

BY SPEED  
POST



Steel Authority of India Limited  
Rourkela Steel Plant  
Rourkela – 769011  
Fax : 0661-2510183

Ref. No.: 691/EE/59/  
Date : 01/05/2021.

Dear Sir,

Sub : Implementation Status of Env. Clearance Conditions issued to RSP.

Ref. : EC vide ref. no. F No. J-11011/757/2007-IA II(I), dated 29/01/2008, extension order dated 05/07/2013 & amendment order dated 26/03/2014.

###

This has reference to the aforesaid Environment Clearance (EC) accorded to Rourkela Steel Plant (RSP) for its Expansion project, its extension order and amendment w.r.t. water consumption. The implementation status of the various Special and General Conditions mentioned in EC order for the period of October 2020 to March, 2021 is enclosed.

Thanking you sir,

With warm regards,

Yours faithfully,  
For Rourkela Steel Plant,

(P C Dash)  
General Manager I/c  
Environmental Engg. Department

Note : Soft copy mailed to [roez.bsr-mef@nic.in](mailto:roez.bsr-mef@nic.in)

To : The Dy. Director General of Forests (C),  
Integrated Regional Office,  
Ministry of Environment & Forests,  
A/3, Chandrasekharapur,  
Bhubaneswar. – 751023.



**Steel Authority of India Limited  
Rourkela Steel Plant's Expansion Project**

(Environment Clearance vide ref.no. F No. J-11011/757/2007-IA II(I), dated 29/01/2008 & EC extension up to 29/01/2018 vide order, dated 05/07/2013 & Amendment order dated 26/03/2014)  
Half Yearly Report (October.,2020 – March.,2021)

**Contact Persons :** Sri P C Dash, GM I/c (Env. Engg.) Phone : 0661-2447258  
Sri V V R Murty, GM(Env. Engg.) Phone : 0661-2448254

**Special Conditions**

SN.	CONDITION	STATUS/ ACTION PLAN
i)	All the existing batteries shall be rebuilt by 2012 meeting all the pollution control norms as per CPCB guidelines and a commitment in this regard shall be submitted to the Ministry	<p>RSP has 6 no. of Coke Oven Batteries.</p> <ul style="list-style-type: none"> <li>• COB#1, COB#3, COB#4 &amp; COB#5 have been rebuilt.</li> <li>• COB#2 has been put down, awaiting for re-building.</li> <li>• COB#6 is a new battery constructed under recent expansion project.</li> </ul> <p>Battery wise details are,</p> <ul style="list-style-type: none"> <li>• COB#1 --Rebuilt &amp; commissioned in May, 2007</li> <li>• COB#2 – Put down since March, 2016 for rebuilding.</li> <li>• COB#3 – Rebuilt and commissioned in December, 2016.</li> <li>• COB#4 – Last rebuilt &amp; commissioned in May 2010</li> <li>• COB#5 – Last rebuilt &amp; commissioned in July, 2000</li> <li>• COB#6 -- Newly Constructed &amp; commissioned in March, 2014</li> </ul>
ii)	The industry shall follow coke oven standards as per E(P) Rules. VOCs from the coke oven shall be monitored and controlled as per CPCB guidelines.	RSP is following the Coke Oven Standards as per E(P) Rules. VOCs are being monitored by a NABL accredited external agency. The monitoring results along with interpretation are given at Annexure- 1.
iii)	Efforts shall be made to further reduce the existing ambient air and stack emissions and waste generation and a report submitted to the Ministry, its Regional Office at Bhubaneswar, CPCB and OPCB.	All out efforts are being made to further reduce waste generation, reduce all stack emissions, thereby to improve ambient air quality. A report is being submitted to CPCB and SPCB once in a month regularly giving the status of stack emissions, ambient air quality & solid waste utilization. A report showing the stack emissions, ambient air quality and solid waste utilization for the period of October 2020- March 2021 along with interpretation are given at Annexure-2, 3 & 4 respectively.
iv)	Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. On-line stack monitoring facilities for all the stacks and sufficient air pollution control methods shall be provided to control emissions below 100 mg/Nm <sup>3</sup> viz. ESP and bag filters etc. and data submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and OSPCB	<ul style="list-style-type: none"> <li>a) All out efforts are being put for reducing RSPM levels.</li> <li>b) On-line stack monitoring facilities are provided in all stacks under Expansion Project</li> <li>c) All air pollution control systems viz., ESPs, Bag Filters etc., are designed to control stack emissions &lt; 100 mg/Nm<sup>3</sup>.</li> <li>d) The stack emissions are monitored regularly and data submitted to all statutory authorities once in a month.</li> </ul> <p>The ambient air quality &amp; stack emissions during Oct. 2020 – March 2021 along with interpretation are given at Annexure -2 &amp; 3.</p>

SN.	CONDITION	STATUS/ ACTION PLAN
v)	Electrostatic precipitator (ESP) shall be provided to Sinter plant, Power Plant and Blast Furnace (BF) to control gaseous emissions from all the vents/stacks within 100 mg/Nm <sup>3</sup> . Coal dust injection (CDI) shall be provided to Blast furnace plants. Bag filter shall be provided to lime Calcining Plant, new vertical shaft kiln and Dolomite plant. Emissions shall be controlled from the Cast house and Stock house within permissible limits. High Pressure Liquor Aspiration (HPLA) system shall be provided to new Coke Oven Battery	<p>a) 3 no. of ESPs were provided in Sinter Plant No. 3 &amp; another 3 no. of ESPs were provided in Blast Furnace No. 5, under recently concluded Expansion Project.</p> <p>b) One new ESP was provided for MP Boiler#3 and 2 no. of ESPs were augmented for HP Boiler#5 &amp; #6 of Captive Power Plant#1 for bringing down stack emissions below 100 mg/Nm<sup>3</sup>.</p> <p>c) CDI is provided in all Blast Furnaces viz., BF#1, BF#4 &amp; BF#5.</p> <p>d) 9 no. of Bag houses were provided in Calcining Plant.</p> <p>e) Dedicated ESPs are provided for Cast House de-fuming and Stock House of BF#5.</p> <p>f) Dedicated ESPs were provided for Cast House De-fuming of BF#1 &amp; BF#4.</p> <p>g) HPALA system was provided in new COB#6.</p> <p>The stack emissions i.e., at the outlet of pollution control systems are regularly monitored and cross checked with norms. Preventive and corrective actions are being taken for maximizing the efficiency of ESPs based on the monitoring results.</p>
vi)	Regular monitoring of the Benzo(a)Pyrene, Poly Aromatic Hydrocarbons (PAHs) and Volatile Organic Compounds (VOCs) in the ambient air and stack emissions shall be carried out.	<p>BaP, PAHs and VOCs are monitored in Ambient air and Stack emissions regularly and the reports are submitted to all statutory authorities.</p> <p>The PAH levels along with interpretations are given at Annexure-5.</p> <p>VOCs in stacks and ambient air are monitored and the results along with interpretation are given at Annexure- 1 &amp; 2.</p>
vii)	Secondary fugitive emissions from all the sources including blast furnace and sinter plant shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	<p>Dust extraction systems viz., ESPs, Bag Houses &amp; Cold Fog Dust suppression systems are provided in COB#6, Sinter Plant#3 &amp; Blast Furnace #5 to control the fugitive emissions and to meet statutory guidelines.</p> <p>RSP is following all the CPCB guidelines / code of practices in controlling secondary fugitive emissions.</p>
viii)	Total make up water requirement of the Plant from Brahmani River shall not exceed *2,27,352 m <sup>3</sup> /day and prior permission shall be obtained from the concerned department. No ground water shall be used for the plant. The effluent shall be treated in the effluent treatment plant. Maximum treated wastewater shall be recycled and reused in the process for cooling, gas cleaning plant (GCP), steel making, slag granulation plant (SGP), dust suppression, green belt development etc. The excess wastewater shall be discharged only after conforming all the parameters to the prescribed standards within the permissible limits of OPCB. *MoEF's Corrigendum dated 26 <sup>th</sup> March, 2014.	<p>a) The water requirement is being confined to 2,27,352 m<sup>3</sup>/day as per the Corrigendum issued by MoEF dated 26/03/2014. (Total water drawl in March, 2021 was 2,03,799 m<sup>3</sup>/day).</p> <p>b) Dedicated WWTPs are provided in all Units &amp; treated water is recycled back.</p> <p>c) Only little quantity of blow down water is discharged after confirming to norms.</p> <p>d) No ground water is used in RSP.</p> <p>The quality of finally treated effluent discharged to river during October.,2020 – March.,2021 monitored by a NABL accredited external agency along with interpretation is given at Annexure-6.</p>
ix)	As proposed, 90% of the solid waste shall be recycled and reused and remaining shall be disposed off in secured landfill designed as per the specifications of the CPCB. BF slag shall be granulated and used in environment-friendly manner. Slag from SMS-I & II shall be used for making road embankments. Iron ore fines, Fluxes cinder, Mill scales and Scrap etc. shall be recycled and reused in Sintering Plant. SMS scrap shall be recycled in Steel Melting Shop. All the waste oil shall be sold to recyclers/re-processors.	<p>a) The Solid Waste Utilization for October.,2020 – March.,2021 is 86.15%</p> <p>b) The un-utilized Solid Wastes are kept inside RSP's Plant boundary for future utilization.</p> <p>c) A Secured Landfill Facility has been constructed as per CPCB guidelines, first time in SAIL and is in operation.</p> <p>The utilization of total solid wastes have already been enhanced by maximizing the utilization of BF slag for cement making. SMS slag utilization is being increased by enhancing its utilization in base mix preparation (Sinter making) in blast furnaces, as rail ballast, road making and its use for development of land areas inside the plant premises. All the metallic scrap is being recycled back to SMS. All the waste oil is being sold to the outside parties who are having valid registration with statutory agencies. The solid waste utilization during October.,2020 – March.,2021 is given at Annexure-4.</p>

SN.	CONDITION	STATUS/ ACTION PLAN
x)	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.	<p>Ground Water Samples are regularly collected from waste disposal areas &amp; Secured Land Fills i.e., from Sitalpara dump area and Old BFc Slag Dump area (Deogaon) once in a month and are analyzed through a NABL accredited external agency. The data is submitted to all statutory authorities through monthly basis.</p> <p>The ground water quality during October.,2020 – March.,2021 along with interpretation is given at Annexure-7.</p> <p>Monitoring of the Ground Water Table levels has been started at 8 locations covering all directions along the plant boundary using Water Level meter. Location wise Water table level is given at Annexure-7a.</p>
xi)	An action plan for the disposal of fly ash, granulated and SMS slag shall be submitted to the Ministry within 3 months. All the BF slag generated shall be granulated and provided to cement manufacturers for further utilization and should not be disposed off anywhere else. SMS slag shall also be properly utilized. All the char from DRI plant shall be utilized in AFBC boiler of power plant and no char shall be disposed off anywhere else. All the fly ash shall be utilized as per the Fly Ash Notification, 1999 and subsequently amended in 2003.	<p>All the Blast Furnace Slag is being granulated through in-house slag granulation units and used for making slag cement.</p> <p>State of the art technologies are being adopted in steel making so that the SMS slag generation rate will be minimized. The SMS slag is being utilized for Sinter Making through base mix, charged into Blast Furnaces to replace lime stone and also used for pavement making and as rail ballast. The balance slag is used for development of land inside the plant premises.</p>
xi)	An action plan for the disposal of fly ash, granulated and SMS slag shall be submitted to the Ministry within 3 months. All the BF slag generated shall be granulated and provided to cement manufacturers for further utilization and should not be disposed off anywhere else. SMS slag shall also be properly utilized. All the char from DRI plant shall be utilized in AFBC boiler of power plant and no char shall be disposed off anywhere else. All the fly ash shall be utilized as per the Fly Ash Notification, 1999 and subsequently amended in 2003.	<p>There is no additional fly ash generation after implementation of this modernization cum expansion project, as the additional power is being obtained from Top Recovery Turbine (14 MW) &amp; Power Blowing Station of Blast Furnace No. 5 (36 MW), Back Pressure Turbo Generator (6.4 MW) of COB#7 and remaining 110 MW power is being obtained from State Grid.</p> <p>As per the present agreement with NTPC, the joint venture power company NSPCL is managing the fly ash, generated from captive power plant of RSP. The fly ash is being utilized for dyke height raising of Ash Ponds, being given free of cost to the fly ash users.</p> <p>Dry fly ash is being given to local entrepreneurs for brick making free of cost. All the fly ash is being utilized as per the Fly Ash Notification, 1999, amended from time to time.</p> <p>There is no char generation in Rourkela Steel Plant</p>
xii)	Green belt shall be developed in 33 % area within and around the plant premises as per the CPCB guidelines in consultation with DFO.	RSP is developing green belt in and around steel plant. 51,299 no. of saplings have been planted during 2020-21. So far more than 49.5 lakh trees have already been planted, covering more than 33% of the area.
xiii)	Recommendations of the State Forest Department shall be obtained regarding impact of the proposed expansion of the plant on the Sona Parbat RF, North Chirobeda RF and South Chirobeda RF and implemented.	The findings of EIA/EMP were submitted to State Forest Department. DFO, Rourkela has authenticated the report and the copy of the letter from DFO is enclosed at Annexure-8.
xiv)	All the recommendations mentioned in the CREP guidelines for the steel plants shall be implemented	RSP is strictly following all the CREP action points and will continue to follow the same. The status of implementation is being submitted to SPCB, CPCB & MoEFCC on monthly basis. CREP status report for the month of March, 2021 is enclosed as Annexure-20.



## GENERAL CONDITIONS

SN.	CONDITION	STATUS/ ACTION PLAN
i)	The project authorities must strictly adhere to the stipulations made by the Orissa Pollution Control Board (OPCB) and the State Government	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 Expansion Project has been executed as per the approval obtained from MoEFCC.
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	<p>RSP is following all the standards notified by the MoEFCC and State Pollution Control Board from time to time.</p> <p>a) All gaseous emissions (SO<sub>2</sub>, NO<sub>x</sub> &amp; CO) are being monitored regularly and meeting the norms.</p> <p>b) 20 no. of On- line stack monitoring systems for SPM are installed in RSP and the systems have been uplinked with the servers of SPCB &amp; CPCB.</p> <p>c) State of the art Burners are provided in COB#6 for under firing for controlling NO<sub>x</sub> levels.</p>
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 <sub>2</sub> and NO <sub>x</sub> are 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	<p>a) RSP has installed 6 no. of Ambient Air Quality Monitoring Stations in consultation with SPCB covering all directions.</p> <p>b) The monitored data viz., Stack Emissions and Ambient Air Quality is being submitted to all statutory authorities on monthly basis regularly through email. The ambient air quality for the period October.,2020 – March.,2021 along with data interpretation is given at Annexure – 2.</p>
v)	In-plant control measures for checking fugitive emissions from all the vulnerable sources like Coke oven area, Sinter plant, Blast Furnace area etc. shall be adopted. Further, specific measures like water sprinkling shall be carried out at the stock piles of raw material, stacker, reclaimers, transfer points etc. Dust extraction system and bag filters shall be provided to the sinter plant, stock house, blast furnace and steel melting shop etc. Fume extraction system in steel refining units shall also be provided. Centralized dedusting 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 for induction furnaces in the industry shall be provided. Fugitive emissions shall be controlled, regularly monitored and records maintained.	<p>a) RSP has a dedicated Env. Engg. Department with an Environment Laboratory which is certified with ISO-14001.</p> <p>b) Env. Engg. Dept.'s monitoring group carry out monitoring of fugitive emissions regularly throughout the plant and data is submitted to statutory authorities regularly on monthly basis. In addition, RSP engaged a NABL accredited external agency for monitoring fugitive emissions and the data is submitted to statutory authorities.</p> <p>c) Dust suppression systems are provided in stock yard.</p> <p>d) Dust extraction systems viz., ESP &amp; Bag Houses are provided in all Expansion Units.</p> <p>e) Fume extraction units with Bag House and ESP are provided for LHF#2A, #2B &amp; #3 of SMS#2.</p> <p>f) Dog house systems are being provided for control of secondary fugitive emissions from converters of SMS#2</p> <p>The fugitive emissions monitored during October.,2020 – March.,2021 along with data interpretation monitored through NABL accredited third party is given at Annexure-9.</p>
vi)	Industrial wastewater 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 wastewater shall be utilized for plantation purpose.	<p>a) Dedicated Waste Water Treatment Plants are provided in all units of Expansion Units.</p> <p>b) The treated water is recycled back to the process.</p> <p>c) Only little quantity of blow down water is discharged through a net work of drains to Lagoon for final treatment.</p>

SN.	CONDITION	STATUS/ ACTION PLAN
vii)	The overall noise levels in and around the plant area shall be kept well 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 the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	a) Noise control devices viz., Acoustic Hoods, Silencers and Enclosures are provided to control noise at source. b) RSP has developed a buffer zone along with RSP plant boundary by planting Trees for control of Noise. c) Noise levels are regularly monitored by Env. Engg. Dept. and data is submitted to Statutory authorities on monthly basis. The monitored noise levels at various ambient air quality monitoring stations during October, 2020 – March, 2021 along with data interpretation are given at Annexure-2.
viii)	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	3 no. of Rain water harvesting systems were installed during 2016-18. 16 no. of Rain Water Harvesting systems have been constructed and put into operation during 2018-20.
ix)	Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	RSP established Occupational Health Service Center (OHSC) inside the plant itself with dedicated team of doctors, and other skilled medical staff. Health checkup of all the workers is carried out by OHSC once in a year and the records are being kept.
x)	Recommendations made in the CREP guidelines issued for the steel plants shall be implemented.	RSP is implementing all the action points mentioned under CREP for Steel Industry. The status is being submitted on monthly basis to all statutory authorities, CREP status report for the month of March, 2021 is given as Annexure-20.
xi)	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA / EMP report. Further, the company shall undertake socio economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	a) All the pollution control measures recommended in EIA/EMP report have been implemented. b) RSP has a dedicated CSR department for the socio-economic development activities in surrounding villages. The main focus areas of CSR department are; a) Infrastructure development b) Water & Sanitation c) Education d) Health e) Sustainable livelihood and Income generation programmes f) Alternate Renewable Energy g) Community welfare & Industrial Township development  The highlights of CSR activities during 2020-21 are given at Annexure-14.
xii)	The project authorities shall utilize Rs. 614.00 Crs. and Rs. 36.00 Crs. earmarked total capital cost and recurring cost/annum for environment pollution control measures respectively judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Ministry's Regional Office at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	Funds allocated for the Pollution control were not diverted. The list of Pollution Control schemes implemented in different new units and their value are given below; a) COB#6 Complex : Rs. 440 Crs. b) Blast Furnace No. 5 : Rs. 80 Crs. c) Sinter Plant#3 : Rs. 47 Crs. d) Steel Melting Shop#2 : Rs. 120 Crs. e) New Plate Mill : Rs. 10 Crs. f) New Calcining Plant#2 : Rs. 10 Crs. g) New OBPP : Rs. 5 Crs. Total : Rs. 616 Crs. RSP has not diverted the funds allocated for pollution control measures and implemented all the conditions. The implementation schedule of various conditions stipulated in EC is enclosed at Annexure-10.

SN.	CONDITION	STATUS/ ACTION PLAN
xiii)	The Regional Office of this 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.	The compliance report is being submitted & uploaded to MoEFCC's web site, once in six months, regularly.
xiv)	The Project Proponent shall inform 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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> . 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.	RSP released an advertisement In the following news papers. 1) The Times of India, Bhubaneswar edition dated 07/02/2008. (English) 2) Samaj, Rourkela dated 07/02/2008 (Oriya)  Copies of the paper advertisement were submitted to MoEF regional office vide letter no. 691/EE/59/354-355, dated 08/02/2008.  Copy of the news paper cutting is enclosed at Annexure-11.
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.	The project was sanctioned by SAIL on 23/06/2007. Copy of the sanction order is enclosed at Annexure-12. The land development work started in November,2008.

### Additional Conditions

(Reference : Letter of Dr. V P Upadhyay, Director(S) addressed to Managing Director, RSP 106-9/EPE, dtd. 08/06/2011)

SN.	CONDITION	STATUS/ ACTION PLAN
(i)	Continuous monitoring of stack emissions as well as ambient air quality (as per notified standards) shall be carried out and continuous records maintained. Based on the monitored data, necessary corrective measures as may be required from time to time shall be taken to ensure that the levels are within permissible limits. The results of monitoring shall also be put on the website of the company in the public domain	Ambient air quality is monitored continuously using 4 no. of AAQMS- automatic ambient air quality monitoring stations installed at Sector-2, Sector-22 of Steel Township and along the plants boundary - one at ERWPP and another at SSSY area. All these four stations have been uplinked with SPCB & CPCB servers. In addition to this, ambient air quality is regularly monitored at six number of ambient air stations located along plant's boundary. Stack emissions are also monitored regularly. Continuous records are maintained for ambient air quality and stack emissions and necessary corrective actions are taken to contain pollution.  The monitoring results are uploaded to SAIL's official Web Site at <a href="http://www.sail.co.in">www.sail.co.in</a> (Web page → Environment Management under Rourkela Steel Plant)
(ii)	The six monthly monitoring reports as well as the monitored data on various parameters as stipulated in the environment clearance conditions shall be put on the website of the company and also regularly updated. The monitored data shall also be submitted to respective State Pollution Control Board/ UTPCC and the Regional Office of MoEF.	The monitored data as per Env. Clearance conditions are submitted to State Pollution Control Board, Odisha on monthly basis, regularly. This half yearly compliance report for the period October.,2020 – March.,2021 will be uploaded to SAIL's website before 01/06/2021.
(iii)	The ambient air quality data as well as the stack emission data will also be displayed in public domain at some prominent place near the main gate of the company and updated in real time.	The ambient air quality data and stack emission data is displayed in the form of two number of Flex Board of 8' x 5' size, in front of Main Gate of RSP. The data is updated on quarterly basis.  The environment data is being continuously displayed through LED based electronic display board which was installed at Main gate of RSP.

**Annexure-1**

**Data interpretation of Monitoring results of VOC in Stack & Work zone of Coke Ovens  
(October., 2020 – March.,2021)**

SN.	Department	Stack connected to	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	Coke Ovens	Battery#1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
2.		Battery#2	S/D	S/D	S/D	S/D	S/D	S/D	S/D	S/D	No change
3.		Battery#3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
4.		Battery#4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
5.		Battery#5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
6.		Battery#6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
7.	Sinter Plant#1	Process ESP	BDL	S/D	BDL	BDL	BDL	BDL	BDL	BDL	No change
8.		Addl. ESP	BDL	S/D	BDL	BDL	BDL	BDL	BDL	BDL	No change
9.		Old ESP	BDL	S/D	BDL	BDL	BDL	BDL	BDL	BDL	No change
10.	Sinter Plant#2	Process ESP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
11.		Space De dusting ESP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
12.	Sinter Plant#3	Process ESP-1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
13.		Process ESP-2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
14.		Plant de-dusting ESP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
15.	Silicon Steel Mill	TA Line	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
16.		Decarb Line	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
17.		Pickling line	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
18.		Ammonia cracking unit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
19.	Captive Power Plant#1	MP Boiler#1	BDL	BDL	S/D	BDL	BDL	BDL	BDL	BDL	No change
20.		MP Boiler#2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
21.		MP Boiler#3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
22.		HP Boiler#1	BDL	S/D	S/D	S/D	BDL	S/D	S/D	BDL	No change
23.		HP Boiler#2	BDL	BDL	BDL	BDL	S/D	BDL	BDL	BDL	No change
24.		HP Boiler#5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change
25.		HP Boiler#6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No change

**Work zone Monitoring :**

SN.	Department	Work zone location	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	Coke Ovens	Ram side – at Central control room	<1	<1	<1	<1	<1	<1	<1	<1	No change
2.		Coke side – at Central control room	6.8 – 7.9	7.5	7.6	8.1	7.8	6.9	7.4	6.9 – 8.1	+1.47 % (Lower) +2.53 % (Upper)
3.		Near Wharf – at Central Control room	6.8 – 7.9	7.6	7.8	8.2	7.6	6.7	7.2	6.7 – 8.2	-1.47% (Lower) +3.79% (Upper)
4.		Near Quenching Tower	6.4 – 8.1	6.8	7.1	7.5	7.8	7.9	7.2	6.8 – 7.9	+6.25% (Lower) -2.47% (Upper)
5.		Coke Oven top	6.6 – 8.0	6.7	7.2	7.8	7.6	7.6	7.7	6.7 – 7.8	+1.51 % (Lower) -2.5 % (Upper)

(Units : all are in micrograms/m3)

%Change is calculated for Lower limit and Upper limit of the range.

BDL : Below detectable limit <1 & S/D : Shutdown

## Annexure - 2

### Data interpretation of Monitoring results of Ambient Air Quality in Rourkela Steel Plant (October., 2020 – March.,2021)

LOCATI-ON	Min. / Max	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	Pb	NH <sub>3</sub>	Arsenic	Nickel	Noise	Benzene	PAH BaP	VOC
EED Building	Apr., – Sep., 2020	26.4-28.6	56.8-58.6	12.8 – 17.4	20.5 – 21.6	382 – 396	<0.01	8.4-11.8	<0.01	7.58-8.12	72.1-72.5	ND	1	BDL
	Oct., 2020 – Mar., 2021	27.4 – 30.8	57.3 – 64.2	16.3 – 17.9	20.8 – 23.8	385 – 404	<0.01	9.1 – 11.8	<0.01	7.82 – 9.68	71.8 – 72.5	ND	1	BDL
% Change	Lower limit Upper Limit	+3.78% +7.69%	+0.88% +9.55%	+27.3% +2.87%	+1.46% +10.2%	+0.78% +2.02%	0%	+8.33% 0%	0%	+3.16% +19.2%	-0.41% 0%	-	-	-
RDCIS Building	Apr., – Sep., 2020	24.7-27.2	55.8-57.4	11.6-15.8	19.4-20.5	344-384	<0.01	9.8-11.7	<0.01	7.49-8.23	71.3-71.8	ND	1	BDL
	Oct., 2020 – Mar., 2021	26.2 – 30.4	56.1 – 62.6	15.6 – 17.5	18.4 – 22.4	368 – 398	<0.01	10.2 – 11.0	<0.01	7.54 – 9.64	71.5 – 71.9	ND	1	BDL
% Change	Lower limit Upper Limit	+6.07% +11.7%	+0.53% +9.05%	+34.4% +10.7%	-5.15% +9.26%	+6.97% +3.64%	0%	+4.08% -5.98%	0%	+0.66% +17.1%	+0.28% +0.13%	-	-	-
PMPH Building	Apr., – Sep., 2020	26.6-28.4	55.2-57.2	12.0-16.8	17.6-22.2	362-378	<0.01	8.4-10.9	<0.01	8.32-8.62	71.6-71.9	ND	1	BDL
	Oct., 2020 – Mar., 2021	27.9 – 30.6	57.1 – 63.4	16.6 – 17.8	20.8 – 22.6	374 – 396	<0.01	8.7 – 10.6	<0.01	8.25 – 9.18	71.6 – 72.1	ND	1	BDL
% Change	Lower limit Upper Limit	+4.88% +7.74%	+3.44% +10.8%	+38.3% +5.95%	+18.1% +1.08%	+3.31% +4.76%	0%	+3.57% -2.75%	0%	-0.84% +6.49%	0% 0.27%	-	-	-
BOD Building	Apr., – Sep., 2020	26.4-27.6	54.9-56.8	10.9-15.8	18.7-20.8	358-376	<0.01	10.2-12.2	<0.01	7.66-8.18	71.5-72.2	ND	1	BDL
	Oct., 2020 – Mar., 2021	27.2 – 30.2	55.9 – 61.8	14.7 – 17.2	18.9 – 21.1	368 – 387	<0.01	9.8 – 11.8	<0.01	7.83 – 9.62	71.7 – 72.1	ND	1	BDL
% Change	Lower limit Upper Limit	+3.03% +9.42%	+1.82% +8.80%	+34.8% +8.86%	+1.06% +1.44%	+2.79% +2.92%	0%	-3.92% -3.27%	0%	+2.21% +17.6%	+0.27% -0.13%	-	-	-
TOP#2 Admn. Building	Apr., – Sep., 2020	25.6-28.3	56.1-57.7	10.4-16.3	19.4-20.9	360-381	<0.01	9.4-10.8	<0.01	7.17-8.24	72.1-72.5	ND	1	BDL
	Oct., 2020 – Mar., 2021	27.0 – 29.9	56.4 – 61.2	16.8 – 18.4	19.1 – 20.9	369 – 391	<0.01	9.4 – 10.0	<0.01	7.52 – 8.97	71.5 – 72.3	ND	1	BDL
% Change	Lower limit Upper Limit	+5.46% +5.65%	+0.53% +6.06%	+61.5% +12.8%	-1.54% 0%	+2.50% +2.62%	0%	0% -7.40%	0%	+4.88% +8.85%	-0.83% -0.27%	-	-	-
OB BP Admn. Building	Apr., – Sep., 2020	25.7-28.2	55.2-58.4	11.4-15.7	19.1-21.4	368-374	<0.01	9.0-13.3	<0.01	8.04-8.23	72.1-72.7	ND	1	BDL
	Oct., 2020 – Mar., 2021	27.2 – 31.4	55.3 – 65.8	15.0 – 16.7	19.2 – 22.6	368 – 386	<0.01	9.8 – 12.2	<0.01	7.86 – 8.92	70.0 – 72.0	ND	1	BDL
% Change	Lower limit Upper Limit	+5.83% +11.3%	+0.18% +12.6%	+31.5% +6.36%	+0.52% +5.60%	0% +3.20%	0%	+8.88% -8.27%	0%	-2.23% +8.38%	-2.91% -0.96%	-	-	-
Norm		60 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	80 µg/m <sup>3</sup>	4000 µg/m <sup>3</sup>	1.0 µg/m <sup>3</sup>	400 µg/m <sup>3</sup>	6 ng/m <sup>3</sup>	20 ng/m <sup>3</sup>	75 dB(A)	5 µg/m <sup>3</sup>	1.0 ng/m <sup>3</sup>	-

Units : All are in micro grams/m<sup>3</sup> except BaP which is in ng/m<sup>3</sup>

Note: %Change is calculated for Lower limit and Upper limit of the range. PAH (BaP) is done once in a year.

ND : Not detectable; BDL : Below detectable limit <1 & S/D : Shutdown

**Monitoring Results of AAQM Stations in RSP & Townships**  
(October., 2020 – March.,2021)

AAQMS Location	Oct., 2019 – March., 2020	April., 2020	May., 2020	June., 2020	July., 2020	Aug. 2020	Sep., 2020	Apr., 2020 – Sep., 2020	Change w.r.t. Oct., 2019- March., 2020
----------------	---------------------------	--------------	------------	-------------	-------------	-----------	------------	-------------------------	--

**Parameter : PM<sub>2.5</sub> (Norm : 60 µg/m<sup>3</sup>)**

Sector#2, Rourkela Steel Town (North)	4.21-39.38	26.05	35.3	19.93	48.42	35.06	35.37	19.93-48.42	+373.3% (Lower) +22.95% (Upper)
Rourkela Fertilizer Township (South)	10.55-22.09	8.48	13.58	16.88	9.62	11.97	11.99	8.48-16.88	-19.62% (Lower) -23.58% (Upper)
ERWPP Area (West)	12.38-18.12	17.0	17.79	21.2	22.91	32.28	23.6	17.0-32.28	+37.31% (Lower) +78.14% (Upper)
SSSY Area (East)	7.46-26.19	7.38	14.52	9.92	10.3	15.12	11.5	7.38-15.12	-1.07% (Lower) -42.26% (Upper)

**Parameter : PM<sub>10</sub> (Norm : 100 µg/m<sup>3</sup>)**

Sector#2, Rourkela Steel Town (North)	-	NA	NA	NA	NA	NA	NA	-	-
Rourkela Fertilizer Township (South)	16.33-45.24	24.27	21.48	43.84	34.86	62.32	60.49	21.48-62.32	+31.5% (Lower) +37.7% (Upper)
ERWPP Area (West)	-	NA	NA	NA	NA	NA	NA	-	-
SSSY Area (East)	14.89-36.74	42.08	41.31	39.53	33.21	57.7	47.84	33.21-57.7	+123.0% (Lower) +57.04% (Upper)

**Parameter : SO<sub>2</sub> (Norm : 80 µg/m<sup>3</sup>)**

Sector#2, Rourkela Steel Town (North)	15.86-20.99	17.19	17.55	18.82	26.28	25.16	32.97	17.19-32.97	+8.38% (Lower) +57.07% (Upper)
Rourkela Fertilizer Township (South)	6.32-28.68	28.77	34.3	37.22	15.54	13.96	16.74	13.96-37.22	+120.8% (Lower) +29.7% (Upper)
ERWPP Area (West)	11.16-20.08	25.09	42.31	24.62	23.55	23.01	22.48	22.48-42.31	+101.4% (Lower) +110.7% (Upper)
SSSY Area (East)	9.9-34.52	26.21	26.54	36.42	28.46	16.53	25.35	16.53-36.42	+66.9% (Lower) +5.50% (Upper)

**Parameter : NO<sub>x</sub> (Norm : 80 µg/m<sup>3</sup>)**

Sector#2, Rourkela Steel Town (North)	13.49-20.05	13.87	13.87	11.47	13.11	12.98	11.5	11.5-13.87	-14.75% (Lower) -30.82% (Upper)
Rourkela Fertilizer Township (South)	11.16-24.22	18.74	25.46	19.25	18.75	24.55	17.82	17.82-25.46	+59.6% (Lower) +5.11% (Upper)
ERWPP Area (West)	14.52-28.33	18.46	17.78	17.70	17.92	18.27	17.21	17.21-18.46	+18.52% (Lower) -34.83% (Upper)
SSSY Area (East)	8.07-9.98	10.5	10.65	11.42	11.56	11.75	13.58	10.5-13.58	+30.11% (Lower) +36.07% (Upper)

**Parameter : Carbon Monoxide (Norm : 4000 µg/m<sup>3</sup>)**

Sector#2, Rourkela Steel Town (North)	-	NA	NA	NA	NA	NA	NA	-	-
Rourkela Fertilizer Township (South)	750-1090	750	750	690	760	630	660	630-760	-16% (Lower) -30.27% (Upper)
ERWPP Area (West)	490-840	430	650	660	660	710	1070	430-1070	-12.24% (Lower) +27.38% (Upper)
SSSY Area (East)	470-690	760	760	610	670	730	710	610-760	+29.78% (Lower) +10.14% (Upper)



### Annexure - 3

#### Monitoring of Stack Emissions (SPM in mg/NM3) (October., 2020 – March.,2021)

SN.	Department	Stack connected to	NORM	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	Coke Ovens	Battery#1	50	15-35	35	42	32	30	28	46	28-46	+86.6% (Lower) +31.42%(Upper)
2.		Battery#3		12-35	16	15	19	18	20	26	15-26	+25% (Lower) -25.74% (Upper)
3.		Battery#4		18-46	24	35	21	23	32	30	21-35	+16.6% (Lower) -23.91% (Upper)
4.		Battery#5		23-48	48	14	24	20	28	48	14-48	-39.13% (Lower) 0% (Upper)
5.		Battery#6		11-35	25	12	20	23	18	22	12-25	+9.09% (Lower) -28.57% (Upper)
6.	Sintering Plant#2	Process ESP	150	14-31	25	15	21	20	31	26	15-31	+7.14% (Lower) 0% (Upper)
7.		Space De dusting ESP		34 – 42	56	27	38	69	52	58	27-69	-20.58% (Lower) +64.28%(Upper)
8.	Sintering Plant#3	Process ESP -1	150	15 – 56	16	18	14	17	23	23	14-23	-6.66% (Lower) -58.92% (Upper)
9.		Process ESP -2		8 – 48	12	11	11	25	24	21	11-25	+37.5% (Lower) -47.91% (Upper)
10.		Plant De dusting ESP		24 - 82	22	27	52	58	42	38	22-58	-8.33% (Lower) -29.26% (Upper)
11.	Captive Power Plant#1	MP Boiler #1	100	22-33	21	20	20	24	S/D	18	18-24	-18.18% (Lower) -27.27% (Upper)
12.		MP Boiler # 2		11-37	10	18	22	30	24	56	10-56	-9.09% (Lower) +51.35% (Upper)
13.		MP Boiler # 3		-	13	22	26	28	46	48	13-48	-
14.		HP Boiler # 1		11-82	13	27	15	12	18	S/D	12-27	+9.09% (Lower) -67.07% (Upper)
15.		HP Boiler # 2		10-52	S/D	13	18	S/D	S/D	29	13-29	+30% (Lower) -44.23% (Upper)
16.		HP Boiler # 5		21-70	24	19	14	17	38	37	14-38	-33.33% (Lower) -45.71 % (Upper)
17.		HP Boiler # 6		21-88	S/D	21	23	23	35	35	21-35	0% (Lower) -60.22 % (Upper)

Note: %Change is calculated for Lower limit and Upper limit of the range.  
S/d – Under shutdown

## Annexure - 4

### Solid Waste Utilization in Rourkela Steel Plant (October., 2020 – March.,2021) ( Unit : % )

SN.	Name of the Solid Waste	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	Blast furnace slag	24.7-155.88	99.05	97.11	100	120.01	81.91	93.20	81.91-120.01	+231.61% (Lower) -23.01% (Upper)
2.	SMS slag	22.68-94.50	42.40	51.95	47.62	25.76	21.46	34.71	21.46-51.95	-5.37% (Lower) -45.02% (Upper)
3.	Lime dust	100	100	100	100	100	100	100	100	No change
4.	Blast Furnace flue dust	100	100	100	100	100	100	100	100	No change
5.	Blast furnace sludge	100	100	100	100	100	100	100	100	No change
6.	SMS Sludge	3.97-141.84	43.13	63.14	64.86	94.88	83.61	119.47	43.13-119.47	+986.3% (Lower) -15.77% (Upper)
7.	Broken Refractory/Fire clay bricks	100	100	100	100	100	100	100	100	No change
8.	Mill scale	100	100	100	100	100	100	100	100	No change
	Total Solid Waste	38.05-132.64	83.88	84.94	86.72	95.34	69.20	80.50	69.20-95.34	+81.86% (Lower) -28.12% (Upper)

Note: %Change is calculated for Lower limit and Upper limit of the range.

**Annexure – 5****Benzo alpha Pyrene monitoring in Work Zone, Ambient Air & Stack Emissions**

SN.	Type of Monitoring	Location	BaP in ng/m3	Norm in ng/m3
1.	Work Zone	Coke Oven Battery#1 – Oven Top	824	5000
2.	Work Zone	Coke Oven Battery#1 – Ram side	416	2000
3.	Work Zone	Coke Oven Battery#1 – Coke Side	173	2000
4.	Work Zone	Coke Oven Battery#1 – Qenching tower	169	2000
5.	Ambient Air Quality	Env. Engg. Building Roof Top	<1	1
6.	Ambient Air Quality	RDCIS Building Roof Top	<1	1
7.	Ambient Air Quality	RMHP Building Roof Top	<1	1
8.	Ambient Air Quality	PMPH Building Roof Top	<1	1
9.	Ambient Air Quality	BOD Plan Building Roof Top	<1	1
10.	Ambient Air Quality	TOP#2 Building Roof Top	<1	1
11.	Ambient Air Quality	Steel Township Sector#2	<1	1
12.	Stack Emissions	Coke Oven Battery#1	721	-
13.	Stack Emissions	Coke Oven Battery#6	689	-
14.	Stack Emissions	Sintering Plant#1 Process ESP Stack	423	-
15.	Stack Emissions	Sintering Plant#2 Process ESP Stack	389	-
16.	Stack Emissions	Sintering Plant#3 Process ESP Stack	374	-
17.	Stack Emissions	Blast Furnace#1 Cast House ESP Stack	12	-
18.	Stack Emissions	Blast Furnace#4 Cast House ESP Stack	8	-
19.	Stack Emissions	Blast Furnace#5 Cast House ESP Stack	10	-
20.	Stack Emissions	SMS#2 LHF#2C ESP Stack	<1	-

Note : For uniformity all the figs. are given in nano grams/m3

## Annexure – 6

### Quality of final treated effluent going to river Brahmani from RSP (October., 2020 – March.,2021)

SN.	PARAMETER	NORM	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	pH	5.5 – 9.0	6.78- 8.41	7.66	7.67	7.54	7.37	7.8	7.28	7.28 - 7.8	+7.37% (Lower) -7.25% (Upper)
2.	Temperature	Shall not exceed 5°C of input	26.5- 30.2	27.4	26.0	25.6	23.2	25.4	25.7	23.2 – 27.4	-12.45% (Lower) -9.27% (Upper)
3.	Total Suspended Solids (TSS)	100	10.0- 23.6	10.4	11.2	12.8	11.9	10.8	11.0	10.4 – 12.8	+4% (Lower) -45.7% (Upper)
4.	Oil & Grease	10.0	1.1-2.0	1.6	1.8	1.6	1.8	2.0	1.6	1.6 – 2.0	+45.45% (Lower) 0% (Upper)
5.	Ammonia as NH <sub>4</sub> -N	50	5.04- 12.32	4.48	5.48	1.12	4.48	4.38	3.24	1.12 – 5.48	-77.7% (Lower) -55.51% (Upper)
6.	Total Kjeldahl Nitrogen	100	14.56- 46.6	9.33	10.33	9.3	9.5	18.66	19.0	9.3 – 19.0	-36.12% (Lower) -59.22% (Upper)
7.	Free Ammonia	5.0	0.14- 1.88	0.29	0.26	0.246	0.199	0.416	0.26	0.199 – 0.416	+42.1% (Lower) -77.87% (Upper)
8.	Biochemical Oxygen Demand (BOD <sub>5</sub> )	30	6-12	14	12	10	8	12	10	8 - 14	+33.33% (Lower) +16.66% (Upper)
9.	Chemical Oxygen Demand (COD)	250	6.625- 39.14	43	42	34	32	38	32	32 - 43	+383.0% (Lower) +9.86% (Upper)
10.	Phenol	1.0	0.05- 0.18	0.16	0.14	0.16	0.184	0.2	0.16	0.14 – 0.2	+180% (Lower) +11.11% (Upper)
11.	Cyanide	0.2	0.002- 0.007	0.005	0.006	0.005	0.006	0.008	0.009	0.005- 0.009	+150% (Lower) +28.57% (Upper)
12.	Fluoride (as F)	2.0	1.0-1.25	0.5	1.0	1.0	0.8	1.0	1.10	0.5 – 1.10	-50% (Lower) -12% (Upper)
13.	Dissolved Phosphates	5.0	0.301- 0.57	0.01	0.21	0.22	0.255	0.31	0.258	0.01 – 0.31	-96.67% (Lower) -45.61% (Upper)
14.	Sulphide (as H <sub>2</sub> S)	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0%
15.	Manganese	2.0	0.23- 0.55	0.05	0.28	0.24	0.29	0.30	0.28	0.05 – 0.30	-78.26% (Lower) -45.45% (Upper)
16.	Nitrate Nitrogen (NO <sub>3</sub> -N)	10	0.08- 1.74	0.821	1.621	1.24	1.28	1.44	1.108	0.821 – 1.621	+926.25% (Lower) -6.83% (Upper)
17.	Iron (a Fe)	3.0	0.71- 1.06	0.39	0.88	0.68	0.74	1.2	1.1	0.39 – 1.2	+45.07% (Lower) -13.20% (Upper)

% Change is calculated based on Lower & Upper limits of range -- All units are in mg/lit except pH

**Annexure – 7**  
**Ground Water Quality at Waste Disposal Sites**  
(October., 2020 – March.,2021)

**1) Location of Sampling : Sitalpara Dump yard**

SN.	PARA-METER	NORM	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	pH	6 – 8.5	6.56-7.18	6.93	6.94	6.74	6.8	6.78	6.70	6.70 – 6.94	+2.13% (Lower) -3.34% (Upper)
2.	Turbidity (NTU)	5	1.0-3.4	1.2	1.8	1.5	1.2	1.0	1.1	1.0-1.8	0% (Lower) -47.05% (Upper)
3.	Total Hardness as CaCO <sub>3</sub>	300	138.32-276.64	187.3	153.1	157.32	150.17	146.22	145.15	145.15 – 187.3	+4.93% (Lower) -32.29% (Upper)
4.	Iron	0.3	0.11-0.42	0.16	0.18	0.16	0.15	0.16	0.13	0.13 – 0.18	+18.18% (Lower) -57.14% (Upper)
5.	Chlorides	250	23.65-78.84	47.42	36.93	32.75	33.74	31.76	30.77	30.77 – 47.42	+30.10% (Lower) -39.85% (Upper)
6.	Fluoride	1.0	0.2-0.48	0.231	0.31	0.2	0.3	0.2	0.22	0.2-0.31	0% (Lower) -35.41% (Upper)

(All units are in mg/lit except pH & Turbidity)

**2) Location of Sampling : Blast Furnace Dump yard**

SN.	PARAME TER	NORM	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	pH	6 – 8.5	6.1-7.21	7.9	7.0	7.31	7.47	7.4	7.39	7.0 – 7.9	+14.75% (Min) +90.57% (Max)
2.	Turbidity (NTU)	5	0.8-3.5	3.9	2.8	1.1	1.0	1.2	1.3	1.0 – 3.9	+25% (Min) +11.42% (Max)
3.	Total Hardness as CaCO <sub>3</sub>	300	165.98-264.78	165.28	190.12	123.31	122.51	114.6	112.89	112.89 – 190.12	-31.98% (Min) -28.19% (Max)
4.	Iron	0.3	0.28-0.75	0.32	0.30	0.18	0.21	0.2	0.18	0.18 – 0.32	-35.71% (Min) -57.33% (Max)
5.	Chlorides	250	35.2-110.38	26.8	22.84	29.78	28.78	26.8	25.8	22.84 – 29.78	-35.11% (Min) -73.02% (Max)
6.	Fluoride	1.0	0.2-0.68	0.182	0.20	0.3	0.4	0.3	0.24	0.182 – 0.4	-9% (Min) -41.17% (Max)

(All units are in mg/lit except pH & Turbidity)

% Change is calculated based on Lower & Upper limits of range

**Annexure-7a**

**Ground Water Table Levels**

SN.	Location of bore hole	Direction	Latitude	Longitude	Depth of Water Table from Ground Level (mtr.)	
					Apr.-Sept.2020	Oct.,-March.2021
1.	Near FMM Old Time Office	North	22°21'9 N	84°85'67 E	3.20	3.31
2.	Near Samskar Gate	North East	22°13'13 N	84°52'1 E	4.20	4.06
3.	SSSY	East	22°13'6 N	84°54'15 E	3.40	3.24
4.	SLF	South East	22°13'6 N	84°54'11 E	4.18	3.96
5.	WT-14	South	22°12'27 N	84°54'13 E	3.59	3.47
6.	FP Gate	South West	22°11'16 N	84°51'56 E	1.34	1.47
7.	Near New Plate Mill	West	22°12'14 N	84°50'15 E	2.98	2.84
8.	SGP Gate	North West	22°11'49 N	84°50'33 E	2.43	2.62



Annexure-8

OFFICE OF THE DIVISIONAL FOREST OFFICER,  
ROURKELA FOREST DIVISION.

FAX & Phone No. 0661-2664637, E-mail : dforourkela@yahoo.co.in

No. 724 /4F (Misc.) Dt. 3/2/08

To



The Asst. General Manager (Horticulture),  
Steel Authority of India Ltd., Rourkela Steel Plant,  
Rourkela - 769 011.

Sub:

Your request for authenticating the list of Flora & Fauna (As compiled through field survey and literature survey) within 7 (seven) Km radius of Rourkela Steel Plant. At - Rourkela, Orissa.

Ref:

Your Letter No. Hort. - 2007-08 / 835 Dt. 07.04.2007.

Sir,

With reference to the above, the list of Flora & Fauna prepared on the basis of literature and field survey within a radius of 07 Km around the Plant site is authenticated. The list of Flora & Fauna received along with your above letter is enclosed herewith.

Encl: As above.

Yours faithfully,

Divisional Forest Officer,  
Rourkela Forest Division.

## Annexure - 9

### Fugitive emission (SPM) levels monitored inside RSP (Shop Floor) (October., 2020 – March.,2021)

SN.	Department	Location of monitoring	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	Blast Furnaces #1 (PM10)	Cast House	-	1820	1726	1549	2035	1845	1649	1549-2035	-
2.	Blast Furnaces #5 (PM10)	Cast House	1914-2167	1720	1623	2214	2437	1325	1508	1325-2437	-30.77% (Lower) +12.45% (Upper)
3.	Steel Melting Shop#1(PM10)	In front of BOF	2150-3220	2010	2515	1672	3165	3423	3364	1672-3423	-22.23% (Lower) +6.30% (Upper)
4.	Steel Melting Shop#2 (PM10)	In front of BOF	1452-2048	1560	1451	1875	1190	2164	2915	1190-2915	-18.04% (Lower) +42.33% (Upper)
	Norm	Unit : µg/m3	4000	4000	4000	4000	4000	4000	4000	4000	


(Units : µg/m3)

% Change is calculated based on Lower & Upper limits of range

## Annexure-10

### Rourkela Steel Plant Status of the Implementation Schedule

SN.	CONDITION	IMPLEMENTATION SCHEDULE
1.	Rebuilding of Coke Oven Batteries	RSP has 6 no. of coke oven batteries. Battery No. 1, 3, 4 & 5 have been rebuilt & commissioned in the years 2007, 2016, 2010 & 2000 respectively. Battery No. 6 is a new Green field Battery which was commissioned on 01/04/2014, under this Expansion Project.  Coke Oven Battery No. 2 was put down since March, 2016 as it has outlived its life and due for rebuilding.
2.	Monitoring of VOCs, PAH and BaP in stacks and ambient air.	PAH and BaP in the Coke Oven area are being monitored once in a year. VOCs in Coke Oven Stacks, ambient & work zone were monitored and analysis results along with data interpretation are given at Annexure- 1 & 5.
3.	Monthly report covering Stack Emissions, Ambient air quality and Waste utilization	Reports are being sent to SPCB & CPCB since April, 2008 onwards every month, regularly. Six monthly reports are being sent to MoEFCC regularly.
4.	Monitoring of Ground water quality at waste disposal sites – once in six months	Ground water quality at waste disposal sites is being monitored and the six monthly report of ground water quality along with data interpretation is given at Annexure-7.
5.	Enhancement of waste utilization to 90%.	<p><b>Blast Furnace Slag :</b> In-house Slag granulation facilities have already been installed in all Blast Furnaces viz., BFc No. 1, 4 &amp; 5. The granulated slag is being sent to cement plants for production of slag cement. The present BFc Slag utilization is more than 100% .</p> <p><b>SMS Slag :</b> State of the art technologies have been adopted in steel making so that the SMS slag generation rate is minimized. The SMS slag is being utilized for Sinter Making through base mix route, charged into Blast Furnaces directly to replace lime stone and also used for pavement making and rail ballast and also used for reclaiming low lying areas inside plant premises.</p> <p><b>Fly Ash :</b> There is no additional fly ash generation after commissioning of this Expansion project as the additional power is being obtained from Top Recovery Turbo Generator of BFc#5, Power Blowing Station of Blast Furnace No. 5 (36 MW), Back Pressure Turbo Generator of Coke Oven Battery No.7 - CDCP and remaining 110 MW power will be purchased from State Grid.</p> <p>As per the present agreement with NTPC, the joint venture power company NSPCL is managing the fly ash generated from captive power plant of RSP. The fly ash will be utilized for dyke height raising of existing Ash Ponds. The fly ash is also being given to local entrepreneurs free of cost. RSP is also bearing the transportation costs as per the latest Fly Ash Gazette notification.</p>
6.	Development of Green Belt to cover 33% of the total area in and around the plant.	RSP has already developed Greenbelt in 2168.28 Ha. out of total land of 6527.48 Ha. which is coming to 33.22 % of the total area. RSP has planted more than 49.5 lakh trees so far including 51,299 no. of saplings planted during 2020-21.
7.	Development of Rain water harvesting systems.	16 no. of Rain Water harvesting systems units have been constructed and put into operation during 2018-20.

 **STEEL AUTHORITY OF INDIA LIMITED**  
**Rourkela Steel Plant**  
Rourkela - 769 011, Orissa, India

---

**MODERNISATION CUM EXPANSION OF ROURKELA STEEL PLANT**  
**PUBLIC NOTICE**

Ministry of Environment and Forests (MoEF), Government of India, has accorded Environmental Clearance to Rourkela Steel Plant for its Modernisation cum Expansion Proposal on 29th January 2008. Copies of the Environment Clearance letter are available with State Pollution Control Board and the same can also be seen at <http://envfor.nic.in>.

Date : 04/02/2008 for Rourkela Steel Plant  
Place : Rourkela Sd/- G.M. (Projects)

Registered Office: Ispat Bhawan, Lodi Road, New Delhi 110 003  
**There's a little bit of SAIL in everybody's life**

*TIMES OF INDIA, 7th February 2008.  
BHUBANESWAR PUBLICATION.*

 **ଭାରତୀୟ ଲସ୍ତାତ ପ୍ରାଧିକରଣ ସଂସ୍ଥା**  
**ରାଉରକେଲା ଲସ୍ତାତ କାରଖାନା**  
ରାଉରକେଲା - ୭୬୯ ୦୧୧, ଓଡ଼ିଶା, ଭାରତ

---

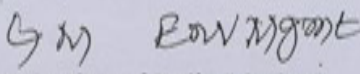
**ରାଉରକେଲା ଲସ୍ତାତ କାରଖାନାର ଆଧୁନିକୀକରଣ ଓ ସମ୍ପ୍ରସାରଣ ସାଧାରଣ ବିଜ୍ଞପ୍ତି**

ଭାରତ ସରକାରଙ୍କ ଜଙ୍ଗଲ ଓ ପରିବେଶ ମନ୍ତ୍ରଣାଳୟ, ୨୦୦୮ ଜାନୁୟାରୀ ୨୯ ତାରିଖରେ ରାଉରକେଲା ଲସ୍ତାତ କାରଖାନାର ଆଧୁନିକୀକରଣ ଓ ସମ୍ପ୍ରସାରଣ ପାଇଁ ପର୍ଯ୍ୟାବେଶର ଅନୁମତି ପ୍ରଦାନ କରିଛନ୍ତି । ରାଜ୍ୟ ପ୍ରଦୃଶ୍ୟ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡରେ ଏହି ଅନୁମତି ପତ୍ର ଉପଲବ୍ଧ ଏବଂ ଏହାକୁ <http://envfor.nic.in>ରେ ମଧ୍ୟ ଦେଖାଯାଇ ପାରିବ ।

ତା : ୦୪/୦୨/୨୦୦୮ ରାଉରକେଲା ଲସ୍ତାତ କାରଖାନା ପକ୍ଷରୁ  
ସ୍ଥାନ : ରାଉରକେଲା ସ୍ୱା/- ଜି.ଏମ୍ (ପ୍ରୋଜେକ୍ଟ)

ପଞ୍ଜୀକୃତ ଦାୟାଦାର - ଲସ୍ତାତ ଭବନ, ଲୋଡି ରୋଡ, ନୂଆଦିଲ୍ଲୀ - ୧୧୦୦୦୩  
**There's a little bit of SAIL in everybody's life**

*SAMAJ, 7th February 2008  
Rourkela Publication.*

  
 Steel Authority of India Limited  
 Rourkela Steel Plant  
 Rourkela



### OFFICE OF THE EXECUTIVE DIRECTOR (WORKS)

Ref. No. ED(W)/SO-20

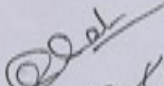
Date: 23.06.2007

#### In-principle Sanction Order No. 07/1/04/011/0032

Kind approval (In-principle) of the SAIL Board, during its 324<sup>th</sup> meeting held on 21<sup>st</sup> May 2007, is hereby conveyed the proposal of **Expansion of Rourkela Steel Plant to 4.2 Mtpa of Crude Steel at an indicative cost of Rs. 7,668 Crores (Rupees Seven Thousand Six Hundred Sixty Eight Crores only)** [net of CENVAT benefit of Rs. 924 Crores] with base date of 1<sup>st</sup> Qtr. '07 excluding schemes worth Rs. 211 Crores under implementation and Rs. 1066 Crores approved "In-principle" earlier, as per the Capital Cost Estimate enclosed in Annexure-IIA.

Further SAIL Board has approved RSP's proposal for authorizing Managing Director, RSP to incur an expenditure upto Rs. 200 Crores towards Enabling/Preliminary Works.

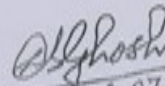
This issues as per the DO Letter, Ref. No. Proj/04/0300/00, dated 31.05.2007, received from Project Directorate, SAIL Corporate Office.

  
 A. Ghosh (S. Es)  
 M (VVP/PM)

Encl: As above

**Distribution:**

1. Director I/c (M&HS)
2. ED (Projects)
3. ED (F&A)
4. ED (MM)
5. ED (P&A)
6. ED (MS)
7. All GMs
8. DGM (Tech.) MD's Sectt.
9. DGM (Tech.) ED(W)'s Sectt.
10. DGM I/c (MM) Projects
11. DGM (F&A) Projects
12. AGM (AMR-PMC)
13. SM (F&A) AMR & CB
14. SM (F&A) CA
15. Sanction File

  
 23.06.07  
 (D.K. Ghosh)  
 Manager (Admn.)  
 ED(Works)'s Sectt.



**Annexure – 13**  
**Quality of RSP's finally treated Sewage**  
**(October.,2020 – March.,2021)**

SN.	PARAMETER	NORM	Apr., – Sep., 2020	Oct., 2020	Nov., 2020	Dec., 2020	Jan., 2021	Feb. 2021	March, 2021	Oct., 2020 – Mar., 2021	Change w.r.t. April- Sep., 2020
1.	pH	5.5 – 9.0	6.78- 8.41	7.66	7.67	7.54	7.37	7.8	7.28	7.28 - 7.8	+7.37% (Lower) -7.25% (Upper)
2.	Temperature	Shall not exceed 5°C of input	26.5- 30.2	27.4	26.0	25.6	23.2	25.4	25.7	23.2 – 27.4	-12.45% (Lower) -9.27% (Upper)
3.	Total Suspended Solids (TSS)	100	10.0- 23.6	10.4	11.2	12.8	11.9	10.8	11.0	10.4 – 12.8	+4% (Lower) -45.7% (Upper)
4.	Oil & Grease	10.0	1.1-2.0	1.6	1.8	1.6	1.8	2.0	1.6	1.6 – 2.0	+45.45% (Lower) 0% (Upper)
5.	Ammonia as NH <sub>4</sub> -N	50	5.04- 12.32	4.48	5.48	1.12	4.48	4.38	3.24	1.12 – 5.48	-77.7% (Lower) -55.51% (Upper)
6.	Total Kjeldahl Nitrogen	100	14.56- 46.6	9.33	10.33	9.3	9.5	18.66	19.0	9.3 – 19.0	-36.12% (Lower) -59.22% (Upper)
7.	Free Ammonia	5.0	0.14- 1.88	0.29	0.26	0.246	0.199	0.416	0.26	0.199 – 0.416	+42.1% (Lower) -77.87% (Upper)
8.	Biochemical Oxygen Demand (BOD <sub>3</sub> )	30	6-12	14	12	10	8	12	10	8 - 14	+33.33% (Lower) +16.66% (Upper)
9.	Chemical Oxygen Demand (COD)	250	6.625- 39.14	43	42	34	32	38	32	32 - 43	+383.0% (Lower) +9.86% (Upper)
10.	Phenol	1.0	0.05- 0.18	0.16	0.14	0.16	0.184	0.2	0.16	0.14 – 0.2	+180% (Lower) +11.11% (Upper)
11.	Cyanide	0.2	0.002- 0.007	0.005	0.006	0.005	0.006	0.008	0.009	0.005- 0.009	+150% (Lower) +28.57% (Upper)
12.	Fluoride (as F)	2.0	1.0-1.25	0.5	1.0	1.0	0.8	1.0	1.10	0.5 – 1.10	-50% (Lower) -12% (Upper)
13.	Dissolved Phosphates	5.0	0.301- 0.57	0.01	0.21	0.22	0.255	0.31	0.258	0.01 – 0.31	-96.67% (Lower) -45.61% (Upper)
14.	Sulphide (as H <sub>2</sub> S)	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0%
15.	Manganese	2.0	0.23- 0.55	0.05	0.28	0.24	0.29	0.30	0.28	0.05 – 0.30	-78.26% (Lower) -45.45% (Upper)
16.	Nitrate Nitrogen (NO <sub>3</sub> -N)	10	0.08- 1.74	0.821	1.621	1.24	1.28	1.44	1.108	0.821 – 1.621	+926.25% (Lower) -6.83% (Upper)
17.	Iron (a Fe)	3.0	0.71- 1.06	0.39	0.88	0.68	0.74	1.2	1.1	0.39 – 1.2	+45.07% (Lower) -13.20% (Upper)

% Change is calculated based on Lower & Upper limits of range -- All units are in mg/lit except pH



#### **Annexure-14**

### **Rourkela Steel Plant** **RSP's CSR Initiatives during 2020-21**

Bringing cheers to the most marginalized local stake holders in and around Steel Plant is the main objective of RSP which is being fulfilled through CSR activities. RSP established a separate department called "CSR" for carrying out various activities under Corporate Social Responsibility. The main focus of CSR activities are on,

- A) Education
- B) Infrastructure
- C) Health
- D) Support for disabled/under privileged
- E) Income generation & livelihood
- F) Water supply and sanitation
- G) Sports and culture
- H) Women empowerment

The different developmental activities taken up under different heads are,

**a) EDUCATION:**

- "Deepika Ispat Sikshya Sadan", a special school functioning for underprivileged children of Rourkela and neighboring area (Class-1 to 10) with free education, uniform, educational kits, books & mid-day refreshments. Total students enrolled in AY 2020-21 was 675. Classes were successfully held in online mode during the Lockdown period along with Exam.
- Financial assistance amounting to Rs.12.60 lakhs was provided to 42 no. of underprivileged students of Sundargarh district pursuing professional studies (joined in FY 2016-17, 2017-18, 2018-19 & 2019-20). Appreciation letters were handed over to the selected students at IPD, Sector-20 and payments made on online mode. All social distancing norms prescribed by the Government under COVID-19 Guidelines were observed during the function.
- Underprivileged Scholarship provided to 179 underprivileged peripheral students @Rs.900/- pm for Class-I to Class-V and @ Rs.1000/- pm for Class VI to Class-XII students for a period of one Academic Year each.
- 10 no. of tribal students from peripheral areas of RSP have been sponsored for free education at Kalinga Institute of Social Sciences (KISS), Bhubaneswar.
- Financial assistance provided to 14 no of class X passed out students of "Deepika Ispat Sikshya Sadan and 33 tribal students of Sundargarh District for pursuing ITI course at KIIT ITI Bhubaneswar & 32 no. students in +2 courses in Ispat Vidya Mandir.



## b) INFRASTRUCTURE

- **ESC Jobs related to New HSM Project:**
  - Construction of drains at Ushra Colony is completed.
  - Construction of Community Centre at Samara Basti, in Lathikata Block and at Lakratoli in Bisra Block have been completed.
  - Construction of additional class-rooms at Nuagaon UP School and Arba Jharabahal UP School, Lathikata Block – are in progress.
  - Construction of additional class-rooms at Abodh Kumar Nodal High School, Lachhada, in Gurundia Block is in progress.
  - Construction of Toilets at Nuagaon UP School and Govt. UP School, Lathikata, Arba Jharabahal UP School, Jadakudar in Lathikata Block and Purnapani High School, Nuagaon Block, are completed.
  - Bituminous roads: 1700 mtr in Bondamunda & 1710 mtr in Ushra Colony Completed.
  - Concrete roads: 1700 mtrs in Lachhada in Gurundia Block & 600 mtrs in Somra Basti in Lathikata Block completed.
  - Solar Street Lights: 26 nos. in Somra Basti in Lathikata Block, 24 nos. in Hathidharsa in Rajgangpur Block, 29 nos. in Lachhada in Gurundia Block, 30 Nos. in Ushra Colony in Kuarmunda Block were installed.



- **CER jobs related to Super Specialty Hospital at IGH :**
  - Modification/beautification job at Sector-5 Executive Apartment. LOA has been issued to the agency and work will be started shortly.
  - Construction of Transit House for peripheral villagers who are accompanying patients in front of IGH is in progress.
  - Repair of Sports Hostel at SAIL Hockey Academy, Sector-5, is in progress.
  - 2 nos. SILAI Training programs were conducted for 90 (Ninety) underprivileged women through USHA SILAI/NBCC. Free Sewing Machines along with certificate were distributed to the beneficiaries.
  - Toilet Blocks at Ratakhadi Janata High School, and Amtola Govt. UP Schools in Kuarmunda Blocks have been completed.
  - Solar Water Supply System provided at Hathidharsa village in Rajagangpur Block, Jaidega village in Kuarmunda and at Lindra village in Nuagaon Block.
  - Over 1000 rural farmers from 4 adjoining peripheral Blocks (i.e. Nuagaon, Bishra, Kuarmunda and Lathikata) of Rourkela Steel Plant were trained in Horticulture & organic farming techniques by M/s Mart Rural.

**c) HEALTHCARE**

- Free bi-weekly medical aid centres operated in 25 peripheral locations (i.e. 50 camps a week). Total 20203 rural patients benefitted.
- Free health centres operated at Ispat Sanjeevani, Sector-6; Chikatmati MSV & Jalda RS colony six days a week. Total 16688 patients benefitted.
- Health promotional activities are continuing in slum areas of township periodically through Deepika Mahila Sanghati.
- Reproductive & Child Health (RCH) and Family Welfare (FW) activities at IGH are being conducted.
- 2 nos. Multi-disciplinary medical camps were organized at Gram Panchayat Barsuan, Bisra Block and Gram Panchayat, Ankurpali, in Nuagaon Block on 27/02/2021 and 24/03/2021 respectively. Total 599 patients were benefitted from the above 2 medical Camps. Out of 599 patients 120 patients referred to IGH for further investigation/operation.



**d) INCOME GENERATION & LIVELIHOOD :**

- Under employability skills enhancement programs in health sector, the training programs conducted at IGH included the followings:
  - Medical Attendant Training – 68 trainees.
  - Advanced Specialised Nursing Training – 55 trainees.
  - Advanced Physiotherapy Training -4 trainees.
  - Hospital administration training – 01 trainee.
  - Anaesthesia/OT assistant Training -6 trainees.
  - Data entry operator/Medical transcription training – 6 trainees.
  - Lab. Technician – 10 trainees.
- 4 nos. Mushroom Cultivation Training programs were conducted for peripheral villagers to augment their Income Generation Skills. Total 60 participants participated in the programmes.





**e) WATER SUPPLY & SANITATION**

- Repair of Tube wells/Dug wells in different slum areas in Rourkela Industrial Town is in progress.



**f) WOMEN EMPOWERMENT**

- Handloom Centre: Handloom training is continuing at the Handloom Centre, Sector-2. The girls from peripheral areas are being trained in identifying yarn, separation of hank, finding & joining loose ends, usage of Chatta & Asari, Bobbin & Charkha, Bobbin machine, Warping Machine, starching, reed joining, sizing, dyeing, weft lining, reed fitting in looms, weaving, badhi preparation, tie & dye, weaving. The trainees are now able to weave handkerchieves, bedsheets, and different types of fabrics including sarees.



**g) SAMVARDHAN (Rural Sports):**

- Samvardhan Rural Football Tournament Final Meet for 2020-21 among the Winners and Runners UP teams of Nuagaon, Bisra, Lathikata and Kuarmunda Blocks was conducted on 05/03/2021 at Ispat Stadium, Sector-20, Rourkela.



**h) MISCELLANEOUS**

- Skill Development: Livelihood Incubation Centre Project at Rourkela – Civil & Electrical jobs were completed and handed over to NSIC for installation and commissioning of required instruments for Skill Development programs.
- Selection of inmates for remaining 4 rooms in Sakshyam, Sr.Citizen Care Home, Sector-4, Rourkela is completed.
- COVID – 19 Activities :
  - Distribution of 15400 Cooked Food Packets to destitute, homeless, beggars and persons without food in Rourkela Township from 12/4/2020 to 03/5/2020 during Lockdown period.
  - Distribution of 5000 nos. of food material packets to poor people in and around Rourkela Steel Township during Lockdown period.
- Provision of 50 Nos. of beds & mattress made at DPS Isolation Covid Care Centre for RSP Employees at Sector-5.

**Annexure-15**

**Special Noise Monitoring at Ambient Air Stations at Ground Level  
(October., 2020 – March.,2021)**

LOCA-TION	Min. / Max	Noise Day time	Noise Night time
EED Building	April. – Sept.,2020	72.1 – 72.5	61.0 – 61.7
	Oct., 2020 – March, 2021	71.8 – 72.5	61.0 – 61.8
% Change	Lower limit Upper Limit	-0.41% 0%	0% +0.16%
RDCIS Building	April. – Sept.,2020	71.2 – 71.8	61.0 – 61.6
	Oct., 2020 – March, 2021	71.5 – 71.9	61.2 – 61.5
% Change	Lower limit Upper Limit	+0.42% +0.13%	0.32% -0.16%
PMPH Building	April. – Sept.,2020	71.6 – 71.9	60.0 – 61.6
	Oct., 2020 – March, 2021	71.6 – 72.1	61.1 – 61.9
% Change	Lower limit Upper Limit	0% +0.27%	+1.83% +0.48%
BOD Building	April. – Sept.,2020	71.5 – 72.2	60.2 – 61.6
	Oct., 2020 – March, 2021	71.9 – 72.1	61.2 – 61.9
% Change	Lower limit Upper Limit	0.55% -0.13%	+1.66% +0.48%
TOP#2 Admn. Building	April. – Sept.,2020	72.1 – 73.3	60.5 – 61.6
	Oct., 2020 – March, 2021	71.5 – 72.3	61.2 – 61.8
% Change	Lower limit Upper Limit	-0.83% -1.36%	+1.15% +0.32%
OBBP Admn. Building	April. – Sept.,2020	72.1 – 72.7	60.7 – 61.5
	Oct., 2020 – March, 2021	70.0 – 72.2	61.0 – 61.2
% Change	Lower limit Upper Limit	-2.91% -0.68%	+0.49% -0.48%
Norm		75 dB(A)	70 dB(A)



**Annexure-16****Work zone dust special monitoring**

(October., 2020 – March.,2021)

SN.	Department	Location of monitoring	Date of Monitoring	PM10 Dust concentration in mg/m <sup>3</sup>	Noise dB(A)
1.	ERWPP	Pipe dispatch yard	05/10/2020	4.5	83.0
2.	SWPP	Flux reclamation Machine area	09/10/2020	4.2	88.2
3.		Main welding machine area	09/10/2020	3.5	86.0
4.		Pipe cleaning machine area	09/10/2020	3.7	85.2
5.		M-9 pipe repair stand	09/10/2020	4.3	85.1
6.	SPP	BC bay trolley grinding area	22/12/2020	3.62	88.4
7.		Short blasting	22/12/2020	4.08	89.5
8.	Sintering Plant#3	Conveyor A1.001 Discharge end	21/12/2020	2.422	85.4
9.		Conveyor E2.001 Discharge end	21/12/2020	2.368	88.2
10.		Conveyor E7.007 Discharge end	21/12/2020	2.562	81.6
11.		Conveyor E9.003 Tail end	21/12/2020	2.745	81.2
12.		Conveyor FS-10 Tail end	21/12/2020	3.680	83.0
13.	SMS#1	GCP 10 Fan area	14/10/2020	-	87.1
14.		Pit side area	14/10/2020	2.80	85.2
15.		CCM-1, LHF	14/10/2020	1.70	82.0
16.		LD stage 7.5 meter	14/10/2020	3.20	83.5
17.		SSM Steel area	14/10/2020	2.60	-
18.	HSM	Coil Yard (PL-1 Gate)	16/12/2020	3.7	-
19.		F/M Exit area	16/12/2020	4.0	-
20.		NDL pitter area	16/12/2020	3.8	-

## Annexure-17

### Expenditure on various Pollution Control Systems installed in different plant units

SN.	Department	Pollution Control Equipment installed	Expenditure in Rs. Lakhs
1.	Coke Oven Battery#6	Land Based Pushing Emission Control System	34400
2.		Multi Cyclone and Bag Houses for CDCP	
3.		Dust suppression system in Wagon Tippler	
4.		Wet fog dust suppression system in coke handling system	
5.		Zero leak doors	
6.		HPALA system and on main charging	
7.		Door and Door frame cleaning machines	
8.		H <sub>2</sub> S recovery system	
9.		Heat recovery in CDCP for power generation through Back Pressure Turbine.	
10.	Sintering Plant#3	Process ESPs – 2 units	4700
11.		Plant De-dusting ESP	
12.		Bag houses for lime unit	
13.		Bag house for granulator	
14.	Blast Furnace#5	Cast House De-fuming systems - 2 no. of Electro Static Precipitators	8000
15.		Stock House de dusting system – ESP	
16.		Wet fog dust suppression system	
17.		Dust catcher	
18.		Wet scrubber	
19.		Clarifiers – 2 nos.	
20.		Belt press systems – 2nos.	
21.	BOF#3 & Caster#3 in Steel Melting Shop#2	Dog House with 2 no. of ESPs	12000
22.		2 no. of Bag Houses for LHF#2A & #2B	
23.		ESP for LHF#3	
24.		Bowl classifier	
25.		Clarifiers	
26.		Belt press systems	

SN.	Department	Pollution Control Equipment installed	Expenditure in Rs. Lakhs
27.	New Plate Mill	Scale pit with Oil skimmers	10
28.		Sedimentation tank with Oil skimmer – 2 sets	
29.		Pressure Filters	
30.		Clarifloculator	
31.		Sludge drying bed – 2 compartments	
32.	Calcining Plant#2 Expansion	Bag Houses – 6 nos.	10
33.	OBBP Expansion	Dry fog dust suppression systems	500
	Total		61600

### Annexure-18

#### List of ESPs installed in different departments and PG Test Status

SN.	ESP located at	PG Test carried out	Efficiency
1)	Sintering Plant#3 – Process ESP	Yes	99.9%
2)	Sintering Plant#3 - Plant Dedusting ESP	Yes	99.8%
3)	Blast Furnace No.5 – Cast House Defuming system – 2 nos.	Yes	99.8%
4)	Blast Furnace No.5 – Stock House	Yes	99.6%
5)	Captive Power Plant#1 – ESP provided to MP Boiler#3	Yes	99.6%
6)	Captive Power Plant#1 – ESP provided to HP Boiler#5	Yes	99.5%
7)	Captive Power Plant#1 – ESP provided to HP Boiler#6	Yes	99.5%

## **Annexure-19**

### **Microfine dust generation from ESPs of Expansion Project**

1) SP#3 Process ESPs	-- 30 TPD
2) SP#3 Plant de-dusting ESP	– 15 TPD
3) BFc Stock House ESP	-- 15 TPD
4) BFc Cast House ESPs	-- 15 TPD
5) SMS#2 LHF#3 ESP	– 5 TPD
6) SMS#2 Dog House ESP	– 20 TPD
Total dust generation	-- 100 TPD

## Annexure-20

### 1. Status of CREP Action Points March.,2021 -- Steel Plant

SN	CREP POINT	STATUS																																
1.	<p>To meet the parameters PLD (% leaking doors), PLL (% leaking lids), PLO (% leaking offtake) of the notified standards under EPA within three years (By December 2005).</p> <p>To rebuild atleast 40% of the coke oven batteries in next 10 years (Dec.,2012)</p>	<p>Complied. PLD, PLL &amp; PLO levels for this month are;</p> <table><tr><th>BATTERY NO.</th><th>PLD</th><th>PLL</th><th>PLO</th></tr><tr><td>Units</td><td>%</td><td>%</td><td>%</td></tr><tr><td>Battery # 1</td><td>8.21</td><td>0.12</td><td>NIL</td></tr><tr><td>Battery # 3</td><td>7.68</td><td>NIL</td><td>NIL</td></tr><tr><td>Battery # 4</td><td>6.16</td><td>NIL</td><td>NIL</td></tr><tr><td>Battery # 5</td><td>9.06</td><td>NIL</td><td>NIL</td></tr><tr><td>Battery# 6</td><td>3.92*</td><td>0.12</td><td>NIL</td></tr><tr><td>NORM</td><td>10/5*</td><td>1</td><td>4</td></tr></table> <p>Complied. 5 out of 6 Coke Oven Batteries viz., Batt#1, #3, #4 &amp; #5 have already been rebuilt and COB#6 is a newly built battery.</p>	BATTERY NO.	PLD	PLL	PLO	Units	%	%	%	Battery # 1	8.21	0.12	NIL	Battery # 3	7.68	NIL	NIL	Battery # 4	6.16	NIL	NIL	Battery # 5	9.06	NIL	NIL	Battery# 6	3.92*	0.12	NIL	NORM	10/5*	1	4
BATTERY NO.	PLD	PLL	PLO																															
Units	%	%	%																															
Battery # 1	8.21	0.12	NIL																															
Battery # 3	7.68	NIL	NIL																															
Battery # 4	6.16	NIL	NIL																															
Battery # 5	9.06	NIL	NIL																															
Battery# 6	3.92*	0.12	NIL																															
NORM	10/5*	1	4																															
2.	Steel Melting Shop : Fugitive emissions – To reduce 30% within March, 2004 and 100% compliance with norms by March, 2008 (Including installation of secondary de-dusting facilities)	<p>Being Complied.</p> <p>The fugitive emission levels for this month ;</p> <table><tr><th>SMS#1</th><th>SMS#2</th><th>Norm</th></tr><tr><td>3364</td><td>2915</td><td>4000µg/m3</td></tr></table>	SMS#1	SMS#2	Norm	3364	2915	4000µg/m3																										
SMS#1	SMS#2	Norm																																
3364	2915	4000µg/m3																																
3.	Blast Furnaces : Direct injection of reducing agents (CDI) by June, 2013.	CDI installed in all Blast Furnaces.																																
4.	<p>Solid Waste Management :</p> <ul style="list-style-type: none"><li>Utilization of BFc/SMS slag – 70% by 2004, 80% by 2006 &amp; 100% by 2008.</li></ul> <p>Hazardous Waste Management :</p> <ul style="list-style-type: none"><li>Charge of Tar Sludge/ETP sludge to Coke Ovens by June, 2003.</li><li>Inventorisation of H/Waste as per the H/Waste (M&amp;H) Rules, 1989 as amended from time to time and implementation of Rules by Dec., 2003.</li></ul>	<p>BF'cs slag Utilization for the month of Mar'21 = <b>93.20%</b> SMS Slag utilization for the month of Mar'21 = <b>34.72%</b></p> <p>Complied.</p> <p>Complied.</p>																																
5.	<p>Water Conservation / Water Pollution :</p> <ul style="list-style-type: none"><li>To reduce Sp. Water consumption to 4.8 m3/TCS for flat product plants.</li><li>To operate CO&amp;BP plant efficiently to achieve the notified effluent discharge standards by July, 2004.</li></ul>	<p>Complied.</p> <p>Sp. Water Consumption for Mar'2021 = <b>2.89m3/TCS</b></p> <p>Working effectively.</p>																																



SN	CREP POINT	STATUS
6.	Installation of Online Stack monitoring systems by June, 2005.	Complied.
	Installation of Online Ambient Air Quality Monitoring Stations by June, 2005.	Complied.
7.	To operate the existing pollution control equipment efficiently and to have proper record keeping of pollution control equipment's run hours, failure time and efficiency compliance with immediate effect. Compliance report to be submitted to CPCB/SPCB every three months.	Complied. Quarterly reports are regularly submitted. Qrt#3 report submitted. The next report will be submitted by 10/04/2021.
8.	Implementation of Life Cycle Assessment recommendations.	18 out of 30 recommendations have already been implemented. Remaining is under active consideration.
9.	<p>To take necessary steps for adopting the following clean technology measures to improve the performance;</p> <ul style="list-style-type: none"> <li>• Energy recovery of top Blast Furnace Gas.</li> <li>• Use of tar free runners linings.</li> <li>• Dedusting of cast house at tap holes, runners, skimmers, ladle and charging points.</li> <li>• Suppression of fugitive emissions by nitrogen gas or other inert gas.</li> <li>• To study the possibility of slag and fly ash transportation back to the abandoned mines to fill up the cavities through empty railway wagons when they return and its implementation.</li> <li>• Processing of waste containing flux and ferrous waste through waste recycling plant.</li> <li>• Implementation of rain water harvesting.</li> <li>• Reduction of Green House Gases by, <ul style="list-style-type: none"> <li>▪ Reduction in power consumption.</li> <li>▪ Use of by product gases for power generation.</li> <li>▪ Promotion of energy optimization technology including energy audit.</li> </ul> </li> <li>• Up-gradation of Monitoring and Analysis facilities for Air &amp; Water pollutants and also to impart training to manpower so that realistic data can be obtained.</li> <li>• To improve Housekeeping.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Installed.</li> <li>▪ Installed.</li> <li>▪ Installed.</li> <li>▪ Dust suppression systems installed.</li> <li>▪ Studied. Not feasible for Rourkela Steel Plant.</li> <li>▪ Being followed meticulously.</li> <li>▪ Implemented in different areas.</li> <li>▪ Regularly been practiced. By product gases are used in CPP#1 &amp; Power Blowing Station for power generation.</li> <li>▪ Energy audits are carried out regularly by qualified Energy Auditors of EMD.</li> <li>▪ Environmental Engg. Laboratory has been provided with latest instruments for monitoring &amp; analysis. Training is being provided to personnel on regular basis.</li> <li>▪ A massive housekeeping drive is going on.</li> </ul>

**Status of CREP Action Points March 2021 -- Captive Power Plant#1 :**

SN	CREP ACTION POINT	STATUS
1.	Implementation of environmental standards (emission and effluent) in non compliant power plants. Installation and commissioning of pollution control equipment by 31 <sup>st</sup> December, 2005	Pollution control equipment has already been installed and the environmental standards are being met.
2.	For existing thermal power plants, a feasibility study shall be carried out by Central Electricity Authority (CEA) to examine possibility to reduce the particulate matter emissions to 100 mg/NM3. The studies shall also suggest the road map to meet 100 mg/NM3 wherever found feasible. CEA shall submit the report by March, 2004.	Not applicable.
3.	New/expansion power projects to be accorded environmental clearance on or after 01/04/2003 shall meet the limit of 100 mg/NM3 for particulate matter.	Not applicable.
4.	Development of SO <sub>2</sub> and NO <sub>x</sub> emission standards for coal based plants by December, 2003; <ul style="list-style-type: none"> <li>New /expansion power projects shall meet the limit of SO<sub>2</sub> and NO<sub>x</sub> by w.e.f. 01/01/2005.</li> <li>Existing power plants shall meet the limit of SO<sub>2</sub> and NO<sub>x</sub> w.e.f. 01/01/2006.</li> </ul>	Complied.
5.	Install/active opacity meters/continuous monitoring systems in all the units by December 31 <sup>st</sup> , 2004 with proper calibration system.	Continuous stack monitoring system with calibration arrangement was installed and commissioned in the stacks of HP Boilers & MP Boilers.
6.	Development of guidelines/standards for mercury and other toxic heavy metals emissions by December, 2003.	Not applicable.
7.	Review of stack height requirement and guidelines for power plants based on micro meteorological data by June, 2003	All the stacks are erected based on statutory clearance.
8.	Implementation of use of beneficiated coal as per GOI notification. Power Plants will sign fuel supply agreement (FSA) to meet the requirement as per the matrix prepared by CEA for compliance of the notification as short term measure.  Options/mechanisms for setting up of coal washaries as a long term measure; <ul style="list-style-type: none"> <li>Coal India will set up its own washery.</li> <li>State Electricity Board to set up its own washery.</li> <li>Coal India to ask private entrepreneurs to set up washeries for CIL and taking washing charges.</li> </ul> SEBs to select a private entrepreneur to set up a washery near pit head installation of coal beneficiation plant.	The matter was taken up with Coal India Limited who is our supplier.
9.	Power Plants will indicate their requirement of abandoned coal mines for ash disposal and Coal India/MOC shall provide the list of abandoned mines by June,2003 to CEA	Not feasible as the mines are too far from Rourkela.

SN	CREP ACTION POINT	STATUS
10.	Power plants will provide dry ash to the users outside the premises or uninterrupted access to the users within six months.	Dry fly ash loading systems are provided at Boilers. Fly ash is being given to the fly ash brick manufactures free of cost. Actions are being taken to encourage outsiders to take the fly ash.
11.	Power Plants should provide dry fly ash free of cost to the users.	Dry fly ash is being given free of cost.
12.	State PWDs/construction and development agencies shall also adhere to the specifications/schedules of CPWD for ash/ash based products utilization. MoEF will take up the matter with State Government.	Not applicable.
13.	i) New Plants to be accorded environmental clearance on or after 01/04/2003 shall adopt dry fly ash extraction or dry disposal system or medium (35 – 40 %) ash concentration slurry disposal system or lean phase with hundred percent ash water recirculation system depending upon site specific environmental situation. ii) Existing plants shall adopt any of the systems mentioned in 13(i) by December, 2004.	The treated water from ash ponds is being re-circulated.
14.	Fly ash mission shall prepare guidelines/manuals for fly ash utilization by March, 2004	Not applicable, however CPP#1 of RSP is utilizing fly ash for construction of dykes of ash pond and giving to the outside parties free of cost.
15.	New plants shall promote adoption of clean coal and clean power generation technologies.	Not applicable.