



A Maharatna Company

Darlipali

Annual Environment Statement
Of
Darlipali Super Thermal Power Project
For the Financial Year 2022-23



NTPC Limited
Darlipali Super Thermal Power Project
PO: Darlipali, Dist- Sundargarh(Odisha), Pin: 770025

NTPC Limited
Darlipali Super Thermal Power Project
Dist.-Sundargarh (Odisha)

Form – V

Environmental Statement for the financial year ending 31st March 2024.

PART – A

1.	Name and address of the owner/occupier of the Industry operation or process	AJAI KUMAR TANDON (Business Unit Head) Darlipali Super Thermal Power Project NTPC Limited Dist: Sundargarh Pin: 770072 (Odisha)
2.	Industry Category	Power Plant (Thermal)
3.	Name of products	Electricity
4.	Production Capacity	1600 MW (2x800 MW Thermal)
5.	Year of Establishment	2020 (COD of Unit#1), 2021 (COD of Unit#2), (CTO valid till 31.03.2025)
6.	Date of Last Environmental Statement	19.08.2022

PART –B
(Water & Raw Material Consumption)

(i) Water Consumption m³/day (last FY)

Process	:	*U#1&2 (Average) : ~96022 m ³ /day (including Cooling)	
Cooling	:	Included in process water	
Domestic	:	~652 m ³ /day (Average)	
Name of Products	Process Water Consumption per unit of product output		
	During the current Financial Year 2021-22	During the current Financial Year 2022-23	
Electricity	2.68 lit / kwh	2.62 lit / kwh	

(ii) Raw material Consumption

S.N	Name of raw material	Consumption of raw material per unit of output	
		During the current Financial Year 2021-22	During the current Financial Year 2022-23
(a)	Coal (kg/kwh) 8 MMT per year estimated @ 0.67 sp coal)	0.714	0.740
(b)	Furnace Oil (ml/kwh)	1.190	0.623

PART –C

(Pollution Discharge to Environment / unit of output)
(Parameters as specified in the consent issued)

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Water			
i) pH	NIL	7.5-7.7	NIL
ii) TSS	NIL	2.09 mg/l	NIL
iii) COD	NIL	10.53 mg/l	NIL
iv) O & G	NIL	0.4 mg/l	NIL
v) BOD	NIL	3.39 mg/l	NIL
(b) Air			
i) Particulate matter (SPM)	nil	24.79 mg/Nm ³	NIL

PART –D
(Hazardous wastes)

[As specified under hazardous wastes management and handling rules,1989]

S.No.	Hazardous wastes	Total quantity	
		During the last Financial Year 2021-22	During the current Financial Year 2022-23
a.	From process		
1	Used oil	12.7 T/A	17.60 T/A
2	Waste containing oil	0.1 T/A	0.11 T/A
3	Oily Sludge (waste grease & Mobil)	0.37 T/A	0.39 T/A
4	Discarded containers used for hazardous chemicals	Nil	3000 Nos
5	Spent Resin	4000lit	6000lit
b.	From pollution control facilities	Nil	Nil

PART –E
(Solid Wastes)

S.No.	Solid wastes	Total Quantity (MT)	
		During the last Financial Year 2021-22	During the current Financial Year 2022-23
(a)	From process		
1	Mill rejects/clinkers	nil	nil
2	Clarified sludge	nil	nil
3	Ash	30.62 LMT	38.8 LMT
(b)	From pollution control facilities		
1	Sewage sludge	nil	nil
(C)	Quantity recycled or reutilized within the unit.		
1	Fly Ash	nil	nil

PART –F

[Please specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes]

Characteristics of Ash: Average

S.No.	Chemical Composition	%age by weight
i.	Si O ₂	60.31
ii.	Al ₂ O ₃	28.81
iii.	Fe ₂ O ₃	5.98
iv.	CaO	0.26
v.	MgO	0.78
vi.	Na ₂ O	0.24
vii.	K ₂ O	0.79
viii.	LOI	0.2
ix.	TiO ₂	1.82
x.	P ₂ O ₅	0.13
xi.	So ₃	0.18

(i) **Disposal practice of Hazardous Waste** - Darlipali Station has membership of TSDF and all the Hazardous waste generated from the plant processing is being disposed through TSDP.

(ii) **Disposal practice of Solid Waste** -

a) Coal Ash:

Fly ash is being issued to various ash based industries (bricks, cement, blocks & RCM) free of cost based on their request to issue fly ash as per CTO condition from OSPCB.

Fly Ash bricks will be manufactured by NTPC Ltd/ Darlipali Super Thermal Power Project for internal use and community development.

Fly ash is being issued to NHA for road embankment in Palma -Gumla in Jharkhand Angul-Sambalpur and Rajamunda-Barkote section in the state of Odisha.

Ash is being sent to Dulanga mines for Fly-ash OB mixing pilot project.

Fly ash will be used for reclamation of abandoned stone quarry and low lying area as per OSPCB resolution No. 11047 dated 21.08.2017.

Solid Waste i.e. ash is sent to Ash Pond in the form of slurry and HCSD form. The Ash Pond is so designed that the solid settles down and clear water accumulates in water

lagoon which is totally recycled through ash water recirculation system for Bottom Lagoon-II and lagoon-III.

Efforts are being made for use of fly ash in other processes.

b) Used Oil:

Used oil from various processes are being collected in covered MS Drums at a centrally located isolated storage area meant for them and sold to OSPCB authorized agencies.

c) Secondary sludge:

Secondary sludge from Sewage treatment plant is being used as manure for green belt development.

d) Discarded containers:

Discarded containers will be disposed to the registered suppliers through M/s MSTC.

(e) Mill rejects:

Presently there is no mill rejects at Darlipali station. If any Mill rejects will be generated shall be used as carpet coal at coal stock yard.

PART –G

(Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.)

- Fly ash is being issued to various ash based industries (bricks/asbestos/cement) free of cost.
- The oil water separator pit works as separator for oil leakage in fuel oil handling area and this oil is reused in the system
- The highly efficient ESP (99.91% efficiency) installed in the project reduces the emissions to the atmosphere to a great extent and reduces the power consumption.
- Dry ash collection & storage facility is provided as 3x700 MT HCSD silos.
- The water and steam cycles work in a closed system and only make up water is provided to replenish the losses in the system. The cooling water cycle also works in a closed loop and only make up water is taken in the system.
- The treated sewage sludge is being used as manure for Horticulture within the township premises which conserves the water resources.

PART –H

(Additional measures / investment proposal for environmental protection including abatement of pollution/prevention of pollution.)

- Closed loop cooling water system has been provided for control of Thermal Pollution.
- Multi-lagoon Ash Pond with Ash Water Recirculation system is in operation.
- Sewage Treatment Plant to treat the domestic sewage is in operation from 17.01.2020. The treated water is used for Horticulture and plantation purpose.
- Effluent Treatment Plant is in operation since 01/12/2019 under recirculation mode.
- 3 Nos of coal settling pits are provided for making clear waste water & are in service.
- DFDS System at all required locations and water gun as sprinkler in coal stack yards have been provided to control fugitive emission.
- One (01) nos. fly ash brick plant each of capacity 12000 bricks per day is under construction stage.
- Green belts of sufficient width and density developed in and around Plant area. About 1,45,000 nos. of trees have been planted by DSTPP till 31.03.2023.

PART – I

Miscellaneous:

(Any other particulars for improving the quality of the environment.)

Air Quality: Ambient air quality and Meteorological data are being monitored continuously and the data is available to the public by means of digital display board at the entrance of the plant. The data is also being sent to OSPCB through RT-DAS. Third party monthly environment parameters monitoring is done and report is being submitted to OSPCB.

Water Quality: The total sewage is being treated through STP and the treated water is being used for horticulture purposes and green belt development.

Waste Management: Dry and wet solid wastes are being disposed of in a scientific manner. The wet waste generated from canteen and household kitchen are being used for compost preparation which finally utilized for horticultural plants.

Ash Management: Station is maximizing ash utilization through NHAI & PWD road construction projects, Dulanga mines OB mixing apart from supplying ash to ash brick plants near Darlipali. Station has further planned to utilize the ash for reclamation of abandoned quarry and low lying area.

Survey / study: Survey to know the probable avenues and the ash utilization potential was conducted (study) was also completed in FY 19-20 by NPC.

Afforestation:

- In the FY: 2022-23, 17500 Nos of trees were planted.
- Mass tree plantation on the eve of World Environment Day.
- More than 1.45 lac nos. of trees have already been planted till 31.03.2023.
- Distribution of saplings to employees of the township.
- Miyawaki plantation of 30000 sapling is under progress.

Awareness Programs:

- Celebration of World Environment Day 5th June & World Water Day on 22nd March
- Mass plantation by employees and school children in permanent township and development of parks.
- Organizing various competitions on environmental awareness amongst Employees, Dependents, Associates and School children.
- Conducting Training programme on Environment.
- Display of Environmental awareness banners at strategic locations.
- Display of environment data at plant gate in LED Wall for public.
- Interaction with Fly Ash users and NHAI& PWD personnel for safe handling and transportation of ash.
- Advertisements (EOI) in National & Regional Newspapers on ash utilization.