Fly Ash Generation and Utilization Audit Report

M/S JINDAL STEEL & POWER
LIMITED RAIGARH (CG)

July 2024

Project / Facility:	Fly Ash Generation and Utilization Audit Report
Study Location:	Jindal Steel & Power Limited**,** Post Box No. 16 Kharsia Road Raigarh – 496001 Raigarh, Chhattisgarh
Project Type:	Industrial Audit
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Client		
M/s Jindal Steel & Power Limited		
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1.	Fly Ash Generation and Utilization Audit Report	20/09/2024

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1. INTRODUCTION

Jindal Steel & Power Limited (JSPL) was established in the year 1990. JSPL is an industrial powerhouse with a dominant presence in steel, power, mining and infrastructure sectors in country. JSPL is headed by Shri Naveen Jindal, who is the chairman of the company. At present JSPL Raigarh involves in manufacture of various steel products along with the power from waste materials, it also utilizes gainfully the waste heat from flue generated in the sponge iron plant and also utilizes the waste product such as dolochar in the DRI plant and convert into useful product such as power.

Production and Capacity

Jindal Steel & Power Ltd. (JSPL) is presently operating a steel plant with capacity of 3.6 MTPA at Raigarh, Chhattisgarh. The Company produces steel through coal based DRI-BF-EAF route. The existing plant comprises of the World's largest coal based sponge iron plant (DRI Plant). The company is also operating a cement plant with capacity of 1.0 MTPA. The cement plant is adjacent to steel plant and raw material viz. blast furnace slag, fly ash for the cement plant is being sourced from the steel plant of the company. The JSPL has also established a brick making plant nearby of cement plant as marked in the layout map, which is also using substantial quantity of fly ash, bottom ash, pollution control dust and slag as raw material from steel plant. The fly ash and bottom ash generated from power units are utilized by cement plant to produce PCC cement while both fly ash and bottom ash is utilized in the Brick making unit.

1.1 Scope of the Project

The objective of Fly Ash Generation and Utilization Audit of JSPL, Raigarh is to standardize the evaluation process to assess the existing practices/procedures adopted to comply with statutory/performance requirements, environmental compliances and to identify gaps in management along with related corrective measures related to utilization of generated Fly Ash as required by Legislations, Notifications of the Ministry of Environment, Forests & Climate Change (MoEF & CC), Central Pollution Control Board (CPCB), Chhattisgarh Environment Conservation Board (CECB) & any other related Regulatory Authority(ies).

- Adequacy of waste stabilization system
- The handling, storage and management of fly ash and any potential environmental hazards
- Environmental risk associated
- Waste management control systems, transportation route for materials and waste disposal, including facilitiesto minimize waste disposal impacts and accidents
- Waste compatibility disposed in landfills so as to cover compliance of landfill criteria

prescribed as per"Guidelines for Proper Functioning and Upkeep of Disposal Sites".

- Determine the impact on the surrounding environment
- Plans to increase environmental awareness
- Identify areas of improvement with time bound action plan

1.2 Approach and Methodology

The fly ash utilization and management system is being regulated as per the statutory guidelines of the regulatory bodies, such as MoEF & CC, CECB, Chhattisgarh etc. leveraging legal obligations which are not at all straightforward owing to the complexity and confusing arise of environmental rules and regulations applicable to the operating facility and to maintain the compliance procedure, following four major steps

Step 1: Environment Legal Register

An effective Environment Management System requires that the basic processes and procedures are in place required to meet the legal requirements of the jurisdiction in which the Unit operates and is properly Documented. ALegal Register is ideally a Document describing the specific requirement(s) applicable for the Industry, Process, Wastes, Discharges, Emissions, Monitoring, Reporting, Compliance, Personnel Training, Materials handling etc. requirements against each applicable Environmental Legal Requirement(s) i.e. Acts, Rules, Regulations, Notifications, Directives by MoEF & CC, CPCB, CECB and / or any Regulatory Authorities empowered, authorized by them.

Note: The present documentation has been reviewed as part of Desktop study and interaction. It is recommended todefine a detailed Legal Register Document in future for the Site to have an adequate compliance monitoring systemin place.

Step 2: Identify the Implementing Measures Needed for Compliance

This typically comes down to having effective management systems and processes in place, for example:

- Management plan for Solid waste as fly ash and bottom ash of the JSPL CPP.
- Design of Landfill, Stabilization pits/system
- Verification of liner system, side slope, cover of each cell/phase of landfill in low lying area.
- Retaining wall, garland drain etc. Groundwater monitoring system (depth to water level and quality) in andaround the landfill.
- Laboratory facility.
- Any other

Step 3: Implementation of Compliance Measures

Developing the plans and procedures and obtaining the necessary permits required for compliance is a significant challenge. Some actions which companies can consider:

- Adopt an Environmental compliance policy
- Establish procedures for internal audits, internal reporting of violations and documenting the resolution of problems
- Offer incentives for compliance
- Establish disciplinary procedures
- Continuously evaluate and improve your company's environmental compliance program

Step 4: Auditing

A Legal Audit is an appraisal of a company's operations, usually through a third- party auditor, to determine whether they are in compliance with relevant laws and regulations. A compliance audit varies from a screening-level, limited compliance audit to a very detailed and comprehensive audit. The Audit Programme undertaken at M/s Jindal Steel and Power Ltd, PO No 16, Kharsia Road Raigarh, Chhattisgarh was a detailed Fly ash Utilisation & Management audit.

Auditing done by the Consultant Team comprised of 3 steps:

- **Document Review** – onsite and desktop review based on documents, data, records made available (done during 21 April 2023)
- **Site Inspection & Discussion**- Conducted during **19 July 2024** with GM (EMD)from 9.00 am- 5.00pm. Facility Manager, HOD's,Environmental Team Personnel including, other concerned Personnel; and
- Reporting.

The following internal and external document has been referred to as part of this audit.

- Fly Ash Notifications by MoEF & CC
- MOEF & CC EC Compliance, May 2023
- Environmental Statement 2023-24
- CPCB Green book 7th edition-Pollution Control Law Series 2021(PCLS-20-2021) - Including up gradationsfrom MOEF & CC website (envfor.nic.in)
- ISO 14001 EMS documentation of JSPL

1.3 List of Applicable Environmental Legislations

Sl. No.	List of applicable Environmental Legal requirements (with latest amendments)
1.	**- Water (Prevention and Control of Pollution) Act, 1974 and Rules, 1975** **- Air (Prevention and Control of Pollution) Act, 1981 and Rules, 1982** **- Environment Protection Act, 1986 and Rules,1986**
Applicability	• Compliance with Common Consent & Authorization (under Water Act & Rules, Air Act & Rules, Hazardous Wastes MH &TBM Rules) Conditions received from CECB • Submission of Annual Environmental statement • Compliance with EC Conditions
2.	**Govt. of India, MoEFCC Gazette Notification No. S.O. 5481(E) dated 31.12.2021 on"Ash Utilization from Coal or Lignite Thermal Power Plants"** *(reference Sl. No. of the Gazette Notification noted along-side each requirement on theright-hand column)*
Applicability	• Thermal Power Plants including Captive, Cogeneration Plants to utilize 100% fly ash (refer A.1) • Ash generated shall be utilized only for specified eco-friendly purposes (refer A.2) • Every coal or lignite based thermal power plant shall be responsible to utilize 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilization fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilization of 100 per cent in a three years cycle. (refer Table given in A.4) • The unutilized accumulated ash i.e. legacy ash, which is stored before the publication of this notification, shall be utilized progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilization targets prescribed for ash generation through current operations of that particular year:; *Obligations applicable from 01.04.2022)*

	• Any new as well as operational thermal power plant may be permitted an emergency or temporary ash pond with an area of 0.1 hectare / MW. (refer A.6) • Every coal or lignite based thermal power plant shall ensure that loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water pollution are taken and status in this regard shall be reported to the concerned State Pollution Control Board. (refer A.7) • Every coal or lignite based thermal power plant shall install dedicated silos for storage of dry fly ash silos for at least sixteen hours of ash based on installed capacity and it shall be reported upon to the concerned SPCB. (refer A.8) • Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall provide real time data on daily basis of availability of ash with Thermal Power Plant (TPP), by providing link to Central Pollution Control Board's webportal or mobile phone App for the benefit of actual user(s). (refer A.9) • Thermal Power Stations shall facilitate the availability of required quantity of ash (to allMines within 300 kms. Radius) by delivering ash free of cost and bearing the cost of transportation or cost or transportation arrangement decided on mutually agreed terms and mixing of ash with overburden in mine voids and dumps shall be applicable for theoverburden generated from the date of publication of this notification and the utilization of ash in the said activities shall be carried out in accordance with guidelines laid down by the Central Pollution Control Board, Director General of Mines Safety and Indian Bureau of Mines.(refer B.3)

Sl. No.	List of applicable Environmental Legal requirements (with latest amendments)
	• In the first two years of a three years cycle, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved at least 80per cent ash (fly ash and bottom ash) utilization, then such non-compliant thermal power plants shall be imposed with an environmental compensation of Rs. 1000 per ton on unutilized ash during the end of financial year based on the annual reports submitted and if it is unable to utilize 100 per cent of ash in the third year of the three years cycle, it shall be liable to pay an environmental compensation of Rs. 1000 per ton on the unutilized quantity (to designated A/C of CPCB) on which environmental compensation has not been imposed earlier. (refer C.1, C.2) • The owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate shall serve written notice to persons or agencies who are liable to utilize ash or ash based products, offering for sale, or transport or both. (refer D.1) • Thermal power plants shall upload monthly information regarding ash generation and utilization by 5th of the next month on the web portal. Annual implementation report (for the period 1st April to 31st March) providing information about the compliance of provisions in this notification shall be submitted by the 30th day of April, every year to the Central Pollution Control Board, concerned State Pollution Control Board or Pollution Control Committee (PCC), Central Electricity Authority (CEA), and concerned Integrated Regional Office of Ministry of Environment, Forest and Climate Change by the coal or lignite based thermal power plants. (refer E.2.i)

1.4 Audit Findings

The key findings of this audit based on the documents reviewed followed by site inspection and Discussion with concerned personnel, as well as applicable Legislations are presented below.

Sl.No	Applicable Law Reference and Compliance Requirement	Status
1. Water (Prevention and Control of Pollution) Act, 1974 and Rules, 1975		
	• Compliance with Common Consent & Authorisation (under Water Act & Rules, Air Act & Rules, Hazardous Wastes MH&TBM Rules) Conditions received fromCECB	Consent and authorization are valid
2. Air (Prevention and Control of Pollution) Act, 1981 and Rules, 1982		
	• Compliance with Common Consent & Authorisation (under Water Act & Rules, Air Act & Rules, Hazardous Wastes MH & TBM Rules) Conditions received from CECB	Consent and authorization are valid
3. **Environment Protection Act, 1986 and Rules,1986**		
	• Submission of Annual Environmental statement • Compliance with Common Consent & Authorization (under Water Act & Rules, Air Act & Rules, Hazardous Wastes MH & TBM Rules) Conditions received from CECB	Annual Environmental Statement in Form V submitted to CECB every Year for the previous year.
4. Govt. of India, MoEFCC Gazette Notification No. S.O. 5481(E) dated 31.12.2021 on "Ash Utilisation from Coal or Lignite Thermal Power Plants"		
	• Thermal Power Plants including Captive,Cogeneration Plants to utilize 100% fly ash (refer A.1)	100 % fly ash utilized during 2023-24
	• Ash generated shall be utilised only for specified eco-friendly purposes (refer A.2)	Fly ash presently being sent for landfilling inlow lying area own land.

	• Every coal or lignite based thermal power plant shall be responsible to utilise 100 per cent ash (flyash and bottom ash) generated during that year, however, in no case shall utilisation fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilisation of 100 percent in a three years cycle. (refer Table given in A.4)	100% fly-ash and bottom ash being utilized;refer to Annual reports of 2023-24
	• The unutilised accumulated ash i.e. legacy ash, which is stored before the publication of this notification, shall be utilised progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilisation targets prescribed for ash generation through current operations of that particular year:	Legacy ash is already being sent for landfilling.

Sl.No	**Applicable Law Reference and Compliance Requirement**	**Status**
	(refer Table given in A.5; ***Obligations applicable from 01.04.2022)***	
	• Any new as well as operational thermal power plant may be permitted an emergency or temporary ash pond with an area of 0.1 hectare / MW. (refer A.6)	Ash pond is available for dumping of only ESP hopper ash (WHRB). The fly ash is being storage in silo and transported by Hywa.
	• Every coal or lignite based thermal power plant shall ensure that loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water	During the site visit it was observed that the loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner

	pollution are taken and status in this regard shall be reported to the concerned State Pollution Control Board. (refer A.7)	and precautions measures has been adopted to prevent air and water pollution.
	• Every coal or lignite based thermal power plant shall install dedicated silos for storage of dry fly ashsilos for at least sixteen hours of ash based on installed capacity and it shall be reported upon to the concerned SPCB. (refer A.8)	Sufficient capacity of Silos has been provided for the storage of fly ash. Reporting being done as per of Consent Renewal applications & Environmental Statement submissions.
	• Every coal or lignite based thermal power plant (including captive or co-generating stations or both)shall provide real time data on daily basis of availability of ash with Thermal Power Plant (TPP), by providing link to Central Pollution Control Board's web portal or mobile phone App for the benefit of actual user(s). (refer A.9)	Internal log book system has been provided for availability and disposal quantity of ash. Real time CEMS & CAAMS data being uploaded in CECB website
	• Thermal Power Stations shall facilitate the availability of required quantity of ash (to all Mines within 300 kms. Radius) by delivering ash free of cost and bearing the cost of transportation or cost or transportation arrangement decided on mutually agreed terms and mixing of ash with overburden in mine voids and dumps shall be applicable for the overburden generated from the date of publication of this notification and the utilisation of ash in the said activities shall be carried out in accordance with guidelines laid down by the Central Pollution Control Board, Director General of Mines Safety and Indian Bureau of Mines.(refer B.3)	Currently ash has been disposed in lowlying area near the plant. Fly ash shall be made available to interested parties based on requirements and signing agreement; letter being communicated to identified parties.

	• In the first two years of a three years cycle, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved at least 80 per cent ash (fly ash and bottom ash) utilization, then such non-compliant thermal power plants shall be imposed with an environmental compensation of Rs. 1000 per ton on unutilized ash during the end of financial year based on the annual reports submitted and if it is unable to utilize 100 per cent of ash in the third year of the three years cycle, it shall be liable to pay an environmental compensation of Rs. 1000 per ton on the unutilized quantity (to designated A/C of CPCB) on which environmental compensation has not been imposed earlier. (refer C.1, C.2)	Noted and being adhered to

	• The owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate shall serve written notice to persons or agencies who are liable to utilize ash or ash based products, offering for sale, or transport or both. (refer D.1)	Project proponent agreed. Letters being sent.
	• Thermal power plants shall upload monthly information regarding ash generation and utilization by 5th of the next month on the web portal. Annual implementation report (for the period 1st April to 31st March) providing information about the compliance of provisions in this notification shall be submitted by the 30th day of April, every year	Monthly generation and disposal returns have been submitted to CECB regularly.

	to the Central Pollution Control Board, concerned State Pollution Control Board or Pollution Control Committee (PCC), Central Electricity Authority (CEA), and concerned Integrated Regional Office of Ministry of Environment, Forest and Climate Change by the coal or lignite based thermal power plants. (refer E.2.i)	
5. Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016		
	• Compliance with Common Consent & Authorization(under Water Act & Rules, Air Act & Rules, Hazardous Wastes MH&TBM Rules) Conditions received from CECB	Available with project proponent. Conditions being implemented.

1.5 Good Practices

- Pucca/ Concrete Roads
- Water Sprinklers for control of dust pollution
- Green belt development along the premises
- Lab setup for regular monitoring of Water, Air and other parameters.
- Fly Ash Management
- Plantation of new saplings
- Sewage Treatment Plant
- Drinking Water Treatment Plant [Photo 8]

1.6 Conclusion and Recommendations

During the Fly ash Audit conducted at M/s Jindal Steel and Power Ltd, which is located at Jindal Steel & Power Limited**,** Post Box No. 16 Kharsia Road Raigarh – 496001, Chhattisgarh, certain good practices were observed.

- A Compliance Management System is being implemented that will have proper forms and formats with reminder system.

- The Compliance Management System is designed as per the provisions of the latest MoEF&CC Gazette Notification dated 31.12.2021 on Ash Utilisation along-with data monitoring, real-time online data availability and periodic monitoring & submission (by 05^{th}. of every month for the preceding month and by 30^{th}. April every year for the previous Financial Year).

- The same Compliance Management System may be made an integral part of Performance Monitoring & Measurement under ISO 14001 EMS and ISO 14001 OHSMS Documentation as well. Besides, apart from real-time data availability in the Company Website, it has to be linked with the website and /or Application links of CECB, MoEFCC, CPCB etc.

APPENDIX – 1
PHOTOGRAPHS

Fig 1: Brick Plant (Capacity 3 Lakh Brick / Blocks / Tiles per day)

Fig 2: All construction activities are done using fly ash bricks

Fig 3: JSPL's Cement Plant for making PCC, PSC, PPC, OPC, JGRS & GGBS

APPENDIX – 2
Ash Compliance Report (FY 2023-24)

Ash Compliance Report (for the period 1st April 2023-31st March 2024)

(FY 2023-24)

S.No.	Details	
1.	Name of Power Plant	Captive Power Plant Jindal Steel & Power Limited
2.	Name of company	Jindal Steel & Power Limited
3.	District	Raigarh
4.	State	Chhattisgarh
5.	Postal address for communication	Post Box No. 16 Kharsia Road Raigarh – 496001
6.	E-mail	pinaki.bhattacharjee@jindalsteel.com
7.	Power Plant installed Capacity (MW)	AFBC - 110 MW CFBC - 24 MW
8.	Plant Load Factor	Considering CPPs, it may varies depending upon power requirement. The main power requirement is met from JSPL TPP located at Dongamahua, Tamnar, District Raigarh, Chhatisgarh
9.	No. of units generated (MWh)	AFBC - 110 MW (coal fine + Char) CFBC - 24 MW (80% Char) WHRB - 40 MW (flue heat DRI-1) WHRB - 50 MW (flue heat DRI-2) WHRB - 75 MW (flue heat Coke Oven)
10.	Total area under Power Plant (Ha) Including area under ash pond	AFBC - 56 acres (22.66 Ha) CFBC - 69 acres (27.92 Ha including coke oven Ash Pond - 187 acres (75.67 Ha)
11.	Quantity of Coal consumption during reporting period (Metric Ton Per Annum)	791149 T (Mixed fuel i.e. char, middling & coal fines)
12.	Average ash content in percentage (per cent):	Around 48.59%
13.	Quantity of current ash generation during reporting	Fly Ash - 307577 T

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	period (Metric Tons per Annum): Fly ash (Metric Tons per Annum): Bottom ash (Metric Tons per Annum)	Bottom ash - 76894 T
14.	Capacity of dry fly ash storage silo(s) (Metric Tons)	3 x 600 T = 1800 TPD
15.	Details of utilization of current ash generated during reporting period (a) Total quantity of current ash utilized (MTPA) during reporting period:	384472 Ton
	(b) Quantity of fly ash utilized (MTPA):	384472 Ton
	(i) Fly ash based products (bricks or blocks or tiles or fiber cement sheets or pipes or boards or panels)	107954 Ton
	(ii) Cement manufacturing	31268
	(iii) Ready mix concrete:	Nil
	(iv) Ash and Geo-polymer based construction material:	Nil
	(v) Manufacturing of sintered or cold bonded ash aggregate:	Nil
	(vi) Construction of roads, road and fly over embankment:	Nil
	(vii) Construction of dams:	Nil
	(viii) Filling up of low lying area:	168356 Ton
	(ix) Filling of mine voids:	Nil
	(x) Use in overburden dumps	Nil
	(xi) Agriculture:	Nil
	(xii) Construction of shoreline protection structures in coastal districts;	Nil
	(xiii) Export of ash to other countries:	Nil
	(xiv) Others (please specify):	Nil
	(c) Quantity of bottom ash utilized (MTPA):	76894 Ton
	(i) Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels):	76894 T
	(ii) Cement manufacturing:	Nil

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	(iii) Ready mix concrete:	Nil
	(iv) Ash and Geo-polymer based construction material:	Nil
	(v) Manufacturing of sintered or cold bonded ash aggregate:	Nil
	(vi) Construction of roads, road and flyover embankment:	Nil
	(vii) Construction of dams:	Nil
	(viii) Filling up of low lying area:	Nil
	(ix) Filling of mine voids:	Nil
	(x) Use in overburden dumps:	Nil
	(xi) Agriculture:	Nil
	(xii) Construction of shoreline protection structures in coastal districts	Nil
	(xiii) Export of ash to other countries:	Nil
	(xiv) Others (please specify)	Nil
	Total quantity of current ash unutilized (MTPA) during reporting period:	Nil
16.	Percentage utilization of current ash generated during reporting period (per cent):	100%
	Details of disposal of ash in ash ponds	
	(a) Total quantity of ash disposed in ash pond(s) (Metric Tons) as on 31st March (excluding reporting period):	Nil
	(b) Quantity of ash disposed in ash pond(s) during reporting period (Metric Tons):	Nil
	(c) Total quantity of water consumption for slurry discharge into ash ponds during reporting period (m3):	Nil
	(d) Total number of ash ponds: (i) Active: (ii) Exhausted (yet to be reclaimed): (iii) Reclaimed:	 02 None None

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	(e) total area under ash ponds (ha):	187 Acres (75.67 Ha)
17.	Individual ash pond details Ash pond-1,2, etc (please provide below mentioned details separately, if number of ash ponds is more than one)	There are 2 lagoons (Lagoon 1 - 125 Acre, Lagoon 2 – 62 Acres)
18.	(a) Status: Under construction or Active or Exhausted or Reclaimed	Active
	(b) Date of start of ash disposal in ash pond (DD/MM/YYYY or MMYYYY):	Since commencement
	(c) Date of stoppage of ash disposal in ash pond after completing its capacity (DD/MM/YYYY or MM/YYYY): (Not applicable for active ash ponds)	Active
	c) area (hectares):	187 acres (75.67 Ha)
	(d) dyke height (m):	261 M RL
	(d) volume (m3):	Around 18.8 million cu.m
	(e) quantity of ash disposed as on 31st March (Metric Tons):	18.7 million
	(f) available volume in percentage (per cent) and quantity of ash can be further disposed (Metric Tons):	Around 0.1 million cu.m
	(g) expected life of ash pond (number of years and months):	Around 2 - 3 years
	(e) co-ordinates (Lat and Long): (please specify minimum 4 co-ordinates)	21^0 55" 16' N-83^0 19" 43' E 21^0 55" 03' N-83^0 20" 13' E 21^0 54" 56' N-83^0 19" 33' E 21^0 54" 41' N-83^0 20" 08' E
	(f) type of lining carried in ash pond: HDPE lining or LDPE lining or clay lining or No lining	Clay lining
	(g) mode of disposal: Dry disposal or wet slurry (in case of wet slurry please specify whether HCSD or MCSD or LCSD)	High concentrations slurry disposal systems (HCSDS)
	(h) Ratio of ash: water in slurry mix (1:3.33):	30% water
	(i) Ash water recycling system (AWRS) installed and functioning: Yes or No	Yes

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	(j) Quantity of wastewater from ash pond discharged into land or water body (m3):	None
	(k) Last date when the dyke stability study was conducted and name of the organization who conducted the study:	March 2023 NIT Rourkela
	(l) Last date when the audit was conducted and name of the organization who conducted the audit:	Last year audit conducted by M/s Institute of Environment Management for FY 2022-23
19.	Quantity of legacy ash utilized (MTPA):	
	i. Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels):	Partially removed (around 1.7 Lakh T) and used in filling of open voids at Timarlaga (Chandrapur) through external transporter. Rest will be utilized in low lying areas or as per demand in any road construction projects.
	ii. Cement manufacturing:	
	iii. Ready mix concrete:	
	iv. Ash and Geo-polymer based construction material:	
	v. Manufacturing of sintered or cold bonded ash aggregate:	
	vi. Construction of roads, road and flyover embankment:	
	vii. Construction of dams:	
	viii. Filling up of low lying area:	
	ix. Filling of mine voids:	
	x. Use in overburden dumps:	
	xi. Agriculture:	
	xii. Construction of shoreline protection structures in coastal districts;	
	xiii. Export of ash to other countries:	
	xiv. Others (please specify):	

20.	Summary			
	Details	Quantity generated (MTP)	Quantity utilized (MTP) and (per cent)	Balance quantity (MTP)

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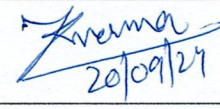
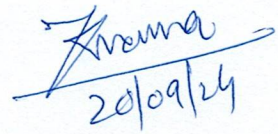
	Current ash during reporting period	384472 Ton	384472 Ton (100%)	Nil
	Legacy ash	Nil	170000 (WHRB Ash)	Laying in ash pond
	Total	384472 Ton	100%	Nil
21.	Any other information: Soft copy of the annual compliance report, and shape files of power plant and ash ponds may be e-mailed to:- moefcc-coalash@gov.in		KML file provided	
22.	Signature of Authorized Signatory			

Note:

1. The fly ash generated from AFBC and CFBC is utilized 100% as per Fly Ash Notification
2. The WHRB ash (ESP hopper ash) is disposed in ash pond, for which permission is granted.



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