



एनटीपीसी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

लारा / LARA

Ref: Lara:EMG:Envt. Stmt. 20-21: 2021

September 21, 2021

To,

The Member Secretary,
Chhattisgarh Environment Conservation Board,
Paryavas Bhawan,
Atal Nagar Nava Raipur,
Chhattisgarh.

Dear Sir,

Subject: Environment Statement of NTPC Lara (2X800 MW) for the financial year 2020-21.

The Environment Statement of NTPC Lara (2X800 MW) for the financial year 2020-21 is being attached with the letter for your kind information please.

With warm Regards.

Sign of Authorized Signatory

(ALOK GUPTA)

(EXECUTIVE DIRECTOR, NTPC Lara)

आलोक गुप्ता
Alok Gupta
कार्यकारी निदेशक (लारा)
Executive Director (Lara)
एनटीपीसी-लारा, रायगढ़ (छ.ग.)
NTPC-LARA, Raigarh (C.G.)

Copy To:

1. Regional Officer,
Chhattisgarh Environment Conservation Board,
Raigarh



एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)



Environment Statement
For Lara Super Thermal Power Station
(NTPC Ltd)
Raigarh

(Year 2020 – 2021)

Period Ended 31.03.2021

By
Lara Super Thermal Power Station
(NTPC Ltd)
Raigarh (Chhattisgarh)

Form-V
(See Rule-14)

Environment Statement for the Financial Year
Ending 31st March 2021

Part-A

i	Name and address of the occupier of the industry	Shri Alok Gupta, Executive Director, Lara STPS, NTPC Ltd Chhapora, Tehsil-Pussore, Raigarh, Chhattisgarh PIN: 496440
ii	Industry category Primary -----(STC code) Secondary. -----(SIC Code)	Thermal Power Plant (Primary)
iii	Production capacity	2x800 MW Unit
iv	Year of establishment	Unit-I (800 MW): 01.10.2019 Unit-I (800 MW): 07.11.2020
v	Date of the last environmental statement submitted	22.09.2020

Part-B

In previous financial year 2019-20, only Unit#1 was operational since 01.10.2019 to 31.03.2020 while during current financial year 2020-21 U#1 has been available for complete year and Unit#2 has been operational since 07.11.2020 to 31.03.2021.

Water and Raw Material Consumption

1. Water Consumption M³/Day:

Sr No	Type of Activity	Consumption (M³/Day) During Previous financial year 2019-20	Consumption (M³/Day) During current financial year 2020-21
1	Process (Boiler)	1040 M3/Day	1286 M3/Day
2	Cooling	31777 M3/Day	56223 M3/Day
3	Domestic	320 M3/Day	164 M3/Day
4	Ash Water	10482 M3/Day	8956 M3/Day

***Annual Consumption average per day**

Name of the Product	Process Water Consumption Per Unit of Product Output	
	During the Previous Financial Year 2019-2020 (Cum./Kwh)	During the Current Financial Year 2020-2021 (Cum./Kwh)
Electricity	0.0000788107 Cum./KWH	0.0000782695 Cum./KWH

2. Raw Material Consumption

S No	Name of the Raw Material	Name of the Product	Consumption of Raw Material per unit output	
			During the Previous Financial Year 2019-2020	During the Current Financial Year 2020-2021
1	Coal	Electricity	0.611 Kg/KWH	0.618 Kg/KWH
2	Fuel Oil	Electricity	0.516 ml/KWH.	1.179 ml/KWH

Part-C

Pollution Discharge to Environment /Unit of Output
(Parameter as Specified in the Consent Issue)

Pollutants	Quantity of Pollutants Discharged (Mass /day)	Concentrations of Pollutants Discharged (Mass/Volume)	Percentage of Variation from Prescribed Standard with Reasons
(a) Water			
pH	---	7.40	
TSS	11.32 Kg/Day	39.04 mg/lit	-60.96%
BOD	4.47 Kg/Day	15.42 mg/lit	-48.60%
COD	10.37 Kg/Day	35.75 mg/lit	-85.70%
O&G	0.72 Kg/Day	2.47 mg/lit	-75.30%
(b) Air: UNIT#1			
SPM	624.02 MT/Year (0.159 gm/kwh)	35.55 mg/Nm ³	-28.90%
SOx	16520.60 MT/Year (4.217 gm/kwh)	941.16 mg/Nm ³	841.16%
NOx	6836.19 MT/Year (1.745 gm/kwh)	389.45 mg/Nm ³	289.45%

(c) Air: UNIT#2			
SPM	253.70 MT/Year (0.122 gm/kwh)	28.71 mg/Nm ³	-4.30%
SO _x	7522.53 MT/Year (3.617 gm/kwh)	851.30 mg/Nm ³	751.30%
NO _x	2407.95 MT/Year (1.158 gm/kwh)	272.50 mg/Nm ³	172.50%

* NTPC Lara has awarded contract for installation of FGD to M/s L&T on 31.07.2018 for controlling SO_x concentration in flue gas in compliance to the latest MOEF&CC emission norms dated 07.12.2015 for TPP. The installation of FGD is in progress.

Part-D

Hazardous Waste

(As Specified Under Hazardous Waste (Management, Handling and Transboundary Movement Rules, 2016)

Authorization under the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 was granted by CECB, Raipur vide letter No.: 1433/HSMD/HO/CECB/2020 Raipur, dated 08.06.2020 valid upto : 03.06.2025. (Number of authorization 434 HO/HSMD/CECB/RAIPUR)

The Authorization is granted for the following wastes and quantity generated during year 2020-21 is as below:-

Sr. No.	Type of hazardous waste with category	Permitted Quantity of Hazardous Waste	Actual Quantity Generated in 2020-21
1	Used or Spent oil (Schedule-I, Cat. No. 5.1)	5KL	4.8 MT*
2	Waste or residue containing oil (Schedule-I, Cat. No. 5.2)	1T	NIL
3	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes (Schedule-I, Cat. No. 33.1)	400 Nos.	400 Nos.
4	Spent Ion exchange resin containing toxic metals (Schedule-I, Cat. No.35.2)	1KL	NIL

*The weight is inclusive of the drums containing used oil. (Drum weight 0.50 MT approximately)

Part-E
Solid Waste

Sr. No.	Solid Waste	Total Quantity (MT)	
		During the previous Financial Year 2019-20	During the current Financial Year 2020-21
(a)	From Process Mill Reject	2725 MT	8270 MT
(b)	From Pollution Control Facility : Ash	566192 MT	1352233 MT
(c) (i)	Quantity recycled or re-utilized within the unit (Ash)	1657 MT (Outside Brick Mfg.)	115000 MT (Ash Dyke Raising / Buttressing)
			271 MT (NTPC Brick Mfg.)
			12696 MT (Outside Brick Mfg.)
(ii)	Land Filling	NIL	49011 MT
(iii)	Agriculture (Research)	Nil	Nil
(iv)	Cenospheres	Nil	854 MT
(v)	Clay brick kiln	Nil	Nil
(vi)	UG Mines filling	Nil	Nil
(vii)	OC Mines filling	Nil	Nil
(viii)	Roads/ Rail Embankment	Nil	827776 MT
(ix)	CLSM	Nil	Nil
(x)	Ash Concrete	Nil	Nil
(xi)	Bottom Ash Cover	Nil	Nil
(xii)	Cement industries	Nil	Nil
(xiii)	Sold Mill Reject	NIL	NIL
(xiv)	Disposed Ash	564535 MT	346625 MT
(xv)	Disposed Mill reject	2725 MT	8270 MT

Part-F

Please specify the characterization (in term of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Hazardous waste generation & Method of disposal data (During financial Year 2020-21):

Sr. No.	Type of hazardous waste with category	Actual Quantity Generated in 2020-21	Remarks
1	Used or Spent oil (Schedule-I, Cat. No. 5.1)	4.8 MT*	Sent to Authorized Recycler

2	Waste or residue containing oil (Schedule-I, Cat. No. 5.2)	NIL	
3	Empty barrels/containers/liners contaminated with hazardous chemicals /wastes (Schedule-I, Cat. No. 33.1)	400 Nos.	Sent to Authorized Recycler
4	Spent Ion exchange resin containing toxic metals (Schedule-I, Cat. No.35.2)	NIL	

*The weight is inclusive of the drums containing used oil. (Drum weight 0.50 MT approximately)

The proposed method for disposal of items from Sr. No. 1 to 3 is through authorized recyclers and for item number 4 is through co-processing in cement plant or disposal into CTSDF.

The solid waste generated is Ash, which is majorly used for (i) Road construction, (ii) Private Ash Brick Plants (iii) Low lying area filling. Balance quantity of ash is stored presently in Ash Dykes.

Ash Generated at NTPC, Lara have following chemical composition:-

CHEMICAL ANALYSIS OF ASH												
S.N		Na2O	MgO	Al2O3	SiO2	P2O5	SO3	K2O	CaO	TiO2	MnO	Fe2O3
	UNIT	%	%	%	%	%	%	%	%	%	%	%
1	FLY ASH	0.12	0.77	28.42	57.90	0.32	0.11	1.06	0.90	1.74	0.03	8.35
2	BOTTOM ASH	0.12	0.69	26.67	58.42	0.17	0.11	0.98	0.94	1.75	0.03	9.33

Heavy Metals in fly ash & bottom ash are as follows:

a) **Fly Ash:**

Sr. No.	Test Parameter	Result (% by mass)
1	Iron as Fe2O3	6.25
2	Copper as CuO	0.02
3	Total Chromium as Cr2O3	0.03
4	Hexavalent Chromium as Cr(VI)	N.D.
5	Cadmium as CdO	N.D.
6	Lead as PbO	0.01
7	Arsenic as As2O3	N.D.
8	Mercury as HgO	N.D.
9	Zinc as ZnO	0.62

b) Bottom Ash

Sr. No.	Test Parameter	Result (% by mass)
1	Iron as Fe ₂ O ₃	5.32
2	Copper as CuO	0.02
3	Total Chromium as Cr ₂ O ₃	0.01
4	Hexavalent Chromium as Cr(VI)	N.D.
5	Cadmium as CdO	N.D.
6	Lead as PbO	0.01
7	Arsenic as As ₂ O ₃	N.D.
8	Mercury as HgO	N.D.
9	Zinc as ZnO	0.41

Part-G

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

Pollution control measures adopted has resulted in economization in consumption of natural resources and general improvement in the quality of environment has been achieved in and around the plant. In turn the cost of production generally increases but improves the quality of environment in the way of better health of neighborhood people and employees, which are incomparable.

Part-H

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

Sr. No	Description of Item	Investment Cost (Rs in crores)
1.	FGD	485
2.	ZLD	9.08
3.	Electrostatic Precipitators	199
4.	Stacks	69.75
5.	Cooling Towers incl. Civil Works	124
6.	Ash Handling including AWRS Mechanical Work	139.33
7.	AWRS Building Works	1.29
8.	Ash pond dyke	67.44
9.	Water Treatment Plant (Effluent Treatment Plant, DM Plant, DM Plant Waste Treatment System)	49.0
10.	Dust Extraction & Suppression System	2.33
11.	Sewage Collection, Treatment & Disposal (STP)	5.0
12.	Green Belt & Afforestation	5.29

Sr. No	Description of Item	Investment Cost (Rs in crores)
13.	Hariyar Chhattisgarh Scheme for Tree Plantation	9.29
14.	Compensatory Afforestation	3.91
15.	NPV for forest land diversion	9.50
16.	Deepening, re-excavation and renovation of nearly 15 ponds in nearby villages for water conservation	1.59
17.	Roof top solar power panels in main plant area of capacity 1.1648 MW	4.34
18.	Ash Utilization in NHAI Road Project & Outside Brick Manufacturing Plants	83.04
19.	Installation of Ash brick Plant	1.60
Total		1269.78

Part-I

Any other particulars for improving the quality of the environment.

- a) Roof top solar power have been commissioned on roof of 21 buildings inside main plant area. The total installed capacity is 1.1648 MW.
- b) NTPC Lara has awarded contract for installation of FGD to M/s L&T on 31.07.2018 for controlling SO_x concentration in flue gas in compliance to the latest MOEF&CC emission norms dated 07.12.2015 for TPP.
- c) NTPC Lara has awarded contract for Zero Liquid Discharge package to M/s EFFWA INFRA & RESEARCH Pvt. Ltd. on 23.05.2020.
- d) Ash Water Recirculation System has been commissioned.
