



सीपत/SIPAT

(Through email)

संदर्भ: एनटीपीसी-सीपत/पर्या. प्रबंधन/2024/

दिनांक: 01/06/2024

प्रति,

सदस्य सचिव,

छत्तीसगढ़ पर्यावरण संरक्षण मंडल,

पर्यावास भवन, नार्थ ब्लॉक, सेक्टर-19

नवा रायपुर, अटल नगर, रायपुर (छ.ग.) 492002

विषय: पर्यावरणीय विवरण (Environmental Statement) वर्ष 2023-24 ।

महोदय,

वित्तीय वर्ष 2023-24 का पर्यावरणीय विवरण (Environmental Statement) इस पत्र के साथ आपके सादर सूचनार्थ एवं रिकार्ड्स हेतु प्रेषित है ।

धन्यवाद ।

(पंकज शर्मा)

उप महाप्रबंधक (पर्या. प्रबंधन)

प्रतिलिपि:- क्षेत्रीय अधिकारी, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, बिलासपुर (छ.ग.) ।

संलग्नक : उपरोक्तानुसार



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



Environment Statement

Sipat Super Thermal Power Station
(NTPC Ltd.)
Sipat

(Year 2023-24)

Period Ended 31.03.2024

By
Sipat Super Thermal Power Station
(NTPC Ltd)
Sipat, Bilaspur (CG)

Form-V
(See Rule-14)

**Environmental, Audit Report for the Financial
Year Ending 31st March 2024**

Part-A

- (i) Name and address of the owner/
Occupier of the Industry, Operation
Or process : Sh. Vijay Krishna Pandey
Chief General Manager, Sipat
NTPC Ltd.
- (ii) Production capacity : 2980 MW
(Stage-I, 3 x 660 MW)
(Stage-II, 2 x 500 MW)
- (iii) Year of Establishment : 20.02.2004
- (iv) Date of the last "Environment Audit Report"
Submitted : 07.08.2023 to 09.08.2023

Part-B

Water and Raw Material Consumption

1. Water Consumption m³/Day:

Sl. No	Type of Activity	Average Water Consumption (m ³ /Day)
1	Process (Boiler)	2,810
2	Cooling	1,30,831
3	Domestic	2,200

Water Consumption per Unit of Production (liter/kWh):

Name of the Products	Process Water Consumption Per Unit of Product Output	
	During the Previous Financial Year 2022-23 (liter/kWh)	During the Current Financial Year 2023-24 (liter/kWh)
Electricity	2.48	2.47

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 2022-23	During the Current Financial Year 2023-24
1	Coal	Electricity	0.662 (kg/ kWh)	0.657 (kg/ kWh)
2	Fuel Oil	Electricity	0.26 (ml/ kWh)	0.27 (ml/ kWh)

Kg – kilogram ; ml – milliliter

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 in discharges (mass/day)	Percentage of Variation from Prescribed Standard with Reasons
(a) Water	No water is discharged outside the plant premises. Plant is ZLD compliant.		No variation
(b) Air	Discharge of Air Pollutant is within the Prescribed limits. Average results of concentration of pollutants attached as Table-1		

ZLD – Zero liquid Discharge

Part-D

Hazardous Waste

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

Hazardous Waste	Total Quantity (KL)/MT	
	During the previous Financial Year 2022-23	During the current Financial Year 2023-24
Used Oil	150 KL	160 KL
Empty barrels contaminated with oil/chemicals	708 Nos.	2990 Nos.
Scrap insulation material	100 MT	100 MT
Silica gel	10 MT	20 MT
Spent ion Exchange resin	2.45 MT	2.0 MT

KL –Kilo liter

Part-E

Solid Waste

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

Solid Waste	Total Quantity (MT)	
	During the previous Financial Year 2022-23	During the current Financial Year 2023-24
(a) From Process (Bottom ash)	9,68,080 MT	1070609 MT
(b) From Pollution Control Facility (Fly Ash from ESP)	38,72,322 MT	4282437 MT
(c) (1) Quantity recycled or reutilized (Ash Utilized)	31,15,430 MT	5420441 MT
(2) Sold	Free issue material	Free issue material
(3) Disposed	Balance stored in water submerged Ash dyke.	Balance stored in water submerged Ash dyke.

Part-F

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

- Used oil is collected in MS drums and kept at Hazardous waste Storage facility. During the year, 160 KL used oil was generated from the processes which were sold to registered / authorized recyclers.
- 2990 empty drums/barrels/containers contaminated with chemicals have been disposed to registered recyclers.
- Scrap insulation Wool 100 MT, Silica gel 20 MT, spent ion exchange resin 2 MT sent to TSDF for disposal.
- Bottom ash is produced in the furnace as a result of coal combustion. Dry Fly ash gets collected in ESP Hoppers when flue gas pass through ESP. Fly ash from ESP hoppers is conveyed to ash silos through Dry Ash Extraction System (DAES). Bottom ash counts about 20 % of total ash generation and 80 % is Fly Ash.
- Ash from Silo is supplied to Ash Brick Manufacturer, Cement Industries, and road construction agencies. Unutilized fly ash is conveyed to ash ponds.
- Pond ash is supplied in low lying area filling, mine backfilling and NHAI highways construction.
- During the year ash filling has been done in Manikpur OCM voids.

- In addition, station is also looking for innovating methods of ash utilization. A Light Weight Aggregate pilot plant of 50,000 Cum per annum has been commissioned. LWA is substitute of natural aggregate.

Part-G

Impact of the pollution control measures on conservation of natural resources and consequently on the cost of production.

- Specific Water consumption in FY 2023-24 is 2.47 m³/MWh which is substantially below the statutory limit of 3.5 m³/MWh.
- With the adoption of Super critical technology in Stage-1 units Boiler, it requires lesser consumption of fossil fuel per unit of electricity generation, resulting in lesser emission and lower cost of energy comparatively.
- Reduce-Reuse-Recycle is adopted for water usage. All the effluent generated from the plant is treated in ETPs and recycled into process. There are two ETPs (stage-I - 3 x 250 m³/hr and stage-II - 2 x 125 m³/hr) operational for recycling of effluent.
- In the coal yard, coal laden water is collected in two Coal settling Ponds (Stage-I & Stage-II) and treated water is used for piles spray and other application.
- Ash water recirculation system (AWRS) is operational since inception of the plant. AWRS is used to recirculate decanted water from ash ponds to plant, where water is again used in ash slurry system, thus freshwater requirement is minimal.
- 1.5 MLD capacity STP is functional for handling sewage water from township. In addition to the above, there are 18 Pre-fabricated STP's operational for treatment of sewage generated from various office buildings inside the plant premises. Treated water from STPs is used for horticulture.
- NTPC Sipat complies Zero liquid discharge. By recycling and reutilizing water, stations require lesser quantity of freshwater intake and thereby conservation of water.

Part-H

Additional investment proposal for Environment protection including abatement of Pollution.

- For control of NO_x Emission, Combustion Modification work has been completed in all five Units with a total investment of more than INR 42 crores.

- FGD installation work is in progress in all the five Units to mitigate the SO₂ emission with a total investment of more than INR 1400 Crores. Work is in the advanced stage of completion in all three units of Stage-I. Work is also progressing at full pace in Stage-II units (2 x 500 MW).
- Conversion of secondary fuel from HFO to LDO had already been completed for all the Units for reduction of SO₂ emission.
- The station has a regular program for plantation, in and around plant premises. 68,150 saplings have been planted during 2023-24, which includes Miyawaki kind of plantation.
- A contract has been awarded for installation of one additional ash brick plant of 50,000 fly ash bricks per day production capacity.

Part-I

Any other particular with respect of "Environment Protection" and abatement of Pollution.

- Plantation is a regular activity during every monsoon. During FY 2023-24, 68,150 saplings have been planted, out of which 55,000 plants are through Miyawaki technique.
- Bio gas plant of 1000 Kg (food waste) capacity is operational for reuse of bio degradable waste generated from township and plant canteen.
- Two Vermi composting production facilities are available for recycling the horticulture waste generated from township and plant.
- Plastic Waste collected from township is disposed through co-processing in Cement kiln.
- Coal is transported in tarpaulin covered wagons.
- Fly ash is supplied in closed container trucks/bulkers.
- Pond ash transportation is carried out through tarpaulin covered trucks.
- Hazardous wastes are disposed either through TSDF or registered recyclers.

Table-I: Stack Monitoring
(Period of Observation: April – 2023 to Mar -2024)

Month	Unit - I			Unit - II			Unit - III			Unit - IV			Unit - V		
	Parameter in mg/Nm ³														
	PM	SO ₂	NO _x	PM	SO ₂	NO _x	PM	SO ₂	NO _x	PM	SO ₂	NO _x	PM	SO ₂	NO _x
Apr-23	46	1096	222	46	1139	243	45	1099	202	45	1105	234	43	912	204
May-23	43	901	180	44	1076	206	46	980	166	44	1016	213	45	859	218
Jun-23	45	1042	253	44	1034	259	44	1041	253	44	1067	261	#	#	#
July-23	#	#	#	45	1031	255	45	1048	259	44	1041	243	45	1064	258
Aug-23	45	1067	269	#	#	#	44	1054	260	44	1073	259	45	1070	253
Sep-23	45	1065	273	#	#	#	45	1076	269	46	1062	265	44	1076	269
Oct-23	45	1053	242	47	1068	266	45	1068	258	45	1071	257	45	1060	258
Nov-23	46	1051	249	44	1060	242	45	1068	257	45	1054	254	45	1068	261
Dec-23	44	1067	261	47	960	241	43	983	234	45	1104	245	47	1048	234
Jan-24	44	1046	248	44	1115	240	45	952	217	46	1056	230	45	1042	233
Feb-24	45	1062	254	45	1051	254	45	1005	238	45	1039	248	46	1103	258
Mar-24	45	1097	241	44	1076	263	45	970	211	46	1017	237	44.0	1031	243

Note:

Unit under shutdown.

Vide MoEF & CC notification issued on 5 September 2022; timeline for compliance of emission norms for NTPC Sipat (Category C) is 31.12.2026 for SO₂ emissions and 31.12.2024 for parameters other than SO₂ emissions.

Table-II: Ground Water Quality Monitoring
Period of Observation: April - 2023 to Mar -2024

Month	Location – I (Hardadih)				
	pH	TSS	TDS	F	B
Apr-23	7.3	2	375	0.2	0.01
May-23	7.2	2	375	0.1	0.02
Jun-23	7.6	1	380	0.3	0.01
July-23	7.3	3	388	0.2	0.02
Aug-23	7.1	2	403	BLQ	0.03
Sep-23	7.3	3	480	0.3	0.03
Oct-23	7.1	2	488	BLQ	0.02
Nov-23	7.3	3	487	0.3	0.01
Dec-23	7.1	1	474	0.2	0.02
Jan-24	7.3	2	466	BLQ	0.01
Feb-24	7.2	2	460	0.2	0.02
Mar-24	7.3	3	467	0.2	<0.1

Month	Location – II (Sukhripali)				
	pH	TSS	TDS	F	B
Apr-23	7.3	1	377	0.1	0.02
May-23	7.0	1	379	0.2	0.01
Jun-23	7.5	2	375	0.2	0.03
July-23	7.2	1	378	0.3	0.03
Aug-23	7.5	1	387	0.2	0.01
Sep-23	7.6	2	460	BLQ	0.02
Oct-23	7.4	1	467	0.3	0.01
Nov-23	7.5	2	475	BLQ	0.03
Dec-23	7.4	3	487	BLQ	0.03
Jan-24	7.2	3	482	0.2	0.02
Feb-24	7.5	2	473	0.3	0.03
Mar-24	7.2	2	460	0.2	<0.1

Month	Location – III (Ralia)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.5	2	407	0.2	0.01
May-23	7.1	2	395	0.1	0.01
Jun-23	7.2	3	407	0.3	0.02
July-23	7.5	2	420	0.2	0.03
Aug-23	7.3	3	415	BLQ	0.02
Sep-23	7.5	1	422	BLQ	0.01
Oct-23	7.3	3	426	0.2	0.03
Nov-23	7.6	2	430	0.3	0.02
Dec-23	7.5	2	434	0.2	0.01
Jan-24	7.5	1	440	BLQ	0.03
Feb-24	7.1	1	406	BLQ	0.01
Mar-24	7.4	2	414	BLQ	<0.1

Month	Location – IV (Bhilai)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.2	1	403	0.3	0.03
May-23	7.3	2	414	0.2	0.02
Jun-23	7.5	2	422	0.1	0.02
July-23	7.3	3	426	BLQ	0.01
Aug-23	7.5	2	435	0.2	0.03
Sep-23	7.7	3	440	BLQ	0.02
Oct-23	7.5	2	439	0.2	0.02
Nov-23	7.3	1	435	BLQ	0.01
Dec-23	7.6	1	420	0.2	0.02
Jan-24	7.4	1	414	0.2	0.01
Feb-24	7.3	3	466	0.2	0.02
Mar-24	7.6	4	484	0.3	<0.1

	Location -V (Gataura)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.3	1	387	0.2	0.02
May-23	7.4	1	399	0.1	0.01
Jun-23	7.7	2	463	0.2	0.01
July-23	7.6	2	470	BLQ	0.02
Aug-23	7.7	1	454	0.3	0.01
Sep-23	7.2	2	466	0.2	0.03
Oct-23	7.6	1	474	BLQ	0.02
Nov-23	7.8	2	467	0.2	0.01
Dec-23	7.7	1	460	BLQ	0.03
Jan-24	7.1	2	456	0.3	0.03
Feb-24	7.6	2	421	BLQ	0.01
Mar-24	7.2	1	400	BLQ	<0.1

	Location -VI (Rank)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.4	2	390	0.1	0.02
May-23	7.2	1	400	0.2	0.02
Jun-23	7.3	1	394	0.1	0.03
July-23	7.5	2	400	BLQ	0.02
Aug-23	7.8	2	474	BLQ	0.01
Sep-23	7.4	2	454	0.3	0.02
Oct-23	7.7	2	458	BLQ	0.01
Nov-23	7.2	1	454	BLQ	0.02
Dec-23	7.3	2	457	0.2	0.01
Jan-24	7.3	2	464	0.2	0.02
Feb-24	7.7	3	485	0.3	0.03
Mar-24	7.4	2	457	0.2	<0.1

	Location -VII (Janji)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.3	2	394	0.3	0.01
May-23	7.2	1	388	0.2	0.02
Jun-23	7.3	2	392	0.1	0.01
July-23	7.4	3	400	0.2	0.02
Aug-23	7.1	2	427	BLQ	0.03
Sep-23	7.3	3	434	0.2	0.04
Oct-23	7.4	2	454	BLQ	0.03
Nov-23	7.2	3	462	0.2	0.02
Dec-23	7.5	3	467	0.3	0.03
Jan-24	7.2	4	480	0.2	0.01
Feb-24	7.3	3	470	0.2	0.03
Mar-24	7.1	3	479	0.3	<0.1

	Location -VIII (Kaudia)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.5	1	384	0.2	0.02
May-23	7.4	2	380	0.1	0.01
Jun-23	7.5	3	403	0.2	0.02
July-23	7.6	2	410	0.3	0.03
Aug-23	7.3	3	416	0.2	0.02
Sep-23	7.4	2	423	BLQ	0.01
Oct-23	7.5	1	428	0.3	0.02
Nov-23	7.3	2	432	0.3	0.01
Dec-23	7.2	1	422	BLQ	0.02
Jan-24	7.1	1	415	0.2	0.03
Feb-24	7.5	1	405	BLQ	0.02
Mar-24	7.3	2	442	BLQ	<0.1

	Location –IX(Darrabhatha)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.6	2	388	0.2	0.03
May-23	7.3	1	375	0.1	0.02
Jun-23	7.4	2	373	0.3	0.01
July-23	7.3	3	384	0.2	0.02
Aug-23	7.5	1	390	0.3	0.04
Sep-23	7.2	1	394	0.2	0.02
Oct-23	7.6	3	407	BLQ	0.01
Nov-23	7.6	1	400	BLQ	0.03
Dec-23	7.4	1	407	0.2	0.03
Jan-24	7.3	2	422	BLQ	0.02
Feb-24	7.2	1	410	BLQ	0.01
Mar-24	7.5	1	427	0.2	<0.1

	Location –X (Deori)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.5	3	395	0.1	0.02
May-23	7.1	1	391	0.3	0.01
Jun-23	7.2	2	410	0.2	0.03
July-23	7.5	4	414	BLQ	0.02
Aug-23	7.4	3	435	0.3	0.03
Sep-23	7.5	3	427	0.3	0.02
Oct-23	7.3	2	438	0.2	0.03
Nov-23	7.5	2	434	0.3	0.02
Dec-23	7.3	3	447	BLQ	0.01
Jan-24	7.4	3	454	0.2	0.02
Feb-24	7.6	4	482	0.3	0.01
Mar-24	7.2	4	487	0.4	<0.1

	Location –XI (Nvadih)				
	pH	TSS	TDS	F	B
		[mg/l]			
Apr-23	7.2	2	391	0.2	0.02
May-23	7.4	2	386	0.2	0.02
Jun-23	7.2	1	393	0.2	0.01
July-23	7.2	2	390	0.3	0.03
Aug-23	7.2	4	400	0.2	0.01
Sep-23	7.6	2	407	BLQ	0.02
Oct-23	7.2	1	417	0.2	0.01
Nov-23	7.2	2	422	BLQ	0.02
Dec-23	7.1	2	414	0.2	0.02
Jan-24	7	1	408	BLQ	0.03
Feb-24	7.2	2	424	0.2	0.03
Mar-24	7.6	1	408	BLQ	<0.1

BDL – Below Detection Limit / BLQ- Below Limit of Quantification, LOQ-Limit of Quantification
Minimum Detection Limit (mg/l): BOD-2.0, F-0.2

**Table-III: Ground water Monitoring for Heavy Metals
(April -2023 to Mar 2024)**

Month	Location – I (Hardadih)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/l]							
Apr-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.26	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location – II (Sukhripali)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/l]							
Apr-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.26	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location – III (Ralia)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/l]							
Apr-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location – IV (Bhilai)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location -V (Gataura)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location -VI (Rank)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location –VII (Janji)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location –VIII (Kaudia)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.26	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location -IX (Darrabhata)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.26	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location -X (Deori)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Month	Location -XI (Navadih)							
	Fe	Hg	Cd	Cr	Pb	Zn	As	Cu
	[mg/L]							
Apr-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
May-23	0.26	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jun-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
July-23	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Aug-23	0.24	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sep-23	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Oct-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nov-23	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dec-23	0.22	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Jan-24	0.21	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Feb-24	0.23	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mar-24	0.25	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

BLQ- Below Limit of Quantification, LOQ-Limit of Quantification
Minimum Detection Limit (mg/l): Cu: 0.002, Zn: 0.1, Cd : 0.002 Cr(Total):0.002, Pb:0.002, As : 0.0002, Hg:0.0005

Table-IV: Ambient Air Quality Monitoring at Sonthi Pahar
Period of Observation: April – 2023 to Mar -2024

Month	Location – Sonthi Pahar					
	PM 10	PM 2.5	SO ₂	NO _x	CO	HC
	[µg/m ³]				[mg/m ³]	[ppm]
Apr-23	39.2	23.1	18.4	19.3	0.424	0.526
May-23	36.9	20.7	17.9	18.6	0.429	0.526
Jun-23	39.1	22.3	19.3	20.5	0.423	0.529
July-23	38.7	22.1	19.5	20.0	0.425	0.528
Aug-23	38.2	22.3	17.6	18.3	0.421	0.520
Sep-23	37.4	21.5	16.5	17.6	0.418	0.522
Oct-23	38.7	21.6	17.6	18.3	0.424	0.525
Nov-23	39.1	23.1	18.6	19.2	0.424	0.526
Dec-23	39.1	21.9	19.0	20.0	0.423	0.529
Jan-24	39.19	23.0	20.1	18.8	0.405	0.523
Feb-24	40.27	23.4	21.3	20.86	0.403	0.524
Mar-24	38.7	21.3	20.8	21.0	0.416	0.492

Table-V: Ambient Air Quality (AAQ) Monitoring Data at SIPAT-NTPC (Apr-2023 to Mar -2024)

AAQMS-1 (Track Hopper): AAQ and Meteorological data

Month	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO ₂ (ppm)	Wind Speed (m/s)	Wind Direction (Deg)	Temperature (Deg C)	Humidity (%)	Solar Radiation (W/m ²)	Rainfall (mm)
Apr-23	40.0	15.4	19.7	29.7	251.9	1.2	89.2	27.2	55.1	300.1	21.0
May-23	41.2	14.4	21.3	32.0	253.1	1.2	88.1	32.5	67.7	352.1	12.8
Jun-23	37.5	12.2	24.3	33.3	229.2	1.2	92.3	36.1	83.9	327.4	121.51
July-23	16.1	5.9	25.4	26.0	212.5	1.1	79	32.1	78.4	292.4	91.5
Aug-23	20.6	7.6	25.6	20.7	197.5	0.9	58.1	30.9	79.2	223.6	158.0
Sep-23	15.2	7.0	29.4	15.1	205.8	1.0	73.9	30.8	78.1	373.5	227
Oct-23	36.8	16	30.7	15.3	221.4	0.6	41.2	26.7	65.5	658.5	0
Nov-23	51.0	24.8	37.0	15.5	219.8	0.7	52.59	24.4	79.3	230.78	0
Dec-23	46.5	24.1	19.8	19.6	213.4	1.5	100.74	20.5	95.6	432.67	26.2
Jan-24	58.2	30.3	13.4	32.8	209.8	0.80	90.7	20.3	65.4	670.5	3.1
Feb-24	47.0	21.8	12.6	25.57	206.6	1.4	123.0	23.8	58.7	643.7	16.8
Mar-24	48.2	21.7	13.1	30.49	330.2	1.2	127.7	27.3	53.5	661.9	42.1

AAQMS-2 (B-Type)

Month	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO ₂
	[µg/m ³]				[ppm]
Apr-23	45.6	31.3	19.4	18.9	291.6
May-23	25.3	20.5	19.8	19.0	317.4
Jun-23	75.8	55.3	20.1	18.8	269.7
July-23	23.9	12.4	20.0	19.1	250.1
Aug-23	42.5	28.9	20.4	18.9	235.0
Sep-23	34.3	21.6	20.7	18.9	248.2
Oct-23	38.2	8.8	18.5	18.9	250.3
Nov-23	52.6	12.2	18.7	41.1	261.4
Dec-23	63.4	34.5	19.6	67.6	254.3
Jan-24	54.0	34.0	19.8	52.2	241.3
Feb-24	55.7	31.1	20.0	39.6	227.9
Mar-24	49.2	23.0	20.4	44.8	311.9

AAQMS-3 (Switch Yard)

Month	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO ₂
	[µg/m ³]				[ppm]
Apr-23	54.2	17.5	16.6	11.2	290.6
May-23	51.1	16.7	17.1	11.8	307.7
Jun-23	41.3	13.7	16.0	12.3	288.4
July-23	17.7	6.7	16.7	12.7	257.5
Aug-23	47.6	18.4	17.3	12.0	232.4
Sep-23	35.6	17.5	18.0	12.1	229.5
Oct-23	70.0	35.4	18.7	12.1	266.4
Nov-23	67.8	47.7	20.0	12.1	267.9
Dec-23	51.4	38.4	21.5	10.2	254.3
Jan-24	53.6	40.5	23.5	25.1	250.1
Feb-24	46.7	25.6	24.4	33.0	246.8
Mar-24	42.2	22.2	23.15	28.2	254.8

Ambient Air Quality around Plant Area

Month	Janji Village					
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	HC
	[µg/m ³]			[mg/m ³]		[ppm]
Apr-23	46.1	26.6	24.1	23.1	0.431	0.442
May-23	45.7	24.5	21.6	20.6	0.435	0.449
Jun-23	46.2	26.4	22.9	21.8	0.448	0.462
July-23	45.5	25.0	21.9	21.0	0.433	0.444
Aug-23	44.4	23.9	21.1	19.7	0.432	0.444
Sep-23	44.0	23.0	20.5	19.5	0.428	0.442
Oct-23	45.0	24.1	21.3	20.4	0.431	0.443
Nov-23	46.3	24.8	23.1	22.0	0.434	0.444
Dec-23	44.7	24.0	21.6	20.8	0.430	0.438
Jan-24	46.5	25.2	22.8	21.7	0.433	0.443
Feb-24	44.8	23.5	22.0	20.7	0.431	0.440
Mar-24	44.3	23.3	21.5	20.4	0.428	0.437

Month	Sipat Village					
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	HC
	[µg/m ³]			[mg/m ³]		[ppm]
Apr-23	43.9	23.3	21.7	20.7	0.440	0.450
May-23	44.4	23.1	21.5	20.6	0.440	0.450
Jun-23	45.7	24.6	22.6	21.7	0.441	0.452
July-23	46.5	25.8	23.5	22.4	0.445	0.443
Aug-23	47.5	26.3	24.6	23.6	0.447	0.451
Sep-23	46.6	25.7	23.7	22.3	0.445	0.457
Oct-23	44.8	24.0	22.1	21.5	0.441	0.456
Nov-23	44.0	23.9	23.5	22.5	0.438	0.451
Dec-23	44.8	24.8	23.8	22.6	0.443	0.450
Jan-24	44.1	24.1	22.9	21.9	0.439	0.448
Feb-24	41.9	21.9	21.0	19.3	0.435	0.445
Mar-24	42.9	22.9	21.8	20.8	0.435	0.444

Month	Kaudia Village					
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	HC
	[µg/m ³]				[mg/m ³]	[ppm]
Apr-23	46.4	27.5	25.8	24.5	0.435	0.443
May-23	44.9	25.5	24.1	23.1	0.432	0.440
Jun-23	44.5	24.7	22.9	24.4	0.431	0.439

Month	Darrabhata Village					
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	HC
	[µg/m ³]				[mg/m ³]	[ppm]
July-23	44.9	26.0	24.4	23.2	0.432	0.449
Aug-23	44.3	24.9	23.3	22.2	0.430	0.443
Sep-23	43.6	24.4	22.4	21.8	0.428	0.441
Oct-23	43.6	25.2	23.1	22.4	0.433	0.445
Nov-23	43.1	23.9	22.6	21.5	0.429	0.442

Month	Karra Village					
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	HC
	[µg/m ³]				[mg/m ³]	[ppm]
Dec-23	41.9	24.1	22.5	21.16	0.432	0.442
Jan-24	40.9	23.0	22.2	21.2	0.427	0.444
Feb-24	41.0	22.9	21.4	20.3	0.431	0.438
Mar-24	42.0	23.9	22.8	21.6	0.432	0.441

Table-VI: Noise Monitoring

Locations	Date of Monitoring	Day Time Noise Levels in dB(A)	Night Time Noise Levels dB(A)
Plant Area			
Material Gate	11-04-2023	56.2	46.0
CCR	11-04-2023	53.2	47.2
CHP	11-04-2023	55.6	48.7
Ralia	11-04-2023	44.0	34.2
Bhilai	11-04-2023	41.6	36.6
Material Gate	10-05-2023	54.3	47.3
CCR	10-05-2023	54.3	48.5
CHP	10-05-2023	52.1	47.6
Ralia	10-05-2023	43.0	35.5
Bhilai	10-05-2023	40.5	37.5
Material Gate	06-06-2023	52.4	46.3
CCR	06-06-2023	53.1	47.2
CHP	06-06-2023	51.4	46.7
Ralia	06-06-2023	44.2	36.4
Bhilai	06-06-2023	41.4	38.7
Materialgate	13-07-2023	56.3	48.5
CCR	13-07-2023	58.3	46.3
CHP	13-07-2023	55.2	47.5
Ralia	13-07-2023	46.2	38.2
Bhilai	13-07-2023	42.5	39.6
Hardadih	13-07-2023	44.4	41.3
Sukhripali	13-07-2023	46.1	40.4
Gataura	13-07-2023	45.3	42.2
ADM Gate	13-07-2023	56.5	47.1
Turbine Hall	13-07-2023	54.1	46.2
B-Type	13-07-2023	53.5	45.2
Materialgate	13-08-2023	58.5	49.5
CCR	13-08-2023	57.5	45.5
CHP	13-08-2023	56.2	47.9
Ralia	13-08-2023	45.5	37.3
Bhilai	13-08-2023	41.3	38.5
Hardadih	13-08-2023	45.5	40.4
Sukhripali	13-08-2023	47.2	41.1

Gataura	13-08-2023	44.3	40.7
ADM Gate	13-08-2023	57.5	48.2
Turbine Hall	13-08-2023	53.2	45.5
B-Type	13-08-2023	52.1	44.4
Material gate	12-09-2023	57.3	48.2
CCR	12-09-2023	56.4	43.3
CHP	12-09-2023	57.3	48.6
Ralia	12-09-2023	46.3	38.5
Bhilai	12-09-2023	42.4	37.5
Hardadih	12-09-2023	47.4	42.5
Sukhripali	12-09-2023	45.7	39.5
Gataura	12-09-2023	44.2	38.7
ADM Gate	12-09-2023	55.3	46.3
Turbine Hall	12-09-2023	57.5	48.4
B-Type	12-09-2023	51.5	43.3
Material gate	12-09-2023	58.4	46.3
CCR	12-09-2023	55.4	42.2
CHP	12-10-2023	58.4	49.2
Ralia	12-10-2023	45.2	37.6
Bhilai	12-10-2023	40.4	35.3
Hardadih	12-10-2023	45.2	40.8
Sukhripali	12-10-2023	43.5	37.6
Gataura	12-10-2023	46.2	40.5
ADM Gate	12-10-2023	57.5	48.2
Turbine Hall	12-10-2023	58.3	49.3
B-Type	12-10-2023	52.5	44.6
Material gate	13-11-2023	56.4	44.4
CCR	13-11-2023	53.2	40.4
CHP	13-11-2023	57.4	48.7
Ralia	13-11-2023	46.4	38.2
Bhilai	13-11-2023	42.3	36.5
Hardadih	13-11-2023	47.2	41.5
Sukhripali	13-11-2023	41.5	36.2
Gataura	13-11-2023	45.2	39.6
ADM Gate	13-11-2023	58.2	47.6
Turbine Hall	13-11-2023	57.4	48.2
B-Type	13-11-2023	51.4	43.5
Material gate	12-12-2023	55.2	43.2
CCR	12-12-2023	51.2	41.4
CHP	12-12-2023	58.4	49.4
Ralia	12-12-2023	44.3	37.2
Bhilai	12-12-2023	43.4	37.2
Hardadih	12-12-2023	48.2	42.4

Sukhripali	12-12-2023	43.8	37.5
Gataura	12-12-2023	46.4	40.4
ADM Gate	12-12-2023	59.5	48.2
Turbine Hall	12-12-2023	55.2	46.7
B-Type	12-12-2023	49.5	42.1
Material gate	12-01-2024	56.5	44.6
CCR	12-01-2024	50.4	40.2
CHP	12-01-2024	56.4	48.3
Ralia	12-01-2024	42.1	36.4
Bhilai	12-01-2024	44.3	38.6
Hardadih	12-01-2024	50.4	44.3
Sukhripali	12-01-2024	41.6	35.6
Gataura	12-01-2024	48.4	42.1
ADM Gate	12-01-2024	58.4	47.3
Turbine Hall	12-01-2024	53.3	44.2
B-Type	12-01-2024	50.6	43.3
Material gate	12-02-2024	55.4	42.3
CCR	12-02-2024	52.4	41.3
CHP	12-02-2024	53.4	45.7
Ralia	12-02-2024	40.3	35.3
Bhilai	12-02-2024	42.6	36.4
Hardadih	12-02-2024	50.3	40.2
Sukhripali	12-02-2024	38.6	34.7
Gataura	12-02-2024	47.4	40.4
ADM Gate	12-02-2024	52.3	48.5
Turbine Hall	12-02-2024	56.4	45.2
B-Type	12-02-2024	51.3	44.8
Material gate	12-03-2024	54.2	41.6
CCR	12-03-2024	51.6	40.6
CHP	12-03-2024	54.6	46.3
Ralia	12-03-2024	39.6	34.6
Bhilai	12-03-2024	43.3	37.4
Hardadih	12-03-2024	51.2	41.6
Sukhripali	12-03-2024	39.6	33.6
Gataura	12-03-2024	48.5	41.2
ADM Gate	12-03-2024	53.5	49.6
Turbine Hall	12-03-2024	57.3	46.3
B-Type	12-03-2024	50.4	43.2

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