RO office of MoEF&CC.
xi.	Particulate matter emission from stacks shall be less than 30 mg/Nm3.	Stack emission is within the stipulated standard of 50 mg/Nm3 for Battery #1 and 30 mg/Nm3 for Battery #2 as mentioned in CTO. The monitoring report is enclosed as **Appendix – A.** To reduce further, utilization of Mixed gas is being explored.
xii.	Following additional arrangements to control fugitive dust shall be provided: a. Fog / Mist Sprinklers at all conveyors point and on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas. b. Proper covered vehicle shall be used while transport of materials. c. Wheel Washing mechanism shall be provided in entry and exit gates with complete recirculation system.	• The major raw material for the Coke making process is coking coal which is being transported through rail for which JSL group company has railway siding inside the plant premises. • In coal storage yard water sprinkling system has been implemented • The transportation of coal from Coal yard to Coke oven is being done through closed conveyor. • However, mechanized wheel washing facility is available and as per SOP all vehicles passes through wheel washing system.

B. GENERAL CONDITIONS:

S. No.	Condition	Compliance
I. Statutory compliance		
i.	The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.	All applicable acts/rules/subordinate legislation is being followed during contractions and operation.

II. Air quality monitoring and preservation		
i.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 04 Nos. Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	CEMS have been installed existing Coke Oven Battery # 1 stack and connected to SPCB/CPCB servers. • One no. of continuous ambient air quality station has been installed in JCL which cater the requirement of downstream installation. • For upstream installation there are 3 no. of stations which share the common boundary of JSL & JCL to monitor PM10, PM2.5, Sox & NOx. • The installation has been completed in consultation with SPCB. The requested document is attached as **Annexure – II.** • All data are continuously transmitted to OSPCB & CPCB and submitted periodically to MoEF&CC. Both the manual and online monitoring report of Stack & ambient air quality is enclosed as ***Appendix-A and Appendix-B*** *respectively.*
ii.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Fugitive emission monitoring at various locations of coke oven plant is being carried out through NABL accredited laboratory on monthly basis. The Monitoring report is Annexed as **Appendix – A.**
iii.	Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.	Sampling facilities at process stacks of the unit are available and the sampling facility is provided in dry dust quenching system.
iv.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	Coke Oven Battery # 1 & Battery # 2 is equipped with natural draft system as per present available design of oven battery. Dust generating from material handling systems like coal crusher, coke screening appropriate DE systems have been provided to mitigate fugitive dust emission.
v.	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	The bag filters provided are equipped with mechanical bag cleaning which is interlocked with differential pressure of the bag.
vi.	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.	Vacuum road sweepers are provided for cleaning of plant roads, shop floors of Coke Oven Plant.
vii.	Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and	Coal and coke fines collected from pollution control devices are being reused in Coke oven plant in coke manufacturing.

	vacuum cleaning devices in the process after briquetting/ agglomeration.	
viii.	The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.	Coal is transported through rail and covered trucks.
ix.	Facilities for spillage collection shall be provided for coal and coke on wharf of coke oven batteries (Chain conveyors, land based industrial vacuum cleaning facility).	Provision for spillage collection has been provided for coal and coke on wharf of coke oven battery.
x.	Land-based APC system shall be installed to control coke pushing emissions.	Jindal Coke Limited has installed double M-type gas transfer car that runs on oven top rail and the smoke generated during coal charging is being collected into gas collecting pipe from the oven being charged controlling the emission escape to atmosphere. Similar arrangement has been installed for new Battery-II.
xi.	Monitor CO, HC and O2 in flue gases of the coke oven battery to detect combustion efficiency and cross leakages in the combustion chamber.	VOC, CO & O2 monitoring at stack connected to Coke Oven Battery is being conducted periodically through NABL accredited third party laboratory. Monitoring report is enclosed as **Appendix –A.**
xii.	Vapor absorption system shall be provided in place of vapor compression system for cooling of coke oven gas in case of recovery type coke ovens.	Vapor absorption system has been provided for cooling of Coke Oven gas
xiii.	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.	Coal is covered with tarpaulin. In addition, in dry season water sprinkling is being done at stock piles for mitigating any fugitive emission. Spraying of chemical on coal heap has been taken up.
xiv.	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	Adequate ventilation measure has been taken for air changes for all tunnels, motor houses and shop cellars.
xv.	Dry quenching (CDQ) system shall be installed along with power generation facility from waste heat recovery from hot coke	Battery # 2 has been designed for Coke Dry Quenching (CDQ) and Zero Liquid Discharge (ZLD).
III. Water quality monitoring and preservation		
i.	The project proponent shall provide appropriate ETP for effluents discharged from coke oven and by-product to meet the standards prescribed in G.S.R 277 (E) 31st March 2012 (applicable to Coke oven plants) as amended from time to time.	The effluent water generated from both existing Battery # 1 and Battery # 2 is being treated in the existing ETP of capacity 90 M^3/hr (2 x 45 M^3/hr**).** Continuous Effluent Quality Monitoring System (EQMS) as per CPCB guideline has already been installed for Effluent Treatment Plant to monitor compliance.
ii.	The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs	Ground water quality inside plant and in nearby area is being monitored pre- monsoon & post monsoon. Report is annexed as **Appendix – A.**

	recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.	
iii.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	• A common STP is in operation sharing both JSL & JCL manpower load. • Additional soak pits have been provided at site. • Additional STP is being installed at JCL.
iv.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Storm water drains all along the JCL complex have been constructed and inter connected. Surface runoffs from all source of JCL complex are routed through these storm water drains for further treatment in common SRTS of JSL company.
v.	Water meters shall be provided at the inlet to all unit processes in the coke oven plants.	Water meter has been provided at all water inlet points.
IV. Noise monitoring and prevention		
i.	Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	The monitoring of work zone noise level as well as ambient noise level is being carried out periodically and the monitoring data is annexed as **Appendix – A.**
V. Energy Conservation measures		
i.	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;	Installation 100 KWp roof top solar panel have been taken up and PO has been placed.
ii.	Provide LED lights in their offices and residential areas.	LED lights are provided at office area, roads and shop floors.
VII. Green Belt		
i.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the program for reduction of the same including carbon sequestration by trees.	JCL has taken up various Decarbonization programs. The detail projects planned for reduction of GHG emissions is attached as **Annexure – III.**
ii.	Project proponent shall submit a study report on Decarbonization program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to	JCL has on boarded Environmental Resources Management (ERM) for the Study on identifying De-carbonization Opportunity / projects & development of a comprehensive Decarbonization Roadmap.

	reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.	
VIII. Public hearing and Human health issues		
i.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) has been made. Regular mock drill based on worst case risk scenario are being conducted.
ii.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.	Heat Stress analysis for the workmen working in high temperature work zone is being carried out by third party and suitable Personal Protective Equipment (PPE) are being provided to the workman of Coke Oven.
iii.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	Annual health checks up of workers of Coke Oven is being carried out and records are maintained.
IX. Environment Management		
i.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages namely Siaria, Banshipur, Hudi Shai and Katipur.	Detailed status of Corporate Environment Responsibility is enclosed as **Annexure-. I.**
ii.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	Copy of the latest Quality, Environment, Occupational Health & Safety Policy of Jindal Coke Limited is attached as **Annexure-IV.**
iii.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	An Environment department with qualified and experienced officers under the leadership of Head Environment has been established. Head environment reports directly to Unit Head.

X. Miscellaneous		
i.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Advertisement on grant of Environment Clearance had been published in newspapers namely The New Indian Express (English) and Prameya (Odia) on 14.05.2022. Environment Clearance is displayed in the website of the company permanently.
ii.	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	The copies of the environmental clearance have been submitted to the Heads of local bodies, Panchayats. On 18.05.2022 vide our letter no. JCL/JRD/ENV/2022-23/04.
iii.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	Six-monthly compliance reports on the status of the compliance of the stipulated environmental conditions uploaded on company website and is being updated periodically.
iv.	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	Ambient air and stack emission are being carried out by NABL approved third party and are displayed at the display board installed at main gate for public view.
v.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Six-monthly reports on the status of the compliance of the stipulated environmental conditions is being submitted to MOEF&CC and also uploaded on MoEF&CC website.
vi.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Environmental statement for each financial year in Form-V is being submitted to SPCB, Odisha in due time and last report was submitted to SPCB on 26.09.2024. The latest environment statement has been put on company website.
vii.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.	Battery 1 & 2 are in operation and OSPCB has granted CTO via letter no. 6523/IND-I-CON-6566 dated 30.04.2024 valid up to 31.03.2025.

viii.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	All the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during presentation to the Expert Appraisal Committee is being complied. Details are enclosed as A**nnexure- I.**
ix.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Expansion project if any will be routed through the prevailing guideline of MoEF&CC.
x.	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.	All the data/information submitted is factual and correct.
xi.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	The project proponent is implementing all the relevant conditions.
xii.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	All the existing and any additional condition are being implemented on priority.
xiii.	The Regional Office of this Ministry 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.	Full cooperation will be extended to the officer (s) of the Regional Office of MoEF&CC.
xiv.	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Any such appeal shall be routed through the NGT if any.

Status of compliance report of Environment Clearance conditions of 0.425 MTPA Coke Oven Battery (Recovery type) (Ref: IA-J-11011/111/02018-1A II (I), dt. 25th May 2018)

A. SPECIFIC CONDITIONS:

S. No.	Condition	Compliance
i.	The Industry shall follow coke oven standards as per Environment (P) Act, 1986. VOCs from the coke oven shall be monitored and controlled as per CPCB guideline	• Coke Oven standard as per EP Act and MoEF&CC notification for Iron & Steel dated 31st March 2012 is being followed. • VOC from coke oven battery stack is being monitored by NABL Accredited Laboratory. The latest monitoring report is enclosed as **Appendix-A.**
ii.	Bag filter shall be installed to control the emissions from the coal crusher section,	• Bag filter having adequate capacity has been installed at Primary coal crusher,

S. No.	Condition	Compliance
	charging fume car section of the Coke Oven Plant. Online continuous monitoring system shall be installed to monitor various pollutants and data submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and OPCB. Dust suppression system shall be installed at raw material handling areas, material transfer points and solid waste dumps to control fugitive emissions. Water sprinkling shall be done on the roads to control fugitive emissions.	secondary coal crusher section and coke crushing section of the Coke Oven Plant • Online continuous monitoring system has been installed at battery stack of Coke Oven and data is being transmitted to SPCB & CPCB uninterrupted. • Dust suppression system has also been installed at raw material handling areas, material transfer points to control fugitive dust emission. • The entire internal road is paved and water sprinkling is being done to control fugitive emission.
iii.	No ground water shall be used for the plant. All the treated waste water shall be recycled and reused in the process and 'Zero' discharge shall be strictly adopted as per direction of OPCB. Phenolic effluent from Coke Oven complex shall be treated in the ETP of BOD Plant and recycled and reused for quenching of coke. Ammonia, Phenol and Cyanide in the effluent should be treated. Cyanide shall meet the standard of 0.2 ppm.TDS in the effluent shall not be more than 2100 mg/l. The domestic waste water after treatment in STP shall be used for green belt development.	No ground water is being used in the plant. Effluent generated from process is being treated in BOD Plant for all pollutant including ammonia, phenol & cyanide and the treated water is completely reused for coke quenching. The treated effluent is being tested for parameters like Ammonia, Phenol, Cyanide andTDS etc. from internal as well as external approved laboratory. The Analysis report is enclosed as **Appendix-A**.
iv.	Coke oven by-product effluent shall be treated as per notified standards and only treated effluents after meeting the norms shall be used for coke quenching. No fresh water shall be used for this purpose.	Coke oven by-product treated effluent from BOD plant is being analyzed by NABL accredited third party laboratory on monthly basis and the result is found to be within the permissible limit. The treated water is being used in coke quenching. The monitoring report is enclosed as **Appendix – A.**
v.	Ground water monitoring around the solid waste disposal site/ secured landfill (SLF) shall be carried out regularly and report submitted to the Ministry's Regional Office at Bhubaneswar / CPCB and OPCB.	There is no solid waste landfill site constructed inside JCL. Ground water monitoring is being carried out in core zone as well as peripheral areas and analysis report is enclosed as **Appendix-A**. BOD sludge is completely reused in process.
vi.	Solid waste shall be disposed of in secured landfill designed as per the specifications of the CPCB. Coke breeze from Coke oven shall be sold to the parent company (JSL) for recycling	Process Solid waste generated from JCL is being completely reused into the process. Coke breeze from Coke oven is being sold to outside sinter plant for recycling.

S. No.	Condition	Compliance
vii.	Green belt shall be developed within and around the plant premises as per the CPCB guidelines in consultation with DFO.	Three tier greenbelt with density 2500 per ha has been developed. The survival of the saplings is being closely monitored and replaced all the damaged plants with new saplings. 2554 nos. of trees have been planted in FY 24-25.
viii.	As, proposed, modified wet quenching for 1st Coke oven battery as per CPCB guidelines shall be adopted.	Wet quenching is operating for existing unit. Coke Dry Quenching (CDQ) along with WHRB designed for Battery 2.

B. GENERAL CONDITIONS:

S. No.	Condition	Compliance
i.	The project authorities must strictly adhere to the stipulations made by the Orissa Pollution Control Board (OPCB) and the State Government.	All the stipulations made by Orissa Pollution Control Board is being complied.
ii.	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	The unit has obtained EC, CTE and CTO for expansion project from 0.425 MTPA to 0.78 MTPA. Any further expansion of the project will be routed in accordance with the MoEF&CC's relevant guidelines.
iii.	The gaseous emissions from various process units shall conform to the load/ mass-based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The state board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. On-line continuous monitoring system shall be installed in stacks to monitor SPM and interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit. NOx burners shall be installed to control NOx levels.	• The gaseous emissions from coke oven battery stacks are being monitored internally as well as by NABL Accredited third party Laboratory. The analysis reports are being submitted to SPCB and MoEF&CC regularly. • Online continuous emission monitoring system has been installed Coke Oven battery stack to monitor PM, SO2 & NOx. • The NOx monitored in online and offline found well within the stipulated limit.

S. No.	Condition	Compliance
iv.	At least four ambient air quality-monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO_2 and NO_x is anticipated in consultation with the OPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar/ OPCB/ CPCB once in six months.	• One no. of continuous ambient air quality station has been installed in JCL which cater the requirement of downwind installation. • For upwind installation there are 3 no. of stations which shares the common boundary of JSL & JCL to monitor PM10, PM2.5, SOx & NOx. • All data are continuously transmitted to OSPCB & CPCB and submitted periodically to MoEF&CC. • The installation has been completed in consultation with SPCB. The requested document is attached as **Annexure – II.** • Both the manual and online monitoring report of Stack & ambient air quality is enclosed as ***Appendix-A and Appendix-B*** *respectively.*
v.	In-plant control measures for checking fugitive emissions from all the vulnerable sources of Coke oven area shall also be provided. De-dusting system i.e. collection of fugitive emissions through suction hood and subsequent treatment through bag filter or any other device and finally emitted through a stack of appropriately designed and height conforming to the standards shall be provided. Fugitive emissions shall be controlled, regularly monitored and records maintained.	• Dedusting systems (Bag filters) have been installed in coal crushing and coke screening operations to minimize fugitive emission. • Fugitive emission monitoring is being carried out by internal as well as NABL Accredited external Laboratory. The monitoring data for the is enclosed as **Appendix – A**.
vi.	Industrial waste water shall be properly collected, 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 waste water shall be utilized for plantation purpose.	Effluent generated from process is being treated in BOD Plant for all pollutant including ammonia, phenol & cyanide and the treated water is completely reused for coke quenching.
vii.	The overall noise levels in and around the plant area shall be kept within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to	Adequate measures like Silencers, Acoustic Enclosures are provided to noise generating equipments like Diesel Generator set etc. to control the noise generation. The Ambient Noise levels are being monitored and the noise monitoring results are enclosed as

<table>
<tr><th>S. No.</th><th>Condition</th><th>Compliance</th></tr>
<tr><td></td><td>the standards prescribed under EIA Rules, 1989 viz. 75 dBA (daytime) and 70 (dBA) night time.</td><td>Appendix-A.</td></tr>
<tr><td>viii.</td><td>The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.</td><td>Surface runoffs from all source of JCL complex are routed through storm water drains for further treatment in common Surface Runoff Treatment System (SRTS) of JSL group companies. Further, the treated water from SRTS is stored in a settling pit for further reuse inside the plant.</td></tr>
<tr><td>ix.</td><td>Occupational Health Surveillance of the workers shall be done on a regular basis and record maintained as per the Factories Act.</td><td>Occupational health surveillance of the workers is being carried out on a regular basis and records are being maintained as per the Factories Act.</td></tr>
<tr><td>x.</td><td>Recommendations made in the CREP guidelines issued for the steel plants shall be implemented.</td><td>CREP guidelines are being followed. The recommendation made in the Chapter on Corporate Responsibility for Environment Protection (CREP) is followed regarding control of air pollution, installation of state of art air pollution control equipment. Pollution control equipments are installed as per CREP Guidelines of CPCB, such as bag filters, Effluent Treatment Plant etc.</td></tr>
<tr><td>xi.</td><td>The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/ EMP report for Coke oven plant.</td><td>The Plant has taken all the environmental protection measures and safeguards recommended in the EIA/EMP report.

The details are enclosed as - Annexure I.</td></tr>
<tr><td>xii.</td><td>The project authorities shall utilize Rs. 6.0 Crores earmarked for the environment pollution control measures judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for other purpose.</td><td>The project has earmarked the cost incurred for environment pollution control and judiciously implementing the control measures. Till date JCL has spent Rs.57 crore in pollution control measure. A detailed breakup of the spent cost is mentioned below.
<table>
<tr><td>Environment Control Cost</td><td>Capital (in Cr)</td></tr>
<tr><td>Water</td><td>40.0</td></tr>
<tr><td>Air</td><td>12.0</td></tr>
<tr><td>Solid waste</td><td>1.0</td></tr>
<tr><td>Green belt</td><td>0.5</td></tr>
<tr><td>Online monitoring</td><td>1.5</td></tr>
<tr><td>Surface runoff management</td><td>2.0</td></tr>
<tr><td>Public Hearing Commitment</td><td>1.79</td></tr>
</table></td></tr>
<tr><td>xiii.</td><td>The regional office of the Ministry at Bhubaneswar/ CPCB/ OPCB will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.</td><td>Six monthly compliance report along with monitored data is being submitted to the Ministry regularly. The latest compliance report was submitted on 31.05.2024.</td></tr>
</table>

S. No.	Condition	Compliance
xiv.	The project proponent shall inform to the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the OPCB/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the regional Office.	The grant of Environment clearance was advertised in two daily newspapers. In English at Orissa post and in regional language in Prameya on 25.05.2018. The advertisement was published within 7 days of grant of EC.
xv.	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Battery 1 & 2 are in operation and OSPCB has granted CTO via letter no. 6523/IND-I-CON-6566 dated 30.04.2024 valid up to 31.03.2025.
xvi.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	The project proponent is implementing all the relevant conditions.
xvii.	The Ministry reserves the right to stipulate additional conditions if found necessary. The company in a time bound manner will implement these conditions	All the existing and any additional condition is being implemented on priority.
xviii.	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management & Handling) Rules, 2016 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.	All the prevailing acts under the provision Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management & Handling) Rules, 2016 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules is being complied.

Jindal Coke Limited

CER Compliance Status

Major Issue Raised	Action Plan	Time Line for Execution			Total Budget (Lakhs)	Spent as on date
		Year 1st	Year 2nd	Year 3rd		
Area Development						
Development of park	Set up of park along with area development at two nos. of places.	**Condition:** Development of park with construction of tennis court at village panikoili. **Status:** The ground development Work has been successfully Completed at Panikoili.	**Condition:** Development of park at village Telibahali by construction of boundary wall, land scaping, Temple Development. Status: Park at Telibahali has been developed by State Govt, However the Development of Mahapat temple is to be executed	**Condition:** Continuation of Development work of park at village Telibahali by arrangement of permanent entire walkway, sitting arrangement.	180	49
Development of public community hall	New establishment of community hall at 5 nos. of villages.	**Condition:** Set up in villages namely: Khurunti, Malikasahi by providing new building with electrification. **Status:** Towards development of public community hall JCL has approached Khurunti Malikasahi village. The land of the proposed community hall is yet to be finalized by village representatives. After finalization of land, construction will be started.	**Condition:** Set up in villages namely: Ostapal by providing new building with electrification. **Status:** Instead of Community Centre as per requested by villagers, Khudurukuni Puja mandap with Electrification has been done in Ostopal.	**Condition:** Set up in villages namely: Karadapal, Suanlo by providing new building with electrification. **Status:** New community center has been established with complete electrification at Karadapal. For village Suanlo Adivashisahi, work for a new community center is in progress and will be completed by Dec 31st 2024	60	44
Plantation Activities in peripheral villages	Plantation drive at five numbers of village.	**Condition:** Village: Solei **Status:** Plantation has been carried out at Govt. Polytechnic college, Ragadi. -200 Nos. Further, in village Solei, plantation has been carried out on degraded waste dump.	**Condition:** Village: Marutikar, Danagadi. **Status:** At Kumbhiragadhia High School (Danagadi)-107 Nos of saplings have been planted.	**Condition:** Village: Patranga, Mantira: **Status:** At Manatira Sr. Secondary School-350 Nos of saplings have been planted. Pataranga in consultation with local authority plantation will be started.	30	9

Jindal Coke Limited

Medical Facilities						
Provision of health care facilities	Establishment of Homeopathic clinic at six numbers of villages.	**Condition:** At village: Kumbirgadia, Marutikar Construction of building for homeopathic clinic along with supply of essential medicines. **Status:** The Homeopathy clinic at Kumbhiragadia and Classroom at Marutikar as requested by the Villagers has been Completed.	**Condition:** At village: Mantira, Olala Construction of building for homeopathic clinic along with supply of essential medicines. **Status:** Due to continue land related disputes at the said villages, still the work could not be started.	**Condition:** At village: Tikara, Danagadi Construction of building for homeopathic clinic along with supply of essential medicines. Status:	70	16
Local Employment						
Provide employment with preference to local people	Priority to be given for local employment during both construction and operation phase.	During Construction phase it is envisaged for Direct employment of 40 Nos. and Indirect employment of 200 Nos & during operation phase direct employment of 150 Nos. and Indirect employment of 120 Nos. During construction phase 70% indirect employment and 30 % direct employment will be through local employment. During operation phase 90 % indirect employment and 30% direct employment will be through local employment.			Jindal Coke has given 111 nos. of direct employment and 681 nos. of direct employments locally.	
Education						
Renovation/Construction of additional new 2 Nos. of classrooms and electrification with sanitation facility at four nos. school.		**Condition:** At village:Danagadi **Status:** Classroom and toilet of Sisumandir at Danagadi has been completed.	**Condition:** At village: Kharadi, Kankadajhar: **Status:** Instead of Classrooms, Community Centers in the village Kharadi and Kankadajhar is being constructed.	**Condition:** At village: JK Road **Status:** MLA Korei has recommended to construct new classrooms at Sankhachilla High School, The Work is being taken up.	60	52
Facilitate students in providing special training on Stainless Steel related works to make knowledgeable in getting jobs in steel sector.		**Condition:** At: Ragadi Polytechnic College As on 31st March 2024 high end training on Stainless Steel Welding has been provided to 177 nos. of students of the govt. polytechnic, jajpur, Ragadi perusing diploma course in mechanical/electrical branch (Final Year) for enhancement of	Shall continue	Shall Continue	15	

		technical skill.				
Women Empowerment						
Strengthening of women empowerment measures in peripheral villages.	Focus on various livelihood programme for women empowerment in peripheral villages.	**Condition:** Livelihood promotion that tailoring, beauty parlor, training, skill development training at village mantira. **Status:** Livelihood programmes like ASMITA Boutique, Tailoring Training Centres, Boutique centers, Farm income generating activities such as dairy, goat rearing, poultry, mushroom cultivation are continued through SHG of village Mantira.	**Condition:** Livelihood promotion that includes dairy farming, poultry, goatery, wheat grinding at village Jakhapura. **Status:** Various Livelihood programmes like ASMITA Boutique, Tailoring Training Centres, Boutique centers, Farm income generating activities such as dairy, goat rearing, poultry, mushroom cultivation, Turmeric making unit are continued through SHG of village jakhapura..	**Condition:** Establishment of skill development center to provide training in Computer education, electrical, mechanical at village Trijanga (Dangadi). **Status:** Computer training center has been established at Danagadi of Trijanga GP.	150	35
Environment						
Air and Water pollution control	Effective APC devices to be in place during plant operation and set up of ETP for treatment of process of effluent. No waste water discharge to be ensured.	**Condition:** Effective pollution control equipment s with interlocking facility with process to be in place for proposed expansion project. Continuous emission monitoring, ambient air quality monitoring and effluent quality monitoring to be done. Periodical Ambient air quality monitoring to be done in buffer zone of plant site. **Status:** Effective operation pollution control equipments are being ensured. Continuous emission monitoring systems, ambient air quality monitoring systems and effluent quality monitoring systems are installed. Periodical Ambient air quality monitoring is being carried out in buffer zone of plant site.			As per EMP budget of plant	765.1 (Fy23-24)
		Total			565	970.1

Annexure - X

JINDAL STAINLESS

Ref: JSL/JRD/ENV/2024-25/07

Date: 25.04.2024

To,

The Regional Officer,
State Pollution Control Board,
Kalinganagar, Jajpur Road

Sub : Location of Continuous Ambient Air Quality Monitoring Stations installed at Jindal Stainless premises including Jindal Coke Limited and Jindal United Steel Limited.

Dear Sir,

This is to inform you that as a part of compliance to Environment Clearance Conditions of Jindal Stainless Limited, JIndal Coke Limited & Jindal United Steel Limited; we have installed six nos. of Continuous Ambient Air Quality Monitoring stations (CAAQMS) as per the below mentioned locations.

Jindal Stainless Limited

1. Near nursery
2. Near Security Barrac
3. Near Captive Power Plant
4. Near TATA Corner side

Jindal Coke Limited

5. Near Admin Building

Jindal United Steel Limited

6. Near PFS Scrap yard

We request your good-self to kindly certify the locations as mentioned above.

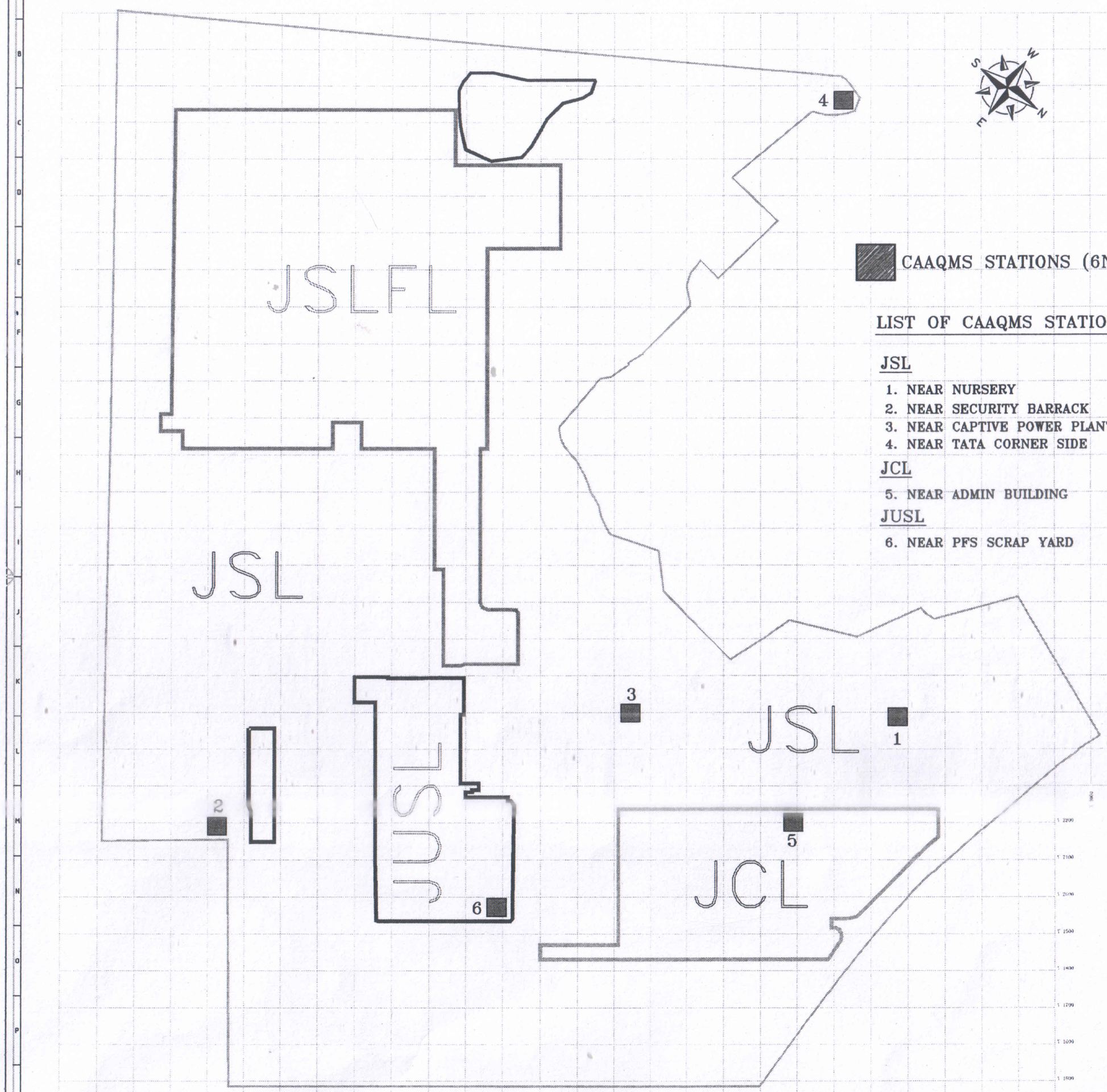
Thanking you.

Your's faithfully
Jindal Stainless Limited

Maitreyee Deb

Maitreyee Deb
Head - Environment

RECEIVED
No. hm
Date. 25/04/24



CAAQMS STATIONS (6NOS)

LIST OF CAAQMS STATIONS

JSL

1. NEAR NURSERY
2. NEAR SECURITY BARRACK
3. NEAR CAPTIVE POWER PLANT
4. NEAR TATA CORNER SIDE

JCL

5. NEAR ADMIN BUILDING

JUSL

6. NEAR PFS SCRAP YARD

Certified that 6 (six) numbers of CAAQMS installed as per said locations.

25.04.24

M. M. Sahoo
25/04/24
Dy. Env. Engg.
SPCB, Hqrs

Regional Officer
State Pollution Control Board, Odisha
Kalinga Nagar, Jajpur

LINEAR DIMENSION TOLERANCE			
0.5-6	±0.1	400 - 1000	±0.6
>6-30	±0.2	1000 - 2000	±1.2
>30-120	±0.3	2000 TO 4000	±2.0
>120-400	±0.5	4000 TO 8000	±3.0

	NAME	DATE
DRN.	L.SETH	04.08.23
CHD.	S.NAYAK	04.08.23
APPD.	M.DES	04.08.23

REFERENCE DRG. No.

JINDAL GROUP COMPANIES
Kalinga Nagar Industrial Complex, Jajpur, Odisha - 755026

INTEGRATED STAINLESS STEEL PROJECT

LOCATION MAP OF CAAQMS STATIONS

SCALE N.T.S
SIZE A0
SHEET 1 OF 1
REV. 5

DRG.No. JSL-GL-0001

REV	ZONE	REVISION	REV.BY	CHD.BY	APPD.BY	DATE

Annexure - III

Details of Decarbonization programs

S No	Description of Project	Carbon Abatement Potential (tCO2/Year)
1	Installation of Coke Dry Quenching (CDQ) of 120 TPH and power generation of 12 MW from Waste Heat Recovery Boiler (WHRB)	59,558
2	130 KWp of rooftop solar power plant	150
	Total	**59,708**

JINDAL
COKE LIMITED

QUALITY, ENVIRONMENT, OCCUPATIONAL HEALTH & SAFETY POLICY

Jindal Coke Limited is committed to produce and supply high quality coke and by-products through capability building, use of best practices, maintaining reliable relationships with all stakeholders and innovative stain-less solutions with a commitment to maintain environment friendly, safe, healthy and sustainable working conditions in all its operations.

We are committed to:

- Meeting and exceeding customer needs and expectations through deployment of state of the art manufacturing technologies, performance improvement and innovative practices.
- Comply with all applicable legal and other specific requirements to which organization subscribes.
- Protect environment and prevent pollution by reducing emissions, sustainable and efficient usage of natural resources.
- Prevent injury and ill health by establishing safe working condition and adopting safe working practices as identified through occupational health & safety risk assessment.
- Review this policy periodically to ensure relevance, appropriateness and continual improvement of integrated management system with involvement of all interested parties as applicable.
- Consultation and participation of workers and their representatives at all applicable levels and functions.

Date: 25th April 2024

Deepak Agiwal
(Director)
Jindal Coke Limited

JINDAL COKE LIMITED

Appendix - A

Environment Monitoring Report (April, 2024 – September, 2024)

A. Stack Analysis:

Particulate Matter (PM):

Monitoring Results of Stack Analysis								
Sl. No.	**Sampling Stations**	**Monthly Average Concentration of Particulate Matter (mg/Nm^3)**						
		Apr.-24	**May-24**	**June-24**	**July-24**	**Aug. -24**	**Sept. -24**	**Permissible limit**
1	Coke Oven Battery # 1 Stack	36.2	43.8	40.2	34.8	27.9	28.9	**50**
2	Coke Oven Battery# 2 Stack	-	-	-	-	15.2	27.2	**30**

Sulphur Dioxide (SO_2):

Monitoring Results of Stack Analysis								
Sl. No.	**Sampling Stations**	**Monthly Average Concentration of Sulphur Dioxide (mg/Nm^3)**						
		Apr.-24	**May-24**	**June-24**	**July-24**	**Aug. -24**	**Sept. -24**	**Permissible limit**
1	Coke Oven Battery # 1 Stack	408.8	435.9	452.8	393.4	415.2	385.5	**800**
1	Coke Oven Battery# 2 Stack	-	-	-	-	487.8	316.2	

Oxide of Nitrogen (NOx):

Monitoring Results of Stack Analysis								
Sl. No.	**Sampling Stations**	**Monthly Average Concentration of Oxide of Nitrogen (mg/Nm^3)**						
		Apr.-24	**May-24**	**June-24**	**July-24**	**Aug. -24**	**Sept. -24**	**Permissible limit**
1	Coke Oven Battery # 1 Stack	127.6	154.8	177.3	155.8	134.1	120.7	**500**
1	Coke Oven Battery# 2 Stack	-	-	-	-	215.8	106.6	

VOC:

Concentration of VOC – Battery # 1 (October' 24)

Sl. No.	Parameters	Test Method	Unit of Measurement	Analysis Results
1.	Benzene	HESC-G/INS/SOP/028 Issue No.:01 Issue Date:01.03	mg/m^3	<0.01
2.	Toluene		mg/m^3	<0.01
3.	Ethyle Benzene		mg/m^3	<0.01
4.	O- Xylene		mg/m^3	<0.01
5.	M- Xylene		mg/m^3	<0.01
6.	P- Xylene		mg/m^3	<0.01
7.	Chlorobenzene		mg/m^3	<0.01
8.	Isopropyl benzene		mg/m^3	<0.01
9.	Bromobenzene		mg/m^3	<0.01
10.	1,3,5-Trimethyle benzene		mg/m^3	<0.01
11.	1,3,4-Trimethyle benzene		mg/m^3	<0.01
12.	Sec- Butylbenzene		mg/m^3	<0.01
13.	Tert- Butylbenzene		mg/m^3	<0.01
14.	1,4- Dichlorobenzene		mg/m^3	<0.01
15.	n- Butylbenzene		mg/m^3	<0.01
16.	1,2,3- Trichlorobenzene		mg/m^3	<0.01
17.	Trichloroethylene		mg/m^3	<0.01
18.	1,1,1,2- Tetrachloroethane		mg/m^3	<0.01
19.	Hexachlorobutadiene		mg/m^3	<0.01
20.	1,2-Dibromo-3-Chloropropane		mg/m^3	<0.01
21.	1,1,1- Trichloroethane		mg/m^3	<0.01
22.	1,1,2,2- Tetrachloroethane		mg/m^3	<0.01
23.	1,1,2- Trichloroethane		mg/m^3	<0.01
24.	1,1- Dichloroethane		mg/m^3	<0.01
25.	1,1- Dichloroethylene		mg/m^3	<0.01
26.	1,1- Dichloropropylene		mg/m^3	<0.01
27.	1,2,3- Trichloropropane		mg/m^3	<0.01
28.	1,2,4- Trichlorobenzene		mg/m^3	<0.01
29.	1,2,4- Trimethylebenzene		mg/m^3	<0.01
30.	1,2- Bromomethane		mg/m^3	<0.01

Concentration of VOC – Battery # 2 (October' 24)

Sl. No.	Parameters	Test Method	Unit of Measurement	Analysis Results
1.	Benzene	HESC-G/INS/SOP/028 Issue No.:01 Issue Date:01.03	mg/m^3	<0.01
2.	Toluene		mg/m^3	<0.01
3.	Ethyle Benzene		mg/m^3	<0.01
4.	O- Xylene		mg/m^3	<0.01
5.	M- Xylene		mg/m^3	<0.01
6.	P- Xylene		mg/m^3	<0.01
7.	Chlorobenzene		mg/m^3	<0.01
8.	Isopropyl benzene		mg/m^3	<0.01
9.	Bromobenzene		mg/m^3	<0.01
10.	1,3,5-Trimethyle benzene		mg/m^3	<0.01
11.	1,3,4-Trimethyle benzene		mg/m^3	<0.01
12.	Sec- Butylbenzene		mg/m^3	<0.01
13.	Tert- Butylbenzene		mg/m^3	<0.01
14.	1,4- Dichlorobenzene		mg/m^3	<0.01
15.	n- Butylbenzene		mg/m^3	<0.01
16.	1,2,3- Trichlorobenzene		mg/m^3	<0.01
17.	Trichloroethylene		mg/m^3	<0.01
18.	1,1,1,2- Tetrachloroethane		mg/m^3	<0.01
19.	Hexachlorobutadiene		mg/m^3	<0.01
20.	1,2-Dibromo-3-Chloropropane		mg/m^3	<0.01
21.	1,1,1- Trichloroethane		mg/m^3	<0.01
22.	1,1,2,2- Tetrachloroethane		mg/m^3	<0.01
23.	1,1,2- Trichloroethane		mg/m^3	<0.01
24.	1,1- Dichloroethane		mg/m^3	<0.01
25.	1,1- Dichloroethylene		mg/m^3	<0.01
26.	1,1- Dichloropropylene		mg/m^3	<0.01
27.	1,2,3- Trichloropropane		mg/m^3	<0.01
28.	1,2,4- Trichlorobenzene		mg/m^3	<0.01
29.	1,2,4- Trimethylebenzene		mg/m^3	<0.01
30.	1,2- Bromomethane		mg/m^3	<0.01

Environment Monitoring Report (April, 2024 – September, 2024)

Ambient Air Monitoring Report:

AAQ near Nursery

Sl. No.	Parameters	Monthly Average concentration						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
1	PM_{10} µg/m^3	73.6	75.8	69.8	76.4	84.4	82.2	100(24 Hrs)
2	$PM_{2.5}$ µg/m^3	38.9	36.8	28.4	32.5	37.9	35.4	60 (24 Hrs)
3	SO_2 µg/m^3	28.3	24.2	20.7	18.7	28.2	27.5	80(24 Hrs)
4	NO_x µg/m^3	20.9	19.6	15.4	15.5	18.3	17.8	80(24 Hrs)
5	CO mg/m^3	0.69	0.72	0.55	0.62	0.82	0.78	2 (8 Hrs)

NB: Parameters such as Lead, Benzene, Benzopyrene, Arsenic & Nickel found to be below detection limit (BDL).

AAQ near Security Barrack

Sl. No.	Parameters	Monthly Average concentration						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
1	PM_{10} µg/m^3	89.6	92.4	80.3	84.4	93.4	90.6	100(24 Hrs)
2	$PM_{2.5}$ µg/m^3	44.5	47.2	38.2	36.2	45.2	40.2	60 (24 Hrs)
3	SO_2 µg/m^3	32.2	34.2	27.6	25.8	30.8	30.4	80(24 Hrs)
4	NO_x µg/m^3	24.0	26.4	21.8	20.1	20.2	19.6	80(24 Hrs)
5	CO mg/m^3	0.75	0.87	0.77	0.88	0.95	0.92	2 (8 Hrs)

NB: Parameters such as Lead, Benzene, Benzopyrene, Arsenic & Nickel found to be below detection limit (BDL).

AAQ near Admin. Building

Sl. No.	Parameters	Monthly Average concentration						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
1	PM_{10} µg/m^3	90.4	89.8	76.2	85.9	90.6	86.6	100(24 Hrs)
2	$PM_{2.5}$ µg/m^3	46.2	44.2	34.3	36.7	43.5	38.2	60 (24 Hrs)
3	SO_2 µg/m^3	34.0	32.8	22.8	26	31.4	28.7	80(24 Hrs)
4	NO_x µg/m^3	26.4	25.6	18.9	21.5	19.9	18.5	80(24 Hrs)
5	CO mg/m^3	0.88	0.93	0.82	0.95	0.97	0.98	2 (8 Hrs)

NB: Parameters such as Lead, Benzene, Benzopyrene, Arsenic & Nickel found to be below detection limit (BDL).

AAQ near Silo DCS Panel Room

Sl. No.	Parameters	Monthly Average concentration						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
1	PM_{10} µg/m^3	76.2	78.1	74.4	79.2	87.6	80.0	100(24 Hrs)
2	$PM_{2.5}$ µg/m^3	40.0	38.4	30.5	34.0	39.7	34.6	60 (24 Hrs)
3	SO_2 µg/m^3	30.2	24.8	24.8	20.3	29.8	25.9	80(24 Hrs)
4	NO_x µg/m^3	21.8	20.2	17.2	17.8	18.7	16.9	80(24 Hrs)
5	CO mg/m^3	0.72	0.88	0.80	0.90	0.95	0.90	2 (8 Hrs)
NB: Parameters such as Lead, Benzene, Benzopyrene, Arsenic & Nickel found to be below detection limit (BDL).								

C. Fugitive Visual Emission:

Sl. No.	Parameters	Monthly Average concentration						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Standard
1	Leakage from Door (PLD)	3.17	5.55	1.58	2.38	4.76	3.17	**10**
2	Leakage from Charging Lids (PLL)	0.79	0	0.79	0.79	0	0.79	**1**
3	Leakage from AP Covers (PLO)	3.17	1.58	0	1.58	3.17	3.17	**4**
4	Charging Emission (Second/ Charge (HPLA)	52.0	70.6	61.5	72.8	54.0	65.0	**75**
5	Carbon Monoxide Kg/MT of Coke product	1.4	1.3	1.3	1.4	1.7	1.3	**3**

D. Noise Monitoring Report:

i. Ambient Noise Monitoring Data

Noise Level Monitoring Results at Different Locations of the Plant								
Sl. No.	Location	Monthly Average Noise Level						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
		DAY TIME						
1.	At Nursery	68.2	67.5	66.9	66.9	65.5	67.2	75 dB(A)
2.	At Security Barrack	72.4	71.8	69.4	69.4	70.8	70.2	
3.	At Admin. Building	71.8	71.9	72.0	70.2	70.5	70.8	
4.	At Silo DCS panel room	70.2	70.6	71.8	70.1	68.7	70.1	
		NIGHT TIME						
1.	At Nursery	55.4	55.2	55.6	55.6	50.2	56.2	70 dB(A)
2.	At Security Barrack	57.1	58.2	57.6	57.6	56.6	57.4	
3.	At Admin. Building	55.7	56.7	56.2	56.2	57.2	56.2	
4.	At Silo DCS panel room	55.3	56.3	56.1	55.8	56.8	55.9	

ii. Plant Area Noise Monitoring Data

Noise Level Monitoring Results at Different Locations of the Plant								
Sl. No.	Location	Monthly Average Noise Level (Leq in dB(A))						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limit
1	Near cooling tower area	79.4	78.2	79.4	79.2	78.6	78.9	85 dB(A)
2	Near By product area	80.7	79.6	78.8	79.6	78.4	79.5	
3	Near Secondary Crusher area	80.0	81.2	82.0	81.6	81.8	80.4	
4	Near compressor Room	81.7	82.2	81.6	81.1	82.0	81.3	
5	Near Administrative Building/Near DG Room	80.4	80.8	80.5	80.7	81.1	79.4	

E. Ground Water Quality:

Sl. No.	Parameter	Limit as per IS 10500 :2012		Date of sampling: 27.11.2024
		Acceptable Limit	Permissible limit	Bore well at Coke Oven Plant
1	Colour, Hazen Units	5	15	<5
2	Odour	Agreeable	Agreeable	Agreeable
3	pH	6.5 - 8.5	6.5 - 8.5	6.9
4	Turbidity, NTU	1	5	<1.0
5	Total dissolve solid, mg/l	500	2000	358.6
6	Total Hardness (as $CaCO_3$), mg/l	200	600	193.0
7	Iron (as Fe), mg/l	1.0	1.0	0.52
8	Chloride (as Cl), mg/l	250	1000	31.2
9	Residual Free Chlorine, mg/l	0.2	1.0	<0.1
10	Fluoride (as F), mg/l	1.0	1.5	0.4
11	Calcium (as Ca), mg/l	75	200	46.4
12	Magnesium(as Mg), mg/l	30	100	18.8
13	Copper(as Cu), mg/l	0.05	1.5	<0.02
14	Manganese (as Mn), mg/l	0.1	0.3	<0.05
15	Sulphate (as SO_4), mg/l	200	400	16.2
16	Nitrate (as NO_3), mg/l	45	45	4.4
17	Phenol (as C_6H_5OH), mg/l	0.001	0.002	< 0.002
18	Mercury,(as Hg), mg/l	0.001	0.001	<0.001
19	Cadmium (as Cd), mg/l	0.003	0.003	<0.01
20	Selenium (as Se), mg/l	0.01	0.01	< 0.001
21	Arsenic (as As), mg/l	0.01	0.05	< 0.004
22	Cyanide (as CN), mg/l	0.05	0.05	<0.02
23	Lead (as Pb), mg/l	0.01	0.01	<0.01
24	Zinc (as Zn), mg/l	5	15	<0.01
25	Anionic Detergents (as MBAS), mg/l	0.2	1.0	<0.1
26	Total Chromium (as Cr), mg/l	0.05	0.05	< 0.05
27	Mineral Oil, mg/l	0.5	0.5	< 0.2
28	Total Alkalinity(as $CaCO_3$), mg/l	200	600	119.6
29	Aluminium (as Al), mg/l	0.03	0.2	< 0.01
30	Boron (as B), mg/l	0.5	1.0	< 0.1
31	Nickel (as Ni), mg/l	0.02	0.02	<0.02
32	Coliform Organisms, (MPN/100ml)	Nil	Nil	Absent
33	E Coli (MPN/100 ml)	Nil	Nil	Absent

F. Treated Effluent Quality At COBP – PETP OUTLET:

Table F-1:

Sl. No.	PARAMETER	Norm as per G.S.R. 422 (E)(Inland Surface water)	April - 2024	May -2024
			Date of Sampling – 23.04.2024	Date of Sampling – 31.05.2024
1	Colour, Hazen Units	-	<5	<5
2	Suspended Solid, mg/l	100	38.2	43.8
3	Total Dissolved Solids, mg/l	2100	684.6	724.4
4	pH Value	5.5 to 9.0	7.3	7.8
5	Oil & grease, mg/l	10	6.3	5.6
6	Total Res. Chlorine, mg/l	1	ND	ND
7	BOD (3 days at 27^0C), mg/l	30	14.8	16.8
8	COD, mg/l	250	72.4	86.4
9	Hexavalent chromium (as Cr^{6+}), mg/l	0.1	<0.01	<0.01
10	Cyanide (as CN), mg/l	0.2	0.01	0.02
11	Fluoride (as F), mg/l	2	<0.1	<0.1
12	Sulphide (as S) mg/l	2	<0.1	<0.1
13	Phenol (as C_6H_5OH), mg/l	1	0.2	0.1
14	Iron (as Fe), mg/l	3	2.0	1.8
15	Nitrate Nitrogen, mg/l	10	1.7	5.2
16	Dissolved Phosphate, mg/l	5	5.8	2.0
17	Arsenic, mg/l	0.2	<0.004	<0.004
18	Lead, mg/l	0.1	< 0.01	< 0.01
19	Zinc, mg/l	5	<0.01	<0.01
20	Mercury, mg/l	0.01	<0.004	<0.004
21	Total Chromium, mg/l	2	<0.01	<0.01
22	Copper, mg/l	3	<0.02	<0.02
23	Nickel, mg/l	3	<0.05	<0.05
24	Manganese, mg/l	2	<0.05	<0.05
25	Vanadium, mg/l	0.2	<0.01	<0.01
26	Selenium, mg/l	0.05	<0.001	<0.001
27	Free Ammonia, mg/l	5.0	<0.01	<0.01

Environment Monitoring Report (April, 2024 – September, 2024)

Table F-2:

Sl. No.	PARAMETER	Norm as per G.S.R. 422 (E)(Inland Surface water)	June- 2024	July - 2024
			Date of Sampling – 19.06.2024	Date of Sampling – 19.07.2024
1	Colour, Hazen Units	-	<5	<5
2	Suspended Solid, mg/l	100	63.8	37.3
3	Total Dissolved Solids, mg/l	2100	854.4	662.8
4	pH Value	5.5 to 9.0	7.9	7.1
5	Oil & grease, mg/l	10	5.1	4.2
6	Total Res. Chlorine, mg/l	1	ND	ND
7	BOD (3 days at 27^0C), mg/l	30	18.2	12.2
8	COD, mg/l	250	94.4	58.4
9	Hexavalent chromium (as Cr^{6+}), mg/l	0.1	<0.01	<0.01
10	Cyanide (as CN), mg/l	0.2	0.04	0.04
11	Fluoride (as F), mg/l	2	<0.1	<0.1
12	Sulphide (as S) mg/l	2	<0.1	<0.1
13	Phenol (as C_6H_5OH), mg/l	1	0.2	0.1
14	Iron (as Fe), mg/l	3	1.6	1.2
15	Nitrate Nitrogen, mg/l	10	5.9	4.4
16	Dissolved Phosphate, mg/l	5	3.2	2.2
17	Arsenic, mg/l	0.2	<0.004	<0.004
18	Lead, mg/l	0.1	< 0.01	< 0.01
19	Zinc, mg/l	5	<0.01	<0.01
20	Mercury, mg/l	0.01	<0.004	<0.004
21	Total Chromium, mg/l	2	<0.01	<0.01
22	Copper, mg/l	3	<0.02	<0.02
23	Nickel, mg/l	3	<0.05	<0.05
24	Manganese, mg/l	2	<0.05	<0.05
25	Vanadium, mg/l	0.2	<0.01	<0.01
26	Selenium, mg/l	0.05	<0.001	<0.001
27	Free Ammonia, mg/l	5.0	<0.01	<0.01

Environment Monitoring Report (April, 2024 – September, 2024)

Table F-3:

Sl. No.	PARAMETER	Norm as per G.S.R. 422 (E)(Inland Surface water)	Aug. - 2024	Sept. - 2024
			Date of Sampling – 30.08.2024	Date of Sampling – 28.09.2024
1	Colour, Hazen Units	-	<5	<5
2	Suspended Solid, mg/l	100	39.7	43.8
3	Total Dissolved Solids, mg/l	2100	397.3	416.5
4	pH Value	5.5 to 9.0	7.7	7.4
5	Oil & grease, mg/l	10	6.9	7.4
6	Total Res. Chlorine, mg/l	1	ND	ND
7	BOD (3 days at 27^0C), mg/l	30	18.2	16.4
8	COD, mg/l	250	84.6	84.2
9	Hexavalent chromium (as Cr^{6+}), mg/l	0.1	<0.01	<0.01
10	Cyanide (as CN), mg/l	0.2	0.04	0.09
11	Fluoride (as F), mg/l	2	0.4	0.6
12	Sulphide (as S) mg/l	2	<0.1	<0.1
13	Phenol (as C_6H_5OH), mg/l	1	0.1	0.06
14	Iron (as Fe), mg/l	3	2.0	1.6
15	Nitrate Nitrogen, mg/l	10	6.3	4.6
16	Dissolved Phosphate, mg/l	5	2.3	2.4
17	Arsenic, mg/l	0.2	<0.004	<0.004
18	Lead, mg/l	0.1	< 0.01	< 0.01
19	Zinc, mg/l	5	<0.01	<0.01
20	Mercury, mg/l	0.01	<0.004	<0.004
21	Total Chromium, mg/l	2	<0.01	<0.01
22	Copper, mg/l	3	<0.02	<0.02
23	Nickel, mg/l	3	<0.05	<0.05
24	Manganese, mg/l	2	<0.05	<0.05
25	Vanadium, mg/l	0.2	<0.01	<0.01
26	Selenium, mg/l	0.05	<0.001	<0.001
27	Free Ammonia, mg/l	5.0	<0.01	<0.01

G. Fugitive Dust Emission :

Monitoring Results of Fugitive Air Emission								
Sl. No.	Sampling Stations	Concentration of Particulate Matter Below 10 micron as PM_{10} ($\mu g/m^3$)						
		Apr.-24	May-24	June-24	July-24	Aug. -24	Sept. -24	Permissible limits
1	Near Battery#1 Top	465.4	478.2	457.6	468.1	478.2	522.6	
2	Near By Product Area	412.7	442.7	430.2	411.6	384.1	392.7	
3	Near Coal Tower area of battery#1	688.2	497.6	604.9	524.8	530.6	432.1	

JINDAL COKE LIMITED

Environment Monitoring Report (April, 2024 – September, 2024)

A. Continuous Ambient Air Quality Monitoring System (CAAQMS) report:

Location - Near Admin Building

Sl. No.	Parameters	Monthly Average concentration						
		April'24	May'24	Jun'24	July'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	PM_{10} (µg/m³)	96.50	55.70	57.50	63.90	56.80	51.00	100(24 Hrs)
2	$PM_{2.5}$ (µg/m³)	36.70	30.90	20.90	23.40	26.40	26.70	60 (24 Hrs)
3	SO_2 (µg/m³)	13.80	07.30	07.80	09.40	19.90	14.60	80(24 Hrs)
4	NO_x(µg/m³)	30.70	23.40	21.10	20.90	20.20	24.50	80(24 Hrs)
5	CO (µg/m³)	0.7	0.5	0.5	0.4	0.4	0.5	02 (08 Hrs)

Location - Near Nursery

Sl. No.	Parameters	Monthly Average concentration						
		April'24	May'24	Jun'24	July'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	PM_{10} (µg/m³)	74.24	50.74	53.80	33.86	42.88	59.28	100(24 Hrs)
2	$PM_{2.5}$ (µg/m³)	46.65	28.77	31.06	17.61	20.82	22.93	60 (24 Hrs)
3	SO_2 (µg/m³)	28.81	51.64	52.43	43.36	24.02	26.44	80(24 Hrs)
4	NO_x(µg/m³)	20.87	29.27	18.63	15.66	15.53	15.42	80(24 Hrs)
5	CO (µg/m³)	0.69	0.53	0.46	0.45	0.43	0.28	02 (08 Hrs)

Location - Near Security Barrack

Sl. No.	Parameters	Monthly Average concentration						
		April'24	May'24	Jun'24	July'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	PM_{10} (µg/m³)	78.67	53.08	59.48	63.80	89.77	72.91	100(24 Hrs)
2	$PM_{2.5}$ (µg/m³)	51.96	18.01	27.21	38.65	35.76	18.07	60 (24 Hrs)
3	SO_2 (µg/m³)	28.44	23.59	21.77	23.17	22.53	22.08	80(24 Hrs)
4	NO_x(µg/m³)	27.61	27.47	18.45	15.14	12.90	11.42	80(24 Hrs)
5	CO (µg/m³)	0.55	0.36	0.26	0.22	0.23	0.20	02 (08 Hrs)

Location - Near CPP

Sl. No.	Parameters	Monthly Average concentration						
		April'24	May'24	Jun'24	July'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	PM_{10} (µg/m³)	57.91	48.64	61.22	46.10	45.56	67.66	100(24 Hrs)
2	$PM_{2.5}$ (µg/m³)	30.40	18.34	26.74	18.01	23.30	20.27	60 (24 Hrs)
3	SO_2 (µg/m³)	38.52	39.25	40.31	41.45	42.10	43.34	80(24 Hrs)
4	NO_x(µg/m³)	21.65	21.63	23.62	22.53	21.74	21.64	80(24 Hrs)
5	CO (µg/m³)	0.62	0.58	0.51	0.42	0.40	0.55	02 (08 Hrs)

B. Continuous Emission Monitoring System (CEMS) report

Sl. No.	Sampling Stations	Parameters	Monthly Average Concentration of PM and SO_2 (mg/Nm³)						
			Apr'24	May'24	Jun'24	Jul'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	Coke Oven Stack	PM	35.07	35.05	35.0	35.0	35.0	35.0	50
		SO2	254.95	254.6	254.9	254.7	254.7	255.0	800
		NOx	67.70	67.6	67.60	67.4	67.4	67.6	500

C. Continuous Effluent Quality Monitoring System (CEQMS) report:

Location: Coke Oven ETP Out let

Sl. No.	Parameters	Monthly Average concentration						
		April'24	May'24	Jun'24	July'24	Aug'24	Sept'24	Permissible limits as per SPCB
1	TSS	17.06	16.32	14.76	15.89	21.74	12.03	0 - 100.0 mg
2	pH	8.19	8.14	8.32	8.33	6.62	7.22	5.5 - 9.0 pH
3	BOD	8.48	11.86	7.88	8.6	11.6	7.08	0 - 30.0 mg/l
4	COD	80.20	79.59	81.34	81.45	46.15	43.07	0 - 250.0 mg/l