

**BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE KOLKATA BENCH
Original Application No.89 of 2024/EZ.**

Gopinath Majhi

..... Petitioner / Appellant

Vs.

State of Odisha & Ors.

.....Respondent / Defendant

INDEX

Sl. No.	Description of the documents	Page Nos.
1.	Reply Affidavit.	
2.	<u>ANNEXURE-R3/1</u> Photocopy of the letter No.8455 dtd.10.06.2024.	
3.	<u>ANNEXURE-R3/2</u> Photocopy of the joint inspection report carried out on 27.02.2024.	
4.	<u>ANNEXURE-R3/3</u> Photocopy of the letter No.6342 dtd.29.04.2024.	
5.	<u>ANNEXURE-R3/4</u> Photocopy of the inspection report carried out on 13.12.2023 and 14.12.2023.	

6.	<u>ANNEXURE-R3/5</u> Photocopy of direction dtd.02.01.2024 to the R.No.14 unit to remove the defects for restoration of breached site.	
7.	<u>ANNEXURE-R3/6</u> Photocopy of the consent order No.4590 dtd.30.03.2024.	

SPCB Odisha, R.No.3

Through

Kolkata

Date:

Smt Papiya Banerjee Bihani,
Advocates for the Respondent No.3
(State Pollution Control Board, Odisha)
e-mail: pbanerjeebihani@gmail.com
Phone No.:9831493390

**BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE KOLKATA BENCH
Original Application No.89 of 2024/EZ.**

Gopinath Majhi Petitioner / Appellant

Vs.

State of Odisha & Ors.Respondent / Defendant

**REPLY AFFIDAVIT ON BEHALF OF STATE
POLLUTION CONTROL BOARD, RESPONDENT
NO.3.**

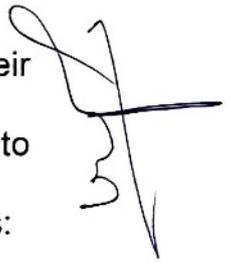
01 AUG 2024

I, Dr. Kailasam Murugesan, IFS, son of late Paramasivam Kailasam aged around 56 years, at present working as Member Secretary, State Pollution Control Board, having my office at Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, P.O. Nayapalli, Bhubaneswar, Dist – Khurda, Odisha-751012, do hereby solemnly affirm and state as under:

1. That I am the Member Secretary of the Respondent No.3 Board and, as such, am well-acquainted with the facts and circumstances with the case and competent to swear this affidavit.

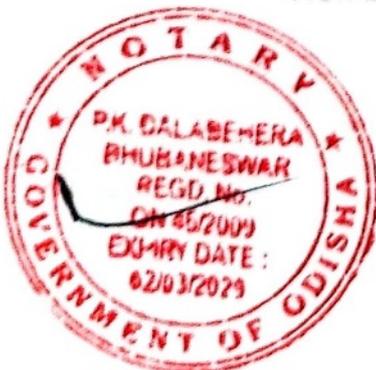


2. That the OA has been filed seeking a direction for removal of fly ash from the adjoining government and private land including fly ash within the back water of Hirakud Reservoir and to restore the land to its original condition. It is also prayed for issuance of further direction for examining as to whether the existing and proposed ash pond is conforming to the siting criteria of 500 meters from Hirakud Reservoir and impact of the ash pond breach on the Hirakud wet land.
3. That the Hon'ble Tribunal while adjudicating the OA vide their order dtd.02.05.2024 at para-19 has been pleased to constitute a committee comprising of the following members:
- i) Senior Scientist, Central Pollution Control Board;
 - ii) Senior Scientist, Ministry of Environment, Forests and Climate Change (MoEF&CC), Regional Officer, Bhubaneswar;
 - iii) District Magistrate, Jharsuguda or his representative Officer not below the rank of Additional District Magistrate (ADM).



The committee has been directed for inspection of the site and submission of the report within three weeks. In the order dtd.02.05.2024, the Hon'ble Tribunal has been pleased to declare the Collector & DM, Jharsuguda as the Nodal Body for providing all logistic support and for filing the fact finding report of the committee. The R.No.3 Board has forwarded the copy of OA and order dtd.02.05.2024 to the Collector & DM, Jharsuguda (R.No.2) vide Board's letter No.8455 dtd.10.06.2024 with copy to the Regional Officer, Jharsuguda of R.No.3 Board. A copy of the letter No.8455 dtd.10.06.2024 is annexed to this affidavit and marked as ANNEXURE - R3/1.

4. That in the meantime, the Collector & DM, Jharsuguda (R.No.2) has also filed the report of the committee in the affidavit dtd.18.06.2024, which has been taken note of by the Hon'ble Tribunal in their order dtd.02.07.2024.



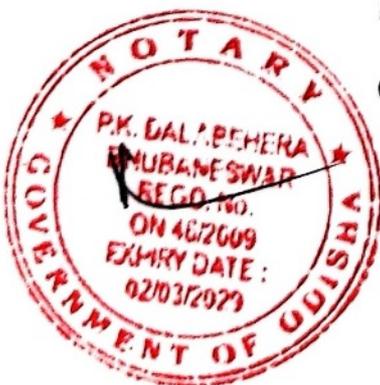
5. That I have gone through the OA and understood the contents thereof and the para wise reply are as follows:

- (i) That as regards the averments made in para-1 to 3 of the OA, it is humbly submitted that the R.No.3 Board has not comments to offer since these are the matters of record.
- (ii) That as regards the averments made in para-4 & 5 of the OA, it is humbly submitted that M/s. Odisha Power Generation Corporation Ltd., (OPGC), 1b Thermal Power Station (ITPS) is a coal based thermal power plants having 4 units of Unit-1 & 2 of capacity 210MW each (2x210ms), and Unit-3 & Unit-4 of 660 MW each (2x660 mw) has obtained consent to operate from the R.No.3 Board under the provisions of Sec.21 of the Air (PCP) Act, 1981 and Sec.25 of the Water (PCP) Act, 1974 vide consent order No.4590 dtd.30.03.2024, which is valid upto 31.03.2025. It is further humbly submitted that the Tilia Ash Ponds of Unit-3 & 4 maintain a minimum distance of 500 meters from HFL



(High Flood Land) of Hirakud Reservoir. However, ash pond A, B & C of Unit-1 and Unit-2 are not located within minimum distance of 500 meters from HFL of Hirakud Reservoir. These ash ponds were reportedly constructed during 1990s and the latest ash pond C started operating from April 2017. In as much as ash pond A on 31.08.2007, ash pond B on 03.06.1995 and ash pond C on 17.04.2017 onwards have started operation, which is much prior to the Office Memorandum dtd.28.08.2019 issued by the MoEF&CC, Govt. of India (R.No.4), copy of which is annexed as Annexure-3 of the OA.

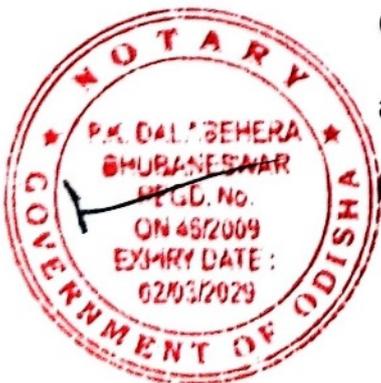
- (iii) That as regards the averments made in para-6 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.
- (iv) That as regards the averments made in para-7 of the OA, it is humbly submitted that the existing ash pond A, B & C of Unit-1 are constructed much before the Guidelines prepared by the CPCB and the Central



Electricity Authority (CEA), copy of which has been annexed as Annexure-4 of the OA. Moreover, the ash pond of Unit-3 & 4 (Tillia ash pond) is confirming to the siting criteria. This aspect has also been dealt in para-5(ii) of the present affidavit.

- (v) That as regards the averments made in para-8 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.
- (vi) That as regards the averments made in para-9 of the OA, it is humbly submitted that the R.No.14 is a coal based thermal power plant having four units of Unit-1 & 2 (2x210MW) and Unit-3 & 4 (2x660MW) and having consent to operate from the R.No.3 Board which is valid upto 31.03.2025

The existing ash pond A,B & C of Unit-1 are constructed prior to the guidelines prepared by the CPCB and CEA and the ash pond of Unit-3 & 4 (Tillia ash pond) is confirming to the siting criteria. This aspect has also been dealt in para-5(ii) of the present affidavit.



It is also further humbly submitted that an ash pond namely Tillia Ash Pond having total area of 357 acres out of which 50 acres towards Hirakud Reservoir has been kept aside to meet the conditions of the environmental clearance for maintaining 500 meters from HFL of Hirakud Reservoir.

- (vii) That as regards the averments made in para-10 to 15 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.
- (viii) That as regards the averments made in para-16 of the OA, it is humbly submitted that the same is not correct as there is no direct disposal ash into the Reservoir.
- (ix) That as regards the averments made in para-17 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.
- (x) That as regards the averments made in para-18 of the OA, it is humbly submitted that as per direction of CPCB a joint inspection was carried out comprising of officials from Zonal Office, CPCB Regional Directorate,



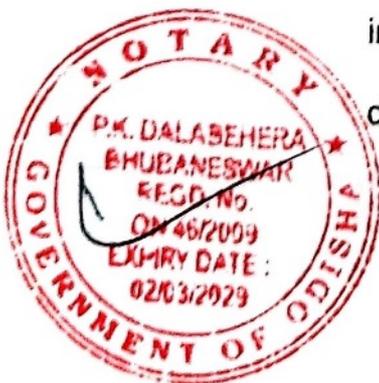
Kolkata, Tahasildar, Lakhanpur and officials from the R.No.3 Board on 27.02.2024 and the inspection report reveals as follows:

1. Unit has taken necessary steps for restoration and reclamation work of the affected and breached area.
2. During inspection at the periphery sites of the ash ponds (i.e. Ash Pond #A,B,C) as well as the backwater area of Hirakud reservoir side (Southern side of ash pond) any type of ingress of ash water into Hirakud reservoir was not observed.

Copy of the joint inspection report and letter No.6342 dtd.29.04.2024 issued by the R.No.3 Board to the R.No.14 is annexed to this affidavit and marked as **ANNEXURE - R3/2** and **ANNEXURE - R3/3** respectively.



- (xi) That as regards the averments made in para-19 of the OA, it is humbly submitted that the R.No.3 Board has not issued any specific direction for plantation or development of green belt around the ash pond.
- (xii) That as regards the averments made in para-20 of the OA, it is humbly submitted that as reported the land acquisition process for the mentioned area in which ash has spilled has been initiated by the R.No.14 unit much before the incident of ash pond breach.
- (xiii) That as regards the averments made in para-21 & 22 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.
- (xiv) That as regards the averments made in para-23 of the OA, it is humbly submitted that as per communication received from the CPCB regarding the issue by Sri Suresh Pujari, Hon'ble M.P., Lok Sabha about the breach of ash pond dyke of the R.No.14 unit, a joint inspection was carried out on dtd.27.02.2024 and direction has been issued to the R.No.14 unit to comply



recommendation of joint inspection report. Copy of the joint inspection report and direction issued by the Board has already been annexed to this affidavit vide Annexure-R3/2 and Annexure-R3/3 respectively.

(xv) That as regards the averments made in para-24 of the OA, it is humbly submitted that on the basis of technicality and design and drawings of IIT, the recommendation has been made by the internal committee of the Board for grant of consent to establish comprising of Technical Experts for granting permission for combined dyke height raising of ash pond A & C by 3 meters i.e. from RL-208M to RL-211M for disposal of ash slurry of capacity 3200 TPD.

(xvi) That as regards the averments made in para-25 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.

(xvii) That as regards the averments made in para-26 of the OA, it is humbly submitted that on the basis of observation made during inspection conducted by the

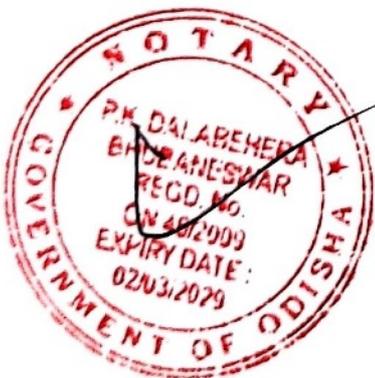


R.No.3 Board on dtd.13.12.2023 and 14.12.2023 with respect of breach of Ash Pond C, earlier direction has been issued on dtd.02.01.2024 to the R.No.14 unit to remove the defects for restoration of breached site. Copy of inspection report carried out on 13.12.2023 and 14.12.2023 and direction dtd.02.01.2024 are annexed to this affidavit and marked as **ANNEXURE – R3/4** and **ANNEXURE-R3/5** respectively.

Further, in view of the compliance observed during joint inspection conducted by officials from Zonal Office, CPCB, Kolkata, Tahasildar, Lakhanpur and officials from R.No.3 Board at Jharsuguda on dtd.27.02.2024 vide Annexure – R3/2 of the present affidavit, consent to operate has been granted by the R.No.3 Board in favour of R.No.14 vide consent order No.4590 dtd.30.03.2024, which is valid for a period from 01.04.2024 to 31.03.2025 with certain additional conditions based on Ash Pond Management, which are detailed below:



- a. The unit shall carry out the action plan submitted on 13.03.2024 in compliance to recommendation of the joint inspection conducted on dtd 27.02.2024
- b. The unit shall comply to the direction issued by the Board from time to time in connection with breach of dyke of ash pond-C.
- c. The unit shall submit the compliance of action taken report w.r.t. long term remedial measures to be adopted for safety and stability of ash ponds for prevention of breach of ash pond in future.
- d. The unit shall strictly follow the Standard Operating Procedure (SoP) for stability, safety operation maintenance of all the ash ponds.
- e. The unit shall strictly adhere to design, drawing, stability and safety aspects during

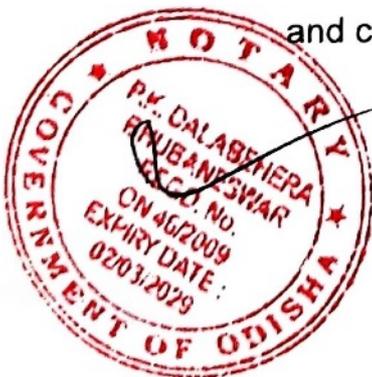


construction activities of dykes raising of the ash ponds. The unit shall intimate to the Board before raising the ash dyke.

Copy of consent order No.4590 dtd.30.03.2024 is annexed to this affidavit and marked as **ANNEXURE – R3/6.**

(xviii) That as regards the averments made in para-27 to 40 of the OA, it is humbly submitted that the R.No.3 Board has no comments to offer.

6. That this affidavit is filed to bring on record the inspection report of the committee in compliance to direction dtd.12.03.2024 of this Hon'ble Tribunal.
7. That the Respondent No.3 Board craves the leave of this Hon'ble Tribunal to file further affidavit if necessary for proper adjudication of the case.
8. That the annexures annexed to the present affidavit are true and correct copies of their originals.



9. That the contents of the above paragraphs are true and correct to the best of my knowledge, as derived from the official records, and that nothing material has been concealed therefrom.

IDENTIFIED BY ME
[Signature]
ADVOCATE, BHUBANESWAR

[Signature]
DEPONENT
Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar

VERIFICATION:

I, the above named deponent, do hereby verify that the contents of the above affidavit are true and correct to the best of my knowledge, as derived from official records, and that nothing material has been concealed therefrom.

Verified at Bhubaneswar on this the 1ST day of August, 2024.



[Signature]
DEPONENT
Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar

THE ABOVE NAMED DEPONENT BEING IDENTIFIED BY... *[Signature]* ADV. BBSR APPEARS BEFORE ME AND STATE AN OATH ON... *[Signature]* ... AT ABOUTAM/PM THAT THE CONTAINTS OF THIS AFFIDAVIT ARE TRUE TO THE BEST OF HIS/ HER KNOWLEDGE

[Signature]
P.K. DALABEHRA
Notary, Bhubaneswar
Regd. No. ON-46/09



EPABX: 2561909/2562847

Tel: 2562822, 2560955

Email: Paribesh1@ospcboard.orgWebsite: www.ospcboard.org

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST AND ENVIRONMENT, GOVERNMENT OF ODISHA]

Paribesh Bhawan, A/118, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751 012, INDIANo. 8455
VII – L – Misc – 1098

Date: 10.06.24

Speed Post / E-mail

To

The Collector & District Magistrate
Jharsuguda.

Sub: OA No.89/2024/EZ – Gopinath Majhi v. State of Odisha & Others (OPGC Ash Pond matter).

Sir,

The Hon'ble NGT while adjudicating the aforesaid OA vide their order dtd.02.05.2024 has been pleased to constitute a committee comprising of the following members:

- i) Senior Scientist, Central Pollution Control Board;
- ii) Senior Scientist, Ministry of Environment, Forests and Climate Change (MoEF&CC), Regional Officer, Bhubaneswar;
- iii) District Magistrate, Jharsuguda or his representative Officer not below the rank of Additional District Magistrate (ADM).

The committee has been directed for inspection of the site and submission of the report within three weeks. A copy of the order dtd.02.05.2024 along with copy of OA received by our counsel on our behalf is enclosed for further action at your end. In the order dtd.02.05.2024, the Hon'ble Tribunal has been pleased to declare the Collector & DM, Jharsuguda as the Nodal Body for providing all logistic support and for filing the fact find report of the committee.

Encl: As above.

Yours faithfully

Member Secretary
Memo No. 8456 / Date: 10.06.24

E-mail/Speed Post

Copy along with copy of enclosure forwarded to the Regional Officer, SPC Board, Jharsuguda for information and necessary action. He is requested to provide necessary assistance pertaining to the functioning of the Board to the committee, if any sought for.

Encl: As above.

Member Secretary

Joint Inspection Report on Breach of Ash pond of Ib Thermal Power Station of M/s OPGC Ltd., Dist-Jharsuguda, matter raised by Sri Suresh Pujari, Hon'ble M.P., Lok Sabha

As per the communication received from CPCB, Delhi regarding the matter raised by Sri Suresh Pujari Hon'ble M.P., Lok Sabha about breach of Ash pond dyke of M/s OPGC Ltd, a joint inspection was carried out on 27.02.2024 by the following officials:-

1. Er H.K. Nayak, Regional Officer, SPCB, Odisha, Jharsuguda
2. Sri Sadakara Kumbhar, Tahasildar, Lakhanpur
3. Sri Sandeep Roy, Scientist-D, CPCB, RD, Kolkata
4. Smt. A. Ekka, Dy. Env. Scientist, SPCB, Odisha, Jharsuguda

The following officials from M/s OPGC Ltd were present during inspection:-

1. Mr. Manas Ranjan Rout (MD I/C & Occupier)
2. Mr. Sukanta Mohapatra (Sr. VP Operations)
3. Mr. P. Koreshu Patra (GM Projects)
4. Dr. Ratikanta Das (Head HR & Admin)
5. Mr. Sitaram Sahu (Head EHS)
6. Mr. Parthasarathi Panda (Sr. Manager Environment)

About the Thermal Power Plant:

Ib-Thermal Power Station (ITPS) of M/s OPGC Ltd is a Coal Based Thermal Power Plant having 4 units for power generation i.e. Unit-1&2 (2x210MW) and Unit-3 &4 (2x660 MW). The plant was commissioned in the year 1994 and in phased manner capacity has been enhanced. Consent to Operate of the industry is valid upto 31.03.2024.

Ash Handling System:

Unit -1 & 2

Unit -1 & 2 has coal fired boilers of 690 TPH each with electric power generation capacity of 210 MW each. The coal consumption in these two units is 8000 TPD and the total ash generation is 3200 TPD. The dry ash from the silo is utilized for brick manufacturing and supplied to asbestos units. The remaining ash is sent to ash ponds in Lean slurry system. The ash pond area is divided into 3 lagoons namely Ash pond-A, Ash Pond-B & Ash Pond-C.

Ash pond-A has an area of 150 Acre with ash holding capacity of 67 lakh MT. As informed, Ash Pond-A was not in use since 2021.

Ash pond-B has an area of 242 Acre with ash holding capacity of 128 lakh MT. Ash Pond-B was exhausted and not in use since 2019.

Ash pond-C is situated in between Pond -A & B, it has an area of 115.92 Acre with ash holding capacity of 88 lakh MT. During the day of incident, Ash Pond-C was in use. However, after breach in peripheral section (northern side) of Ash Pond C, the ash disposal had been stopped in the Ash Pond C and disposal was being done at Ash Pond A.

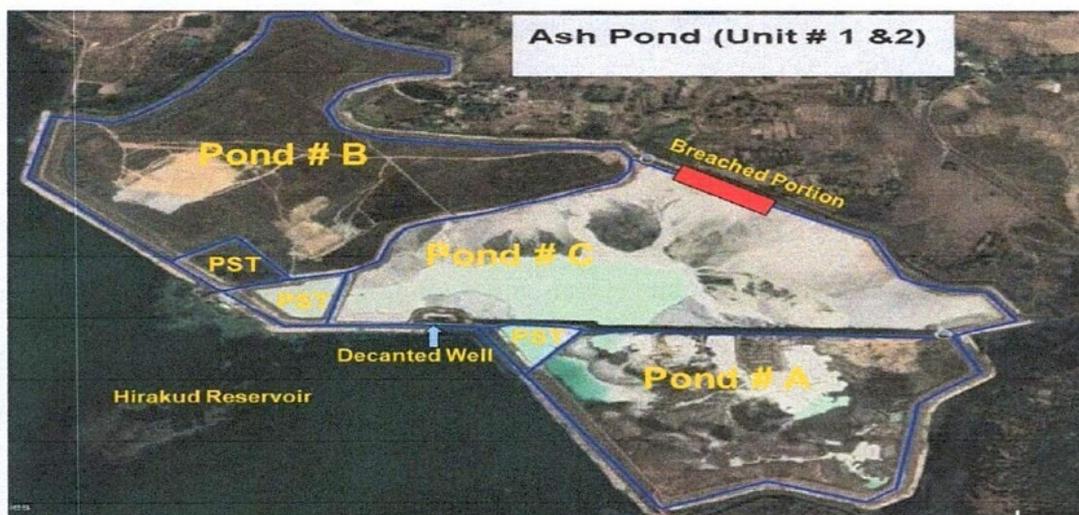


Google image of Ash Pond system

The decanted water from each pond is collected at its respective Primary Settling Tank (PST) of 5 Acre each and then it is transferred to common Secondary Settling Tank (SST). The clear water from the SST is recycled back to the plant for slurry making purpose as ash water recirculating system maintaining the Zero Liquid Discharge.

Occurrence of Incidents:

On 09.12.2023 at around 8.30 AM, Northern Dyke of Ash Pond-C (initially 5m width) had breached and considerable amount of ash has spilled into nearby fallow land and agricultural land. Subsequently, the width of the breached portion increased to 20 m. As per the survey carried out by Revenue Department, around 154.24 Acres of area has been affected due to ash spillage/flow.



Observations on the day of inspection:

- I. Ash pond A & B were not in use since 2021 and 2019 respectively. At the time of the incident, the ash of Unit-1 & 2 were being disposed off in Ash Pond-C.
- II. The breach had occurred on the northern side of ash pond-C on 09.12.2023 at 8.30 AM. It was found that 20m width of entire starter dyke along with raised embankment was washed-out. It was estimated by the industry that around 4.0 to 4.5 lakh tons of ash has been washed away into the nearby areas.
- III. As immediate remedial measures, to stop the flow of water/ash slurry an earthen bund of upto 6m height was raised with necessary compaction.
- IV. It was found that the Pond-C has already become dried and about 115 Acre of the pond area is now exposed and has deployed two pumps of capacity 200 m³/hr each near the breach section of ash pond C to evacuate the stagnant water.
- V. During visit, it was observed that, the restoration and reclamation work of the affected and breached area was in progress. As informed, it will be restored within a period of 60 days.
- VI. The committee members also visited periphery of the ash ponds (i.e. Ash Pond #A, B, C) as well as the backwater area of Hirakud reservoir side (Southern side of ash pond). Any type of ingress of ash water into Hirakud reservoir was not observed.
- VII. The ash slurry from Unit-1 & 2 is now being disposed off in Ash Pond-A through two discharge points.

The industry has paid necessary compensation of amount Rs 53,98,400/- to the affected families and Rs 6,50,000/- to affected SHG group (copy enclosed).

Action Taken by the OSPCB: -

As soon as the news of breach in Ash Pond-C was received by the Odisha Pollution Control Board, a team from Head Office, Bhubaneswar along with the Officials of Regional Office, Jharsuguda visited the affected area on 09.12.2023 & the team

remained on 10.12.2023 to ascertain the situation. Based upon that report, a direction U/s. 33A of Water (PCP) Act, 1974 and U/s. 31A of Air (PCP) Act, 1981 was issued to M/s OPGC Ltd on dtd. 11.12.2023 with some directions to comply.

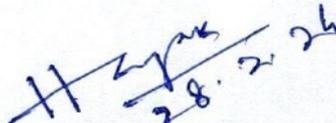
In compliance to this, the industry has submitted a status/progress report to OSPCB (copy of the same enclosed).

They have also submitted a short term and a long term action plan for restoration of breached portion of Pond-C as well as overall ash management.

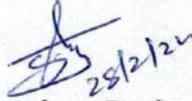
Recommendation:

- 1) The industry shall submit a long term and short-term action plan for disposal of fly ash and bottom ash from the existing as well as proposed units.
- 2) The industry shall take utmost care and precaution in restoration of the breached portion of Pond-C under the guidance and supervision of experts in the field of Safety and Stability of ash dyke.
- 3) The ash shall be disposed off in the ash pond uniformly by providing discharge points at uniform intervals and the discharge points shall be rotated at constant interval, so as to reduce the thrust on any side of embankment and to maintain uniform free-board throughout the ash pond.
- 4) The industry shall prepare SOP for stability, safety, operation, maintenance & inspection of ash pond area and embankment & submit a copy to the concerned authorities for future verification.
- 5) The industry shall ensure by providing bund at suitable location to prevent the flow of ash water from the affected spread area into the reservoir.
- 6) The industry shall provide adequate number of piezometers in Pond-A & C, preferably online piezometers.
- 7) The industry may be directed to install AAQMS at the strategic locations near to the affected areas till completion short term and long term activities. The report of the same shall be submitted to OSPCB & CPCB on monthly basis.
- 8) It shall also carry out ground water quality monitoring at affected areas till completion short term and long term activities. The report of the same shall be submitted to OSPCB & CPCB on monthly basis.
- 9) The industry shall provide accessibility to the toe drain area, so as to verify any flow of sediment in the drain.
- 10) The industry shall take utmost care to prevent any breakage / leakage in the ash slurry pipeline preferably in reservoir portion. There should be regular inspection of pipeline corridor to avoid such situation.

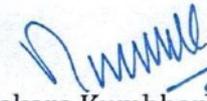
- 11) The industry shall carry out comprehensive ground water contamination study in and around the ash dyke and now in the affected area.
- 12) Minimum free-board shall be maintained in all ash ponds as per the design of the ash pond in order to avoid overflow of ash slurry to nearby areas.
- 13) The industry shall come out with a plan to switch over to HCSD system from lean slurry disposal system in ash pond -A,B & C to conserve the water.
- 14) The periphery drain around ash pond -A,B & C shall be regularly cleaned.
- 15) The industry shall carry out hydrogeology study by reputed institution like IIT or NIT around ash pond A,B & C to ascertain the stability of the dykes. The report shall be submitted to the concerned authorities.
- 16) The unit shall submit progress report of day-to-day restoration work.


(H.K Nayak)

Regional Officer, SPCB, Odisha, Jharsuguda


(Sandeep Roy)

Scientist D, CPCB, RD, Kolkata

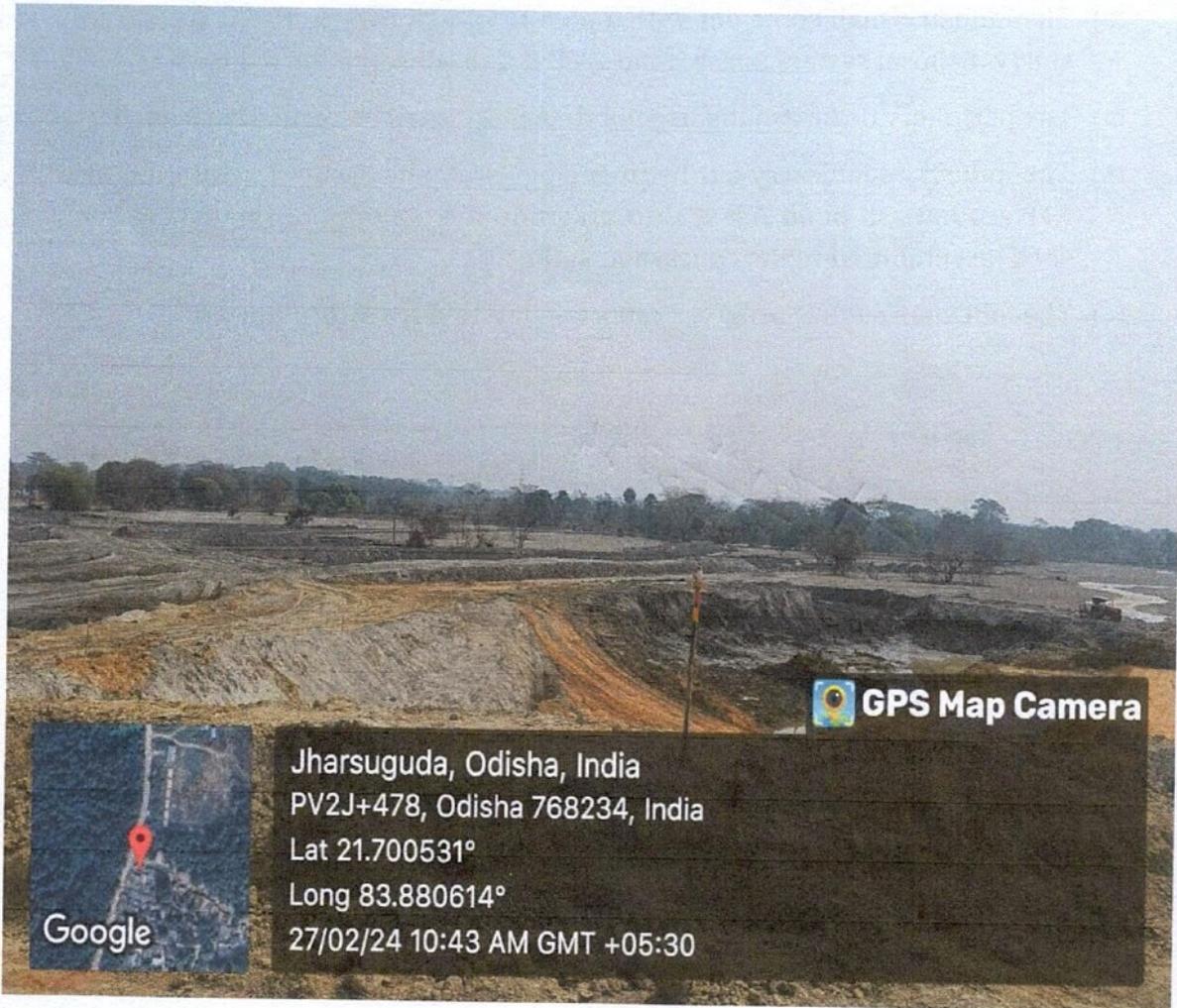

(Sadakara Kumbhar) 28.2.2024

Tahsildar Lakhanpur, Odisha


(Anusha Ekka) 28.02.2024

Dy .Env. Scientist, SPCB, Odisha, Jharsuguda

Photographs



Affected area (Northern side of Pond C)



Reclamation of Pond and affected area



View of Hirakud Back water (Southern side of the Pond)



EPABX : 2561909/2562847
E-mail: paribesh1@ospboard.org
Website: www.ospboard.org

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPT., OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVT. OF ODISHA]

ParibeshBhawan, A/118, Nilakantha Nagar, Unit - VIII

Bhubaneswar - 751 012, INDIA

No 6342 /IND-I-CON- 104

Dt 29.04.2024

By Speed Post / E-Mail

To

**The Director (Operation),
M/s. OPGC Limited,
Ib Thermal Power Station, Banharpali,
Dist - Jharsuguda-768234**

Sub : Environmental Compensation w.r.t. breach of Ash Pond -Reg.

- Ref: i) Letter No. IPC-II/TPP/PI-20/4/2021, dtd. 30.01.2024 of CPCB, Delhi
ii) Joint inspection report communicated vide letter No. 3068, dtd. 04.03.2024
iii) Letter No. IPC-II/TPP/PI-20/4/2021, dtd. 01.04.2024 of CPCB, Delhi

Sir,

With reference to the above, this is to inform you that a joint inspection was carried by the officials from RD- Zonal Office, CPC, Kolkata, District Administration, Jharsuguda and Regional Office, SPC Board, Jharsuguda on dtd. 27.02.2024 as per direction of CPCB, Delhi vide letter under reference. The copy of the inspection report has been forwarded to CPCB, Delhi for compliance to the matter raised by Shri Suresh Pujari, Hon'ble MP Lok Sabha.

Now, CPCB has intimated to this office vide letter under reference (copy enclosed), that the unit shall ensure early compliance of the direction issued by SPCB, Odisha as well as recommendations given in the joint inspection report. CPCB has also requested this office to direct you to conduct an Environmental Damage Assessment study through an Institute of National Repute. Further, CPCB has intimated that, you are required to consult an expert to provide comments on the cause of breach of ash pond, as the ash dyke stability study report has been carried out by IIT, Madras in April, 2023 i.e., before the incident of breach.

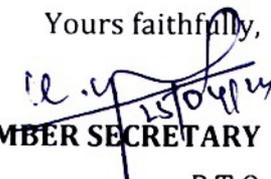
In view of above, you are directed to submit up-to-date status on compliance to the direction issued by the Board as well as recommendations given in the joint inspection report. Further, you are directed to conduct an Environmental Damage Assessment study through an institute of national repute for assessment of environmental compensation/ penalty for restoration of environment / affected area / persons due to breach of ash pond and submit report to this office within 15 days for taking further necessary action for imposition of environmental compensation.

Also, you are requested to consult an expert to provide comments on the cause of the breach ash pond and submit a study report to this office for onward submission to CPCB.

This may be treated as most URGENT.

Encl : As above

Yours faithfully,


MEMBER SECRETARY

P.T.O



//2//

Memo No. 6343 /dtd. 29.04.2024Copy forwarded to the **Divisional Head, IPC-II, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi - 110032** for information.**CHIEF ENV. ENGINEER**Memo No. 6344 /dtd. 29.04.2024Copy forwarded to the **Regional Officer, SPC Board, Jharsuguda** for information and necessary action.**CHIEF ENV. ENGINEER**



4422 8/4/24
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT OF INDIA

PARLIAMENT MATTER

EMAIL & SPEED POST

IPC-II/TPP/PI-20/4/2021/ 29

April 01, 2024

To,

The Member Secretary,
Odisha State Pollution Control Board,
Paribesh Bhawan, A-118, Nilakantha Nagar,
Unit - VIII, Bhubaneswar – 751 012, Odisha

Sub: Matter raised during Zero Hour by Sh. Suresh Pujari, Hon'ble M.P, Lok Sabha - reg.

Sir,

Please refer to the Odisha SPCB's letter no. 3068/IND-I-CON(MISC)/1619 dated 04.03.2024 regarding inspection of IB Thermal Power Sation, Jharsuguda, Odisha of M/s Odisha Power Generation Corporation Limited (OPGCL) in respect of breach of ash pond/dyke and flow of ash/contaminated water into a large area of agricultural fields and water sources, including Hirakud Reservoir, and informing about the directions issued by Odisha SPCB to the plant.

It is requested to ensure early compliance of the Odisha SPCB's directions and the recommendation given by the joint inspecting team by M/s OPGCL. Further, considering the level of the breach, Odisha SPCB may consider to direct M/s OPGCL for conducting an environmental damage assessment study through an intitute of national repute, based on which Odisha SPCB may impose environmental compensation/penalty on the plant for restoration of the environment/affected area/person. An ATR in the matter may be provided to this office.

Further, as per the Annual Ash Compliance Audit Report 2022-23 submitted by M/s OPGCL, the plant had got conducted the ash dyke stability study of the ash pond/dyke through IIT Madras during April 2023 i.e. before the incident of breach held on 09.12.2023. In view of the breach in the same ash pond/dyke, the plant may be asked to also consult the expert to provide comments on the cause of breach.

Yours faithfully,

[Nazimuddin]

Divisional Head-IPC-II

Copy to:

Dr. Satyendra Kumar (Director, HSM Division), : for information.
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi – 110 003

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

**Inspection Report on Breach of Ash Dyke of Ash Pond-C of
Ib Thermal Power Station of M/s OPGC Ltd.,
At/PO- Banharpalli, Dist-Jharsuguda**

Ib Thermal Power Station of M/s OPGC Ltd, located at village Banharpalli in the district of Jharsuguda, was inspected on 13.12.2023 & 14.12.2023 to verify the present status of restoration of breached portion of Ash Pond-C, nearby affected areas due to breach of Ash Dyke and overall Ash Management by the Thermal Power Plant. . Sri Partha Sarathi Panda, Sr. Manager (Env), Sri Sukanta Mahapatra, Sr. VP (O&M), Sri Nursingha Nath Pana, AGM, Tech. Asst. to MD & Prof. Dr. D.N. Arnepalli Naidu, Dept., of Civil Engineering, IIT, Madras, Chennai, Sri Satish Poghri, Dy. Manager, (Ash Pond Civil) & other officials of the industry were accompanied during the day of inquiry.

About the Thermal Power Plant:

Ib-Thermal Power Station (ITPS) is a Coal Based Thermal Power Plant having four units of Unit-1&2 (2x210 MW) and Unit-3 &4 (2x660 MW). The commissioning dates of each unit are presented below;

Sl. No	Station Name	Commissioning Date
1.	Unit#1	21.12.1994
2.	Unit#2	20.06.1996
3.	Unit#3	03.07.2019
4.	Unit#4	21.08.2019

The power plant has valid Consent to operate up to 31.03.2024 for production of Electricity Power from Unit-1&2 of 420 MW (2X210 MW) and that from Unit -3 & 4 of 1320 MW (2X660 MW).

Overall Ash Management Practices:

Unit -1 & 2

Unit -1 & 2 has coal fired boilers of 690 TPH each with electric power generation capacity of 210 MW each. The coal consumption in these two units is 8000 TPD and the total ash generation is 3200 TPD. The fly ash from the 1st two fields of the ESP is pumped to 2 nos. of ash silos of capacity 240 Ton each. The dry ash from the silo is utilized for brick manufacturing and supplied to asbestos units. The balance ash is then mixed with water to form lean slurry in the Ash Handling Plant (AHP-1). The ash slurry is then pumped to ash pond- A, B & C at a rate of 850m³/hr. The unit has provided 4 nos. of ash pipelines (one remains as standby) for lean slurry disposal from the AHP to ash pond -A, B & C over a length of 5.8 km. The ash pond area is divided into 3 lagoons namely Ash pond-A, Ash Pond-B & Ash Pond-C.

Ash pond-A has an area of 150 Ac with ash holding capacity of 67 lakh MT. The bottom RL of Pond-A is RL 187.65m, starter dyke has been constructed up to RL 199m and raising of dyke was done in three phases up to RL 208m. Ash Pond-A was exhausted and was not in operation since 2019.

Ash pond-B has an area of 242 Ac with ash holding capacity of 128 lakh MT. The bottom RL of Pond-B is RL 189m, starter dyke has been constructed up to RL 202m and raising of dyke was done in two phases up to RL 208m. Ash Pond-B was exhausted and was not in operation since 31.03.2021.

Ash pond-C is situated in between Pond -A & B, it has an area of 114.92 Ac with ash holding capacity of 88 lakhs MT. The bottom RL of Pond-C is RL 191.5m, starter dyke has been constructed up to RL 202m and raising of dyke was done in two phases up to RL 208m. Ash Pond-C was in operation.



The decanted water from each pond is collected in each Primary Settling Tank (PST) of 5 Ac each. The water is treated with alum and polyelectrolyte in PST and is transferred to common Secondary Settling Tank (SST) of 1 lakh m³ capacity. The clear water from the SST is recycled back to the plant for slurry making by deploying 3 nos. of pumps of 1000m³/hr capacity (one remains as standby).

Unit -3 & 4

Unit -3 & 4 has coal fired boiler of 1900 TPH capacity with electric power generation of 660 MW each. The coal consumption in these two units is 22,000 TPD and ash generation is 8800 TPD. The dry ash from the initial fields of the ESP is transferred pneumatically to 3 nos. of silos of 2700 MT capacity each. The dry ash from silo is used for brick making and supplied to asbestos units. The balance ash is taken to AHP-2 to prepare high concentration slurry. The unit has 3 nos. of GEHO pumps of 222m³/hr capacity each (one remains as standby) to send the high concentration slurry to Tilia ash pond.



The total area of Tilia Ash Pond is 357 Ac. out of which 50 Ac towards Hirakud Reservoir has been kept aside to meet the EC condition of maintaining 500m from HFL of Hirakud Reservoir. The Tilia Ash pond has two lagoons (Phase-I & Phase-II) constructed over 305 Ac.

The Phase-1 ash pond has an area of 125 Ac with ash holding capacity of 27.5 lakh MT. The bottom RL of Phase-I is RL 199.5m, starter dyke has been constructed up to RL 208m and raising of dyke was done in one phase up to RL 212m. During inspection dyke raising was going on in Phase-I ash pond.

The Phase-II ash pond has an area of 180 Ac with ash holding capacity of 51 lakh MT. The bottom RL of Phase-II is RL 197m, starter dyke has been constructed up to RL 208m and raising of dyke was done in one phase up to RL 212m. The Phase-II ash pond was in operation on the day of incident i.e., on 09.12.2023. However, there was no ash disposal in Phase-II ash pond on the day of inspection.

The commissioning date of each lagoons of ash pond -A, B & C and Tilia is given below;

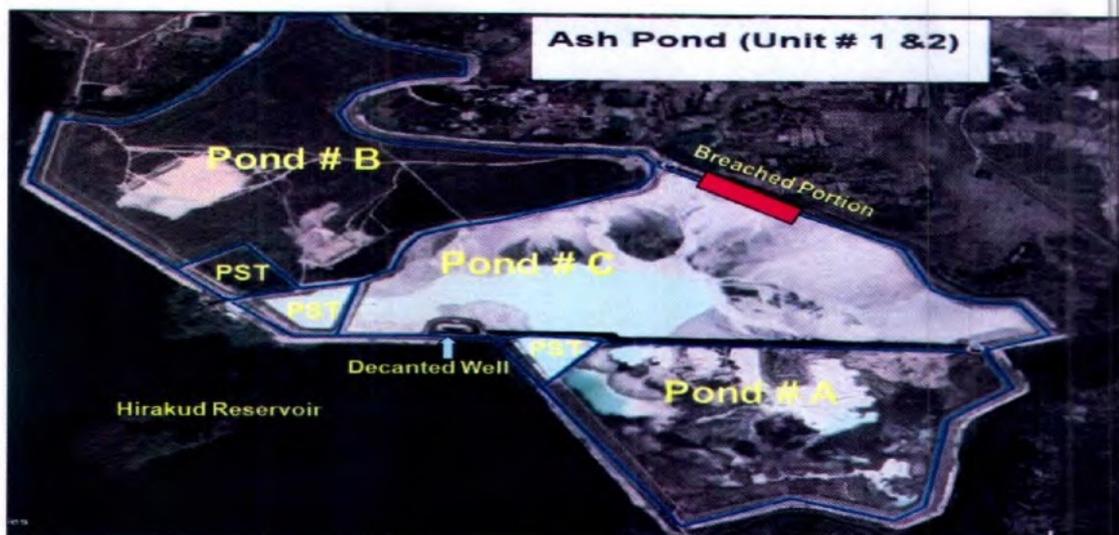
Sl. No.	Name of Ash Pond	Start date	Date of exhaust
1.	Ash Pond A	31.08.2007	2019
2.	Ash Pond B	03.06.1995	31.03.2021
3.	Ash Pond C	17.04.2017	In operation
4.	Tilia Ash Pond Phase -I	01.08.2020	In operation
5.	Tilia Ash Pond Phase- II	24.06.2020	In operation

It has been intimated by the Plant representative during inspection that the quantity of ash stored in each pond since its inception is as follows;

Pond Name	Holding capacity without dyke height raising	Quantity of ash stored
Ash pond -A	67 Lakh MT	67 Lakh MT
Ash Pond -B	128 Lakh MT	127 Lakh MT
Ash Pond -C	88 Lakh MT	73.2 Lakh MT
Tilia Phase-I	27.5 Lakh MT	27.5 Lakh MT
Tilia Phase-II	51 Lakh MT	47 Lakh MT

Occurrence of Incidents:

On Dt. 09.12.2023 at around 8.30 AM Northern Dyke of Ash Pond-C (initially 5m width) had breached and considerable amount of ash has spilled into nearby fallow land and agricultural land. Subsequently, the width of the breached portion increased to 20m. The ash spread over to nearby paddy and fallow lands in two patches connected by a channel around Pond-C & A. It was informed by plant representative that around 120 Acres of paddy fields & fallow lands have been affected as estimated by Revenue Inspector. The root cause for dyke failure is still under investigation by the management through technical experts from IIT Madras.



Action Taken by the Board :

As soon as the news of breach in Ash Pond-C received by the Board, a team from Head Office along with the officials of Regional office, Jharsuguda rushed to the spot on 09.12.2023 & the team remained on 10.12.2023 to ascertain the situation at the ground. Based on that report a direction U/s. 33A of Water (PCP) Act, 1974 and U/s. 31A of Air (PCP) Act, 1981 was issued to the thermal power plant on dtd. 11.12.2023 with some directions to comply. In response to this, the industry responded on dtd. 16.12.2023 & submitted a compliance report to the direction. It was informed by the industry that they have immediately stopped disposal of ash slurry into Ash Pond-C & undertaken shut down of Unit - 3 & 4. The breach has been arrested by constructing a temporary earthen bund and thus there is no more discharge of ash / water to outside area, since 1.15 PM on 13.12.2023. At the same time they have requested the Board to allow raising of ash pond-A and C by 3m from RL 208m to 211m, for which they have obtained CTE from the Board. They have also submitted a short term and long term action plan for restoration of breached portion of Pond-C as well as overall ash management.

Day Wise action taken by the industry for Restoration of Breached Portion of Ash Pond- C:

Date: 09.12.2023

- Heavy seepage of water from Toe drain of starter dyke (Northern Dyke) and surface ash water forming a whirlpool was observed by Security Guard at 8.30 AM.
- At 8.30 AM ash pond management team rushed to the site and observed trench of 5m was formed in northern bund of Ash Pond-C.
- At around 8.45 AM, all the machineries available at site along with sand bags were shifted to the site of breach.

- The breach gradually widened to 10m and then to 20m. Since the flow current was strong, it was very difficult for ash pond maintenance team to control the water flow.
- At around 9.30 AM, the load of unit 1 & 2 were reduced from 190MW to 130MW and Unit 3 & 4 were taken shutdown.
- The channel flowing towards Reservoir side was closed temporarily with sand bags to prevent any seepage of ash water to reservoir.
- The slurry discharge line of unit 1 & 2 was shifted to ash pond A from ash pond C.
- The occurrence of incident was intimated to the SPC Board at 10.30 AM through WhatsApp and E-Mail & District administration was also apprised of the situation.
- The team from State Pollution Control Board, Bhubaneswar and Regional Office, SPC Board, Jharsuguda visited the site.

Date: 10.12.2023

- From 7.30 AM onwards, 10000 nos. of sand bags were placed on the breached portion of the dyke.
- 15 nos. of Dumpers & 5 nos. of dozers were deployed to supply soil to the site for forming an approach road and construction of temporary bund wall to arrest the flow of water.
- 500 nos. of tarpaulin was also shifted to the site.
- The bottom ash slurry line of unit 3 & 4 was repaired.

Date: 11.12.2023

- The temporary earthen bund was further extended keeping only a portion of 4m open.
- The approach ramp was further extended. Temporary bund was further widening, reaching a height of 6m and width of 15m.
- Further the side slope of the embankment was covered with thick polythene sheets and sand bags to prevent erosion.

Date: 12.12.2023

- The final 4m section was blocked and the earthen dyke was made to completely arrest any water flowing out of the ash pond.
- Lime and alum dosing was done in the downstream to settle any ash that has moved out of the ash pond.
- 2 pumps of capacity 200m³/h were installed to evacuate the stagnant water on the upstream side of the earthen bund. The water was pumped to ash pond A and was collected through Primary settling tank and secondary settling tank for final recirculation.

Date: 13.12.2023

- Dyke strengthening work continued.
- Dry ash from ash pond A was evacuated to fill up the craters formed in ash pond C. This also created additional space in ash pond A.
- Number of agencies engaged in ash shifting and dyke strengthening was increased from 3nos. to 5 nos. and deployment of additional nos. of machineries was also increased.
- Team from State Pollution Control Board, Bhubaneswar along with officials of Regional Office, Jharsuguda visited the site.

Observations on the day of inspection:

The following observations were made on the days of inspection.

- 1) The breach occurred on the northern side of ash pond -C on 09.12.2023 at 8.30 AM. It was found that 20m width of entire starter dyke along with raised embankment was washed-out. Due to the pressure exerted by the standing water, and ash from the pond was washed-out by creating craters inside Ash Pond-C. It was estimated by the industry that around 4.0 to 4.5 lakh tons of ash has been washed away into the nearby areas. It was informed by the Prof. Naidu from IIT, Madras that they will repair the damaged dyke for a width of 120m, 50m on either side of the breached portion of 20m width.

Photo of Breached Portion on 09.12.2023

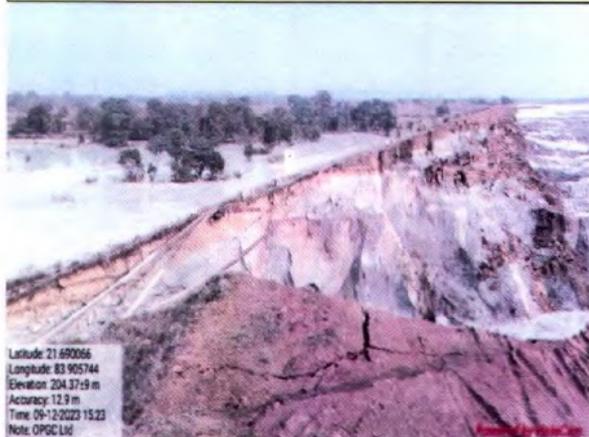


Photo of Breached Portion on 14.12.2023



- 2) It was observed that breach has been arrested by constructing an earthen bund of up to 6m height by necessary compaction. The flow of water / ash slurry from the Ash Pond-C to outside has been stopped.
- 3) Unit -1 & 2 were in operation (operating at low load of 135 MW each), whereas Unit-3 & 4 were not in operation on the day of inspection.
- 4) Ash pond -A & B were exhausted and they are not in operation since 2019-20 and 31.03.2021 respectively. At the time of the incident the entire ash of Unit-1 & 2 and Bottom ash of Unit- 3 & 4 were disposed off in Ash Pond-C. Hence, around 5000 Ton of

- ash (3200T fly ash and bottom ash from Unit-1 & 2 and 1800T of bottom ash of Unit-3 & 4) was disposing of to the Ash Pond -C.
- 5) The unit has stopped discharging any ash slurry into pond-C. In order to operate Unit-1 & 2 and to dispose off ash slurry, they have started evacuating ash from Ash Pond-A, 70m inward from the embankment to fill-up the craters created in the Pond-C. The pond ash from Pond-A is being transported to Pond-C by deploying 30 nos. of hyvas, 10 nos. of excavators and 10 nos. of dozers.
 - 6) Hence, the ash slurry from Unit-1 & 2 is now disposed off in the excavated portion of Pond-A through two discharge points. Looking into the volume of void created in Pond-C, maximum of 5 lakh Ton of ash will be excavated from Pond-A area to accommodate fresh ash disposal into this pond. However, considering generation of ash of 3200TPD from Unit-1 & 2, the industry can dispose off ash in Pond-A as an interim arrangement for a period of maximum 5 months as reported by the officials of OPGC.
 - 7) The decanted well of Pond-C is situated towards the reservoir side, diagonally opposite to the breached portion. It was observed that there were three discharge points around the decanted well, whereas there was only one discharge point near the breach portion. At the time of incident ash was disposed off into Pond-C through this discharge point near breached portion. It indicated that, there was no uniform distribution of ash slurry into Pond-C.



- 8) Further, it was also observed that the free-board near the breached portion was 0.5 m or less than that, whereas, the free-board available near the decanted well was 1.5m. Due to this non-uniform ash distribution inside the pond-C, a barrier was formed dividing the Pond-C into northern and southern side. It is apprehended that, due to this the decanted water could not get its path to reach the decanted well and thus created a thrust / pressure on the northern embankment of ash pond-C. Due to this constant pressure for a longer period on one side of the pond embankment, the breach might have occurred.
- 9) It was observed near the Secondary Settling Tank (SST) of re-circulation system that there was flow from Primary Settling Tank (PST) of ash pond-A, whereas there was lean flow from Pond-C and no flow from Pond-B. It indicated that the lean slurry is being disposed off in Pond-A at the time of inspection.
- 10) It was observed that the pond-A has been exhausted with very less free-board available (less than 0.5m) all around the pond with growth of ash. Major portion of Pond-A is situated adjoining to the back water of Hirakud Reservoir. There was no inspection road around Pond-A.
- 11) It was observed that there is a natural channel connecting the affected ash spread area to the reservoir. Hence there is a possibility of flow of surface runoff from the affected area containing ash into the reservoir, if proper care is not been taken.



Present Condition of Pond -A with Less Free-board



Channel from the affected area flowing towards Reservoir

- 12) The ash is disposed off into ash pond-A,B &C in lean slurry method by providing four nos. of pipelines. All these pipelines are over the backwater of the reservoir near to the ash pond area. Hence, there is every possibility of leakage of ash slurry into the reservoir in case of pipeline leakage / breakage.
- 13) Since the unit has not provided any piezometer in the Pond-C and there was no accessibility to the toe drain, the safety and stability of the ash pond cannot be verified physically.
- 14) The unit has not provided watch tower at strategic locations and lighting facility all around the ash pond to keep a watch & ward to avoid any human sabotage.
- 15) There is no SoP for stability, safety, operation, maintenance & inspection of ash pond area and embankment.
- 16) The industry has deployed two pumps of 200m³/hr capacity each to evacuate the stagnant water from Pond-C. It was found that the Pond-C has already become dried and thus 114 Ac of the pond area is now exposed. Hence, there will be creation of fugitive emission due to wind very shortly.
- 17) It was observed that the Tilia ash pond is well maintained and constructed as per the drawing and design. It has two segments (i.e., Phase-I & Phase-II). Phase-I was under dyke raising and Phase-II pond is active. However, there was no discharge of ash slurry in high concentration in Phase-II ash pond on the day of inspection. It was observed that there was stagnant water throughout the Phase-II pond even if there was no discharge of ash slurry into the pond and HCSD system is adopted for Tilia pond. They have provided 16 nos. of piezometers around the ash dyke to ascertain the health of the embankment.
- 18) It was observed from the ash utilization by the industry for last 10 years that the average percentage of utilization of generated ash is in the range of 16 - 66% for Unit -1 & 2 and 17 - 23% for Unit- 3 & 4. The ash utilization figure for all the units for last 10 years is **attached as Annexure-1.**

Action plan for 100% ash utilization in compliance to Fly Ash Notification.

During the inspection the plant representatives intimated that they are taking the following actions for 100% utilization of ash in compliance to the Fly Ash Notification, dtd. 31.12.2021.

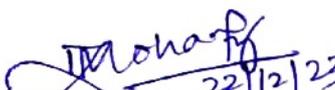
- 1) Supply of fly ash to Dalmia Cement, Rajgangpur with assured evacuation of 1.02 Million Ton/Annum at free of cost.
- 2) Supply of fly ash in the tune of 0.6 – 1.0 Million Ton/ Annum to Adani Cements (ACC & Ambuja Cement).
- 3) The industry is utilizing 12,000 MT/A of Fly Ash by supplying it to 13 nos. of brick plants and they have an in-house brick plant. Now, they have a plan to augment the utilization in this aspect to 30,000 MT/A.
- 4) The industry is in the process of identifying stone quarries and low lying areas in the vicinity of the plant in consultation with District Administration.

- 5) The industry is exploring the opportunity to utilize the ash in mine void filling of Lakhanpur Open Cast Mine of MCL and its captive coal mine at Manoharpur.

Recommendation :

- 1) The industry shall submit a long term and short term action plan for disposal of fly ash and bottom ash from the existing as well as proposed units.
- 2) The industry shall explore the possibility of increasing the percentage of ash utilization as per the Fly Ash Notification.
- 3) The industry shall take utmost care and precaution in restoration of the breached portion of Pond-C under the guidance and supervision of experts in the field of Safety and Stability of ash dyke.
- 4) The industry shall not dispose off the bottom ash of Unit- 3& 4 to any segment / lagoons of Ash Pond- A , B , C in lean slurry method.
- 5) The ash shall be disposed off in the ash pond uniformly by providing discharge points at uniform intervals and the discharge points shall be rotated at constant interval, so as to reduce the thrust on any side of embankment and to maintain uniform free-board throughout the ash pond.
- 6) The industry shall prepare SOP for stability, safety, operation, maintenance & inspection of ash pond area and embankment & submit a copy to the Board for record and future verification.
- 7) The industry shall prepare a check list for inspection, so that there will be no variation in each inspection. The day wise inspection report shall be preserved for subsequent verification.
- 8) Since there is no scope of ash disposal in pond-A, unless void is created and since the industry has been directed not to dispose off any ash into Pond-C, the industry has planned to go ahead with dyke raising from RL 208m to 211m in Pond-A. However, since the Pond-A is close to reservoir, the industry shall revisit it's drawing and design of ash dyke raising and submit a modified proposal to the Board for amendment of CTE for dyke raising of ash pond A.
- 9) The industry shall ensure by providing bund at suitable location to prevent the flow of ash water from the affected spread area into the reservoir.
- 10) The industry shall provide adequate number of piezometers in Pond-A & C, preferably online piezometers.
- 11) The industry shall provide accessibility to the toe drain area, so as to verify any flow of sediment in the drain.
- 12) The unit shall provide watch tower at strategic locations with security personnel and lighting facility all around the ash pond to keep a watch & ward to avoid any human sabotage.

- 13) The industry shall take immediate action to control fugitive emission going to be generated from the dried exposed portion of pond-C and also exposed nearby damaged area. The action plan for installation of dust suppression measures shall be submitted to the Board.
- 14) The industry shall redesign ash pond-A, B & C by providing adequate number of decanted well and the decanted water shall be channelized to the Primary Settling Tank for recirculation.
- 15) The industry shall take utmost care to prevent any breakage / leakage in the ash slurry pipeline preferably in reservoir portion. There should be regular inspection of pipeline corridor to avoid such situation.
- 16) The industry shall carry out comprehensive ground water contamination study in and around the ash dyke and now in the affected area.
- 17) Minimum free-board shall be maintained in all ash ponds as per the design of the ash pond in order to avoid overflow of ash slurry to nearby areas.
- 18) The unit shall carryout the aerial survey of ash pond -A, B & C and the nearby affected site.
- 19) The industry shall provide stone pitching on the ash dykes towards reservoir side.
- 20) There should be frequent inspection of health of sand chimney in the embankment as well as while going for dyke raising.
- 21) The industry shall come out with a plan to switch over to HCSD system from lean slurry disposal system in ash pond -A,B & C.
- 22) The industry shall take precautionary measures during excavation of pond ash from pond-A without affecting the safety and stability of the pond.
- 23) The periphery drain around ash pond -A, B & C shall be regularly cleaned.
- 24) The industry shall carry out hydrogeology study by reputed institution around ash pond A,B & C to ascertain the stability of the dykes.
- 25) The industry shall ensure that there should not be any stagnant water in the phase-1 and Phase-II pond of Tilia. The industry shall maintain the concentration of the slurry as per the design of HCSD system.
- 26) The unit shall submit progress report of day to day restoration work.


Er. R.K. Mohanty
 Deputy Env. Engineer
 SPC Board, Bhubaneswar


Er. Sitikantha Sahu
 Addl. Chief. Env. Engineer
 SPC Board, Bhubaneswar


Er. B.K. Behera,
 Chief Env. Engineer
 SPC Board, Bhubaneswar



STATE POLLUTION CONTROL BOARD, ODISHA

[DEPT., OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVT. OF ODISHA]

Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII

Bhubaneswar - 751 012, INDIA

No 98 / IND-I-CON- 104

Dt 02.01.2024

By Speed Post / E-Mail

DIRECTION UNDER SECTION 33 (A) OF WATER (PCP) ACT, 1974 AND 31 (A) OF AIR (PCP) ACT, 1981 AND AMENDED THEREAFTER

WHEREAS, you are operating a Thermal Power Plant having production capacity of electricity @ 2x210 MW & 2x660 MW in the name and style of **M/s. Odisha Power Generation Corporation Limited, Ib Thermal Power Station, At-Banharpali, Dist - Jharsuguda** with valid consent to operate of the Board up to 31.03.2024 subject to strict compliance to consent conditions stipulated in the CTO Order;

AND WHEREAS, the breach of Ash Pond-C was occurred on 09.12.2023 at 8.30 AM (Morning) at North side of the ash dyke. Thereafter, the site was inspected by Officials of HO and RO, Jharsuguda on dtd. 09.12.2023 & 10.12.2023 to verify the status of breach of Ash Pond and as per the observations made by the inspecting team, a direction was issued to your unit on dtd. 19609, dtd. 11.12.2023 to take corrective measures towards breach area;

AND WHEREAS, in reply to the direction you have furnished compliance report vide letter no. ITPS/6916/WE, dtd. 16.12.2023, which is under review;

AND WHEREAS, again, the breached site was inspected by officials of HO and RO, Jharsuguda on 13.12.2023 & 14.12.2023 to verify the status of restoration of breached portion of Ash Pond-C (**copy of Inspection report is enclosed**). From the inspection report following observations were made;

- 1) It was observed that due to the pressure exerted by the standing water and ash from the pond was washed-out by creating craters inside Ash Pond-C.
- 2) It was observed that around 4.0 to 4.5 lakh tons of ash has been washed away into the nearby areas.
- 3) Reportedly, repairing the damaged dyke for a width of 120m, 50m on either side of the breached portion of 20m width has been carried out.
- 4) Steps has been taken to arrest the breach portion by constructing an earthen bund of up to 6m height. The flow of water / ash slurry from the Ash Pond-C to outside has been stopped.
- 5) You have stopped discharge of ash slurry into pond-C.
- 6) In order to operate Unit-1 & 2 and to dispose off ash slurry, evacuation work of ash from Ash Pond-A, 70m inward from the embankment to fill-up the craters created in the Pond-C has been started.
- 7) The ash slurry from Unit-1 & 2 is disposed off in the excavated portion of Pond-A through two discharge points. Looking into the volume of void created in Pond-C, maximum of 5 lakh Ton of ash will be excavated from Pond-A area to accommodate fresh ash disposal into this pond.

P.T.O

//2//

- 8) There were three discharge points around the decanted well, whereas there was only one discharge point near the breach portion. At the time of incident ash was disposed off into Pond-C through this discharge point near breached portion. It indicated that, there was no uniform distribution of ash slurry into Pond-C.
- 9) Free-board near the breached portion was 0.5m or less than that, whereas, the free-board available near the decanted well was 1.5m. Due to this non-uniform ash distribution inside the pond-C, a barrier was formed dividing the Pond-C into northern and southern side. Due to this non-uniformity this might also a cause of breach of ash pond.
- 10) Pond-A has been exhausted with very less free-board available (less than 0.5m) all around the pond with growth of ash. Major portion of Pond-A is situated adjoining to the back water of Hirakud Reservoir. There was no inspection road provided around Pond-A.
- 11) There is a natural channel connecting the affected ash spread area to the reservoir, which may possibility to flow of surface runoff from the affected area containing ash into the reservoir.
- 12) All these pipelines of Ash Pond-A, B & C are over the backwater of the reservoir near to the ash pond area. Hence, there is every possibility of leakage of ash slurry into the reservoir in case of pipeline leakage / breakage.
- 13) You have not provided piezometer in the Pond-C for accessibility to the toe drain, safety and stability of the ash pond.
- 14) There was no provision of watch tower at strategic locations and lighting facility all around the ash pond area.
- 15) There was stagnant water throughout the Phase-II pond even if there was no discharge of ash slurry into the pond and HCSD system is adopted for Tilia pond.
- 16) It was observed from the ash utilization by your unit for last 10 years that the average percentage of utilization of generated ash is in the range of 16 - 66% for Unit -1 & 2 and 17 - 23% for Unit- 3 & 4.

NOW, THEREFORE, by virtue of the power conferred Under Section 33(A) of Water (PCP) Act, 1974 and Under Section 31(A) of Air (PCP) Act, 1981 as amended thereafter, the competent authority of the State Pollution Control Board, Odisha do hereby direct you to comply the followings;

- 1) Submit a long term and short term action plan for disposal of fly ash and bottom ash from the existing as well as proposed units.
- 2) Explore the possibility of increasing the percentage of ash utilization as per the Fly Ash Notification.
- 3) Take utmost care and precaution in restoration of the breached portion of Pond-C under the guidance and supervision of experts in the field of Safety and Stability of ash dyke.
- 4) Not dispose off the bottom ash of Unit- 3 & 4 to any segment / lagoons of Ash Pond- A, B & C in lean slurry method.

Contd...

- 5) The ash shall be disposed off in the ash pond uniformly by providing discharge points at uniform intervals and the discharge points shall be rotated at constant interval, so as to reduce the thrust on any side of embankment and to maintain uniform free-board throughout the ash pond.
- 6) Prepare SoP for stability, safety, operation, maintenance & inspection of ash pond area and embankment & submit a copy to this Board for record and future verification.
- 7) Prepare a check list for inspection, so that there will be no variation in each inspection. The day wise inspection report shall be preserved for subsequent verification.
- 8) Since there is no scope of ash disposal in pond-A, unless void is created and since you are directed not to dispose off any ash into Pond-C, also planned to go ahead with dyke raising from RL 208m to 211m in Pond-A. However, since the Pond-A is close to reservoir, you are also directed to revisit it's drawing and design of ash dyke raising and submit a modified proposal to the Board for amendment of CTE for dyke raising of ash pond A.
- 9) Ensure by providing bund at suitable location to prevent the flow of ash water from the affected spread area into the reservoir.
- 10) Provide adequate number of piezometers in Pond-A & C, preferably online piezometers.
- 11) Provide accessibility to the toe drain area, so as to verify any flow of sediment in the drain.
- 12) Provide watch tower at strategic locations with security personnel and lighting facility all around the ash pond to keep a watch & ward to avoid any human sabotage.
- 13) Take immediate action to control fugitive emission going to be generated from the dried exposed portion of pond-C and also exposed nearby damaged area. The action plan for installation of dust suppression measures shall be submitted to the Board.
- 14) Redesign ash pond-A, B & C shall be made by providing adequate number of decanted well and the decanted water shall be channelized to the Primary Settling Tank for recirculation.
- 15) Take utmost care to prevent any breakage / leakage in the ash slurry pipeline preferably in reservoir portion. There should be regular inspection of pipeline corridor to avoid such situation.
- 16) Carry out comprehensive ground water contamination study in and around the ash dyke and at the affected area.
- 17) Minimum free-board should be maintained in all ash ponds as per the design of the ash pond in order to avoid overflow of ash slurry to nearby areas.
- 18) Carryout the aerial survey of ash pond -A,B & C and the nearby affected site.
- 19) Provide stone pitching on the ash dykes towards reservoir side.
- 20) There should be frequent inspection of health of sand chimney in the embankment as well as while going for dyke raising.
- 21) Prepare with a plan to switch over to HCSD system from lean slurry disposal system in ash pond -A,B & C.

- 22) Take precautionary measures during excavation of pond ash from pond-A without affecting the safety and stability of the pond.
- 23) The periphery drain around ash pond -A, B & C shall be regularly cleaned.
- 24) Carry out hydrogeology study by reputed institution around ash pond A,B & C to ascertain the stability of the dykes.
- 25) Ensure that there should not be any stagnant water in the phase-1 and Phase-II pond of Tilia and maintain the concentration of the slurry as per the design of HCSD system.
- 26) Submit progress report of day to day restoration work to the Board.

In view of above, you are directed to comply the above points and submit action taken report within 10 days along with supportive documents to this office, failing to which appropriate action as deemed fit shall be taken against your unit.

Encl: As above


Member Secretary

To,
**The Director (Operation),
M/s OPGC Limited,
1b Thermal Power Station, Banharpali,
Dist - Jharsuguda-768234**

Memo No. 99 / Dt. 02.01.2024

Copy forwarded to the **OSD to the Chief Secretary to Govt. & Chairman, SPC Board, Odisha** for kind information of the Chief Secretary to Govt. & Chairman, SPC Board, Odisha.


Member Secretary

Memo No. 100 / Dt. 02.01.2024

Copy forwarded to **Collector & District Magistrate, Jharsuguda** for information and necessary action.

By: E-mail

Memo No. 101 / Dt. 02.01.2024

Copy forwarded to **Regional Officer, SPC Board, Odisha, Jharsuguda** for information. He is requested to keep strict vigil at the ash pond site of the unit.

By: E-mail


Chief Env. Engineer

Memo No. 102 / Dt. 02.01.2024

Copy forwarded to the **Senior Law Officer, L-II, SPC Board, Odisha, Bhubaneswar** for information.

By: E-mail


Chief Env. Engineer


Chief Env. Engineer



**STATE POLLUTION CONTROL BOARD, ODISHA**

[Department of Forest, Environment & Climate Change, Govt. of Odisha]

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955

E-mail: cto17category@ospcboard.org / Website: www.ospcboard.orgNo. 4590 / IND-I-CON-104Dt. 30-03-2024**CONSENT ORDER**Sub : **Consent to operate under section 21 of Air (P&CP) Act, 1981, under section 25 of Water (P&CP) Act, 1974.**Ref : Your online application **ID No. 5293412 dtd. 27.12.2023**

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry **M/s. Odisha Power Generation Corporation Ltd,**
Ib. Thermal Power StationName of the Occupier & Designation **Mr. Manas Ranjan Rout, Director (Operation)**Address- **At/Po- Banharpali, Dist- Jharsuguda , Odisha-768 234**This consent order is valid for the period from **01.04.2024 to 31.03.2025**

This consent order is valid for the product quantity, specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.

A. Details of Products Manufactured

Sl. No.	Product	Quantity
01	Electricity Power (Unit-1 & 2)	(2x210 MW) 420 MW
02	Electricity Power (Unit-3 & 4)	(2x660 MW) 1320 MW



B. Discharge permitted through the following outlet subject to the standard

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr	Prescribed Standard								
01.	Ash pond over flow	100% recirculation	--	/								
02.	Industrial effluent	Settling pond	--									
03	Domestic effluent generated from Plant & Colony	Treated in STP and treated effluent is used for plantation/ gardening	--		<table border="1"> <tr> <td>pH</td> <td>6.5-9.0</td> </tr> <tr> <td>BOD</td> <td>less than 30mg/l</td> </tr> <tr> <td>TSS</td> <td>less than 100mg/l</td> </tr> <tr> <td>Fecal Coliform (FC) (most probable number per 100 millilitre, MPN/100ml)</td> <td>less than 1000</td> </tr> </table>	pH	6.5-9.0	BOD	less than 30mg/l	TSS	less than 100mg/l	Fecal Coliform (FC) (most probable number per 100 millilitre, MPN/100ml)
pH	6.5-9.0											
BOD	less than 30mg/l											
TSS	less than 100mg/l											
Fecal Coliform (FC) (most probable number per 100 millilitre, MPN/100ml)	less than 1000											

C. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission (m ³ /hr)	Prescribed Standard in mg/Nm ³			
				PM	SO ₂	NO _x	Hg
1)	Stack attached to ESP of Unit-1	220	12.6×10 ⁵	100	600	600	0.03
2)	Stack attached to ESP of Unit-2	220	12.6×10 ⁵	100	600	600	0.03
3)	Stack attached to ESP of Unit-3	275	35,50,000	50	200	450	0.03
4)	Stack attached to ESP of Unit-4	275	35,50,000	50	200	450	0.03

D. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity Generated	Quantity to be reused on site	Quantity to be reused off site	Quantity disposed off	Description of disposal site.
1.	Fly Ash (Unit-1 & 2)	10.5 lakh MT/year	---	---	10.5 lakh MT/year	Utilization as per fly ash notification, Dec, 2021 and amended thereof.
2.	Fly Ash (Unit -3 & 4)	33.00 lakh MT/year	---	---	33.00 lakh MT/year	



E. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The industry would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / and products / manufacturing process or quantity /quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. . In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during their visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been taped by the consumer for utilization for any purposes whatsoever.
12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
 - a) Industrial cooling, spraying in mine pits or boiler feed,
 - b) Domestic purpose
 - c) Process
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge generated from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank of treatment plant.



CONSENT ORDER

Page 4

22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.
25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner to meet the prescribed standards by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack and ambient monitoring system installed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry has to ensure that minimum three varieties of indigenous species of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as no to cause fugitive emission, dust problems through leaching etc., of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
 - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
 - ii) Controlled incineration, wherever possible in case of combustible organic material.
 - iii) Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
42. The industry shall comply to all the conditions stipulated under Charter on Corporate Responsibility for Environmental Protection (CREP) guidelines in a time bound manner as envisaged there in. (if applicable)
43. The industry shall comply to the conditions stipulated in CTE order issued by ODISHA State Pollution Control Board .
44. The industry shall abide by E(P) Act, 1986 and Rules framed there-under



CONSENT ORDER

Page 5

45. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the adequate amount within the period stipulated by the Board the consent order will be revoked without prior notice.
46. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate

GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs 50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A).

1. The applicant shall analyse the effluent / emissions and Ambient Air Quality every month through approved laboratory for the parameters indicated in TABLE- 'B', 'C' & Part -'B' as mentioned in this order and shall furnish the report thereof to the Board on monthly basis.
2. The following information shall be forwarded to the Member Secretary on or before 10th of every month.
 - a) Performance / progress of the treatment plant.
 - b) Monthly statement of daily discharge of domestic and/or trade effluent.
3. Non-compliance with effluent limitations
 - a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
 - i) Causes of non-compliance
 - ii) A description of the non-compliance discharge including its impact on the receiving waters.
 - iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
 - iv) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
 - v) Steps to be taken by the applicant too prevent the condition of non-compliance.
 - b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
 - c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break-down, electric failure, accident or natural disaster.
4. Proper housekeeping shall be maintained inside the factory premises including process areas by a dedicated team.
5. The industry must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.
6. The industry shall engage dedicated qualified manpower to ensure continuous and effective operation of online stack / Ambient Air Quality / Effluent monitoring stations for maintenance of database, real time data transfer to SPCB server, data analysis and co-ordination with concerned personnel of process units for taking corrective measures in case of non-compliances and to respond to the instructions of SPCB in this matter.
7. All employees of the industry including officers, staff, workers, contract workers involved in operation/maintenance/ supervision of process area, pollution control areas, raw material and waste handling areas shall undergo short term training at least twice in a year in the field of pollution control and environment protection to create awareness and develop green skill. This shall be conducted by 3rd party expert agency and report on the activities along with details and photographs shall be submitted to the Board on annual basis by end of June for previous financial year.
8. ISO auditing reports of the industry in the field of environment shall be submitted to the Board every year on annual basis.
9. The environmental cell shall be established and upgraded effectively to guide, monitor the pollution control and environmental protection activities inside the industries on day to day basis to ensure that the conditions stipulated in the consent to establish/operate order of the SPCB and conditions imposed in EC and provisions of various environmental acts and rules are complied with and the report returns, compliances are



- submitted to the Board in due time.
10. Adequate numbers of scientific / technical persons having qualification in environmental engineering/ environmental science from recognized institution/ university must be engaged or appointed along with other interdisciplinary qualified persons to effectively implement and monitor different areas of environment management and regulatory compliances including air pollution control, water pollution control, online monitoring, real time data transmission, management of solid waste, hazardous waste, E-waste, plastic waste etc. The Head of the environmental cell should be a senior level official, who will directly report to the plant head to ensure that environmental management is performed effectively to ensure compliance to the environmental norms on priority basis.
 11. Energy consumption data of different pollution control devices like ESP/ Bag filter/ Scrubber/ Cyclone/ Gas cleaning plant/ Fume treatment plant/ ETP/STP/Flow meters (treated effluent recycling) shall be collected online on real time centralized platform/ dashboard with data storage facility and generate tamperproof monthly / periodic reports, which shall be analysed by Energy Auditor, certified by Bureau of Energy Efficiency and accordingly the Energy Management / preventive maintenance of Pollution Control equipment shall be adopted. The energy management of process and pollution control devices shall be practiced to record the progressive achievements to minimize energy consumption in order to reduce greenhouse gas emission
 12. The post EIA monitoring schedule should be strictly followed for different parameters around the plant for the units is covered under EIA notification. The industry shall also conduct noise level study in the core zone and buffer zone of the industry and submit 6 monthly report to the Board.

F **SPECIAL CONDITIONS**
F1 **(Air Pollution Control)**

1. All steps shall be taken to improve the performance of ESPs such that the particulate matter emission from the stack attached to the ESPs of the boilers shall conform to the prescribed standard of 50mg/Nm³ and 100mg/Nm³
2. Interlocking arrangement between ESPs and boilers shall be provided so as to ensure continuous operation of ESP with the process.
3. All the online continuous stack emission monitoring systems (CEMS) for measurement of particulate matter and gaseous pollutants shall be operated effectively and uninterruptedly & real time monitoring data so generated shall be transmitted directly to RT-DAS server of the Board without passing through any local PC or server.
4. The industry shall ensure tampered proof real time transmission of online monitoring data to the server of CPCB and SPCB and maintain the health of the analyzers and data connectivity through valid AMC.
5. As per the Notification of MoEF & CC dtd. 07.12.2015, it is required to comply with the revised emission standard in respect of Particulate Matter (PM), Sulphur Dioxide (SO₂), Oxide of Nitrogen (NO_x), Mercury (Hg) and water consumption with the adoption of appropriate technology.
6. All the online continuous ambient air quality monitoring stations (CAAQMS) shall be operated effectively and uninterruptedly and the online monitoring data so generated shall be transmitted to SPCB and CPCB server on a continuous basis.
7. Steps shall be taken for regular monitoring of Mercury (Hg) in the stack of boilers and submit data to the Board.
8. The industry shall install Online CEMS for Hg (Mercury) in the boiler stacks.
9. The unit shall provide low NO_x burners to reduce NO_x emission to keep the level within the prescribed standard by MoEF & CC vide Notification dtd. 07.12.2015.



10. Steps shall be taken for installation of Flue Gas Desulphurisation (FGD) system in future if required to keep the SO₂ level within 600mg/Nm³ to conform the MoEF & CC Notification dtd. 07.12.2015. This shall also include management and disposal of effluent / solid waste to be generated from FGD system.
11. Inventory of at least 30% excess spare parts shall be in the store to meet emergency need of ESPs/bag filters/other air pollution control systems.
12. Fugitive emission from all possible sources like coal handling plant and other transfer points shall be minimized by suitable dust extraction/suppression measures.
13. All the measures including sufficient water sprinkling & developing green belt around the coal handling plants coal stack yard etc. which are potential source of fugitive emission shall be taken to mitigate dust pollution.
14. Roads used for transportation of coal and in the township area shall be blacktopped and cleaned regularly.
15. All raw materials and waste materials shall be transferred through covered vehicles without any spillage on the road; the materials/wastes shall be lifted by the industry and suitably disposed off in designated solid waste dumping area.
16. Dry ash collection and storage facilities shall be operated along with dust suppression/dust extraction system in order to control fugitive dust emission during handling of fly ash.
17. The performance evaluation of ESP, bag filter, air pollution control devices, online CEMS, AAQMS & surveillance cameras shall be conducted by an institution of national repute (like NIT/ IIT) and annual report shall be submitted to the Board by end of June for previous financial year.
18. The digital display board installed at the main gate shall be of minimum size of 6ft x 4ft as stipulated by CPCB with provision of display of real time data online analysers (CEMS, CAAQMS & CEQMS), so that the public can visualize the actual emission and the values of parameters displayed at the gate. Outdoor LED video screens should be preferred for digital display of environmental parameters, CTO and authorization conditions and awareness clippings on environment at the main gate, colony area and process area.
19. Online analysers for measuring flow, temperature and velocity of flue gas shall be installed at the stacks and integrated with online CEMS data.
20. Online CO / Ammonia/ Chlorine and such other gas monitoring system shall be installed in every process area where such toxic gas are expected to be generated and in the plant premises along with alarm system to avoid accidental hazards due to gas leakage.
21. Green belt shall be properly designed and developed with plantation of suitable local species and species prescribed by CPCB.
22. The unit shall strictly adhere to the provisions stipulated in the revised fly ash notification dtd. 31.12.2021 and amended thereof.
23. The unit shall submit fly ash utilization status to the Board annually and shall comply to the provisions of revised Fly Ash Notification No. SO.5481 (E),dt. 31.12.2021 of MoEF, Govt. of India and amended thereof.



24. The industry shall ensure to operate HD IP (Internet Protocol) surveillance camera with connectivity to RT-DAS server of the Board to view stack & fugitive emission.
25. Ambient air quality shall conform to the National Ambient Air Quality Standard for this purpose, the township as well as the area outside the factory premises shall be treated as residential area and the area inside factory premises shall be treated as industrial area.
26. Care shall be taken so that the ambient noise level shall conform to the standards prescribed under E(P) Act, 1986. For this purpose the township & the area outside the factory premises shall be treated as residential area & the area inside factory premises shall be treated as industrial area.
27. In case the consent fee is revised upward during this period, the industry shall pay the differential fee/arrears to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
28. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/stipulated additional conditions as deemed appropriate.
29. The industry shall take appropriate action and utmost care during start up and shut down of boilers so that such abnormality as well as the emission during that period remains at minimum.

F-2 (Water Pollution Control)

1. Specific water consumption shall be limited within 3.5m³/MW as per MoEF & CC vide Notification dtd. 07.12.2015.
2. Under no circumstances there shall be any discharge of effluent to outside the factory premises.
3. The unit shall take full-proof preventive and maintenance actions to safeguard the ash pond system against any breach of ash dykes and maintain proper free board in the ash ponds. Steps shall be taken to prevent leakage from the ash slurry pipe line.
4. The main as well as peripheral bunds of ash pond shall be continuously monitored for its behavior and any distress conditions noticed like seepage, subsidence slip etc. shall be immediately attend to and the bund section restored immediately under intimation to his office. The toe drains all along the downstream of bunds shall be properly maintained.
5. The unit shall strengthen the ash pond security system by increasing frequency of watch and improving supervision facility by the use of flash light, binocular and communication facility. Physically checking the ash slurry pipe line and ash pond condition on daily basis.
6. Prompt communication facility shall be provided so that message of minor leakage/defect/lapse can be communicated to control room without any delay.
7. The unit shall provide necessary arrangements for recycling of the seepage water of the ash pond.



8. No trees or branches shall be planted on the slop and on the top of the bunds; only grass turfing shall be done.
9. Concrete parapet wall of adequate height should be provided all along the concreted drains on its both the sides with rain cuts at regular intervals to prevent entry of dust/ash from the road and work zone into the drainage system. All the industrial drains shall be cleaned regularly.
10. The domestic effluent generated from the Plant & Colony shall be treated in STP. Treated effluent shall be used for gardening.
11. The blow down of power plant shall meet the following standards before it is discharged to the common monitoring basin and shall be reused for ash handling, dust suppression and green belt.

Boiler blow down

Suspended solids	-	100.0 mg/l(Max)
Oil & Grease	-	20.0 mg/l(Max)
Copper (Total)	-	1.0 mg/l(Max)
Iron (Total)	-	1.0 mg/l(Max)

Cooling Tower Blow down

Free available Chlorine	-	0.5 mg/l(Max)
Zinc	-	1.0 mg/l(Max)
Chromium (Total)	-	2.0 mg/l(Max)
Phosphate	-	5.0 mg/l(Max)

12. The industry shall explore to adopt chemical free automated self -maintained electrolysis system for removal of scale, corrosion, bio-film from cooling towers and automated tube cleaning system for heat exchangers and condensers with remote access and alarm system wherever applicable for conservation of water and energy to reduce wastewater generation and increase plant efficiency.
13. Acidic/Alkaline effluent generated from DM water plant shall be properly neutralized and taken to common basin.
14. The industrial drain effluent shall be treated properly and treated effluent shall be reused for industrial uses & in no circumstance effluent shall be discharged to Hirakud Reservoir.
15. The performance evaluation of ETP, STP, online CEQMS & Web cameras, flow meter shall be conducted by an institution of national repute (like NIT/ IIT) and annual report shall be submitted to the Board by end of June for previous financial year.
16. Flow meter and level sensors with telemetry system should be installed in the bore wells as stipulated by Central Ground Water Authority/ Water Resources Department.
17. The industry shall adequately maintain rain water harvesting structures and surface runoff treatment systems inside the plant premises.
18. A green belt of adequate width and density preferably with local species along the periphery of the plant shall be raised so as to provide protection against particulates and noise. It must be ensured that at least 33% of the total land area



shall be under permanent green cover. The proponent shall ensure the maintenance of green belt throughout the year and for all time to come. It is advised that they may engage professionals in this field for creation and maintenance of the green belt. An action plan for this purpose shall be prepared and shall be submitted accordingly.

19. The industry shall abide by E(P) Act, 1986 and Rules framed there-under.
20. The Board reserve the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/stipulate additional conditions as deemed appropriate.
21. The industry shall take steps for fulfillment of all the stipulations and necessary measures to check pollution.
22. Consent to operate is subject to availability of all other statutory clearances required under relevant Acts/Rules and fulfillment of required procedural formalities.

G) Additional conditions

- 1) The unit shall strictly adhere to the action plan submitted on dtd. 13.03.2024 in compliance to the recommendations of the joint inspection conducted on dtd. 27.02.2024 by RD-CPCB, Kolkata, SPCB, Odisha and District Administration, Jharsuguda. **A definite timeline to comply to each action point along with work progress on monthly-basis shall be submitted to this office without fail.**
- 2) The unit shall comply to the direction issued by the Board from time to time in connection with breach of dyke of Ash Pond-C.
- 3) The unit shall submit the compliance of action taken report w.r.t. long term remedial measures to be adopted for safety and stability of ash ponds for prevention of breach of ash pond in future.
- 4) The unit shall strictly follow the Standard Operating Practice (SoP) for stability, safety, operation maintenance of all the ash ponds.
- 5) The industry shall install mechanized wheel washing system along with treatment facility for ash transport vehicles near ash silo **area within 3 months.**
- 6) The unit shall install FGD system for reduction of SO₂ emission and submit up-to-date work progress to this office.
- 7) The industry shall make adequate provision for 100% utilization / disposal of fly ash.
- 8) The unit shall strictly adhere to the design, drawing, stability and safety aspects during construction activities of dykes height raising of the ash ponds. The unit shall intimate to the Board before raising the ash dyke.
- 9) The industry shall carry out surface run-off study and performance study of APC and WPC measures & submit the report to the Board.
- 10) The industry shall procure mechanized road sweeping machine for cleaning of the road dust within the plant premises.
- 11) The industry shall install adequate numbers of digital piezometer with alarm system at all the directions of ash pond for proper monitoring of water level.



CONSENT ORDER

Page 11

- 12) The unit shall ensure uninterrupted data transmission from CEMS, CAAQMS, CEQMS and uninterrupted video streaming of HD IP camera to the server of the Board. If any technical issues they may contact IT cell immediately to sort out the problems.
- 13) The unit shall immediately go for temporary shutdown of power plant in case ash ponds and ash silos are completely full with ash and ash evacuation could not be possible. This temporary shutdown will be continued till adequate space is available in ash ponds and silos for ash storage.
- 14) The unit shall abide by the fuel policy of the state.
- 15) The unit shall submit time bound action plan **within one month** for compliance to the additional conditions stipulated in Sl. No. '8', '9', '10' & '11'.

The occupier must comply with the conditions stipulated in section A, B, C, D, E, F & G to keep this consent order valid.

To

The Director (Operation)
M/s. OPGC Ltd.
1b Thermal Power Station, Banharpali
Jharsuguda-768 234


MEMBER SECRETARY
STATE POLLUTION CONTROL BOARD, ODISHA

Memo No. 4591 /Dt. 30-03-2024

Copy forwarded to;

- i) Regional Officer, State Pollution Control Board, Jharsuguda.
- ii) District Collector, Jharsuguda
- iii) Director, Mines, Odisha
- iv) D.F.O, Sambalpur
- v) Central Laboratory, SPC Board, Bhubaneswar
- vi) HWM Cell, SPC Board, Bhubaneswar
- vii) Consent Register




CHIEF ENV. ENGINEER
STATE POLLUTION CONTROL BOARD, ODISHA





**GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS
PART-A: EFFLUENTS**

Sl. No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Coastal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/Odourless as far as practicable	-----	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	-----	-----	
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5 ^o C above the receiving water temperature	-----	-----	Shall not exceed 5 ^o C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	----	-----	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	-----	50
10.	Total Kjeldahl nitrogen (as NH ₃) mg/1 max.	100	----	-----	100
11.	Free ammonia (as NH ₃) mg/1 max.	5.0	----	-----	5.0
12.	Biochemical Oxygen Demand (5 days at 20 ^o C) mg/1 max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/1 max.	250	----	-----	250
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/1 max.	0.01	0.01	-----	0.001
16.	Lead (as pb) mg/1 max.	01.	1.0	-----	2.0



CONSENT ORDER

Page 13

17.	Cardmium (as Cd) mg/1 max.	2.0	1.0	-----	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	-----	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	-----	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	-----	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	-----	15
22.	Selenium (as Sc) mg/l max.	0.05	0.05	-----	0.05
23.	Nickel (as Nil) mg/l max.	3.0	3.0	-----	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride (as F) mg/l max.	2.0	15	-----	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	-----	-----	-----
27.	Sulphide (as S) mg/l max.	2.0	-----	-----	5.0
28.	Phenolic compounds as (C ₆ H ₅ OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials a. Alpha emitter micro curle/ml. b. Beta emitter micro curle/ml.	10 ⁷ 10 ⁶	10 ⁷ 10 ⁶	10 ⁸ 10 ⁷	10 ⁷ 10 ⁶
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	-----	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	-----	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-----	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	-----	-----	20 mg/l



PART- B: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO ₂), µg/m ³	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual * 24 Hours **	60 100	60 100	-Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual * 24 Hours **	40 60	40 60	-Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O ₃) µg/m ³	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) µg/m ³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m ³	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH ₃) µg/m ³	Annual* 24 Hours**	100 400	100 400	-Chemiluminescence - Indophenol Blue Method
9.	Benzene (C ₆ H ₆) µg/m ³	Annual *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)- Particulate phase only, ng/m ³	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m ³	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni),ng/m ³	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

** Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.