S.L. No. 32/25

BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
IN
O.A. No. 216 of 2024/EZ

IN THE MATTER OF:
Smt. Haripriya Patel

APPLICANT (S)

VERSUS

State of Odisha

RESPONDENT(S)

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Mrinal Kanti Biswas
Regional Director & Scientist 'E'
CPCB, Kolkata

Filed through

Counsel

Dated: 08.04.2025
Place: Kolkata

NOTARY SUMITRA BHATTACHARYYA City Civil Court Calcutta Regn. No. 065 of 2022 Expiry Date: 1.4.2027 Govt. of West Bengal

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08 APR 2025

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REPLY ON BEHALF OF THE RESPONDENT NO. 03: CENTRAL POLLUTION CONTROL BOARD (CPCB)

1. That, Hon'ble NGT vide order dated 29.11.2024 has sought the reply of respondents, including Central Pollution Control Board (hereinafter referred to as "CPCB") in the instant matter. Thereby, the reply is made in succeeding paragraphs.
2. That, CPCB is a Statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974 (hereinafter referred to as "Water Act, 1974"). It performs the functions under The Water Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 (hereinafter referred to as "Air Act, 1981") and the Environment (Protection) Act, 1986.
3. That, the matter has been taken up by Hon'ble NGT EZB based on a letter petition filed by the Smt. Haripriya Patel referring to an article published in the newspaper Sambad on 11.08.2024 with the heading "50 Nos of ash hill without permission". The matter alleged that around Jharsuguda town, 50 illegal ash hills of about 50-100 ft high, have reportedly been created in various panchayats. Further, it was alleged that after selling the morrum obtained from Government Land, ash is dumped in that land which has created such ash hills without approval from the State Pollution Control Board, Odisha. Similar dumping has also been reported near Lahandabud Hatipada, close to the TPSL factory.
4. That, with regard to the averments in the instant matter, it is humbly submitted that CPCB has already published *"Guidelines for disposal/utilization of the fly ash for reclamation of low lying areas and in using of abandoned mines/Quarries"* in March 2019 (**Annexure I**). These guidelines specify various conditions to be adhered to for the reclamation of low-lying areas using ash in an environmentally sound manner, including obtaining consent/permission in writing from the land owner

X

before the start of work and statutory permission from regulatory authorities such as SPCB.

5. The Ministry of Environment, Forest and Climate Change (hereinafter referred to as *MoEF&CC*), vide Notification No. S.O. 5481(E) dated 31st December 2021, issued guidelines on Ash Utilization by coal or lignite-based thermal power plants, which were further amended in December 2022 and January 2024 (hereinafter referred to as the *Ash Notification*). The notification mandates 100% ash utilization.

   That this respondent craves leave of this Hon'ble Tribunal to submit relevant provisions of Notification on Ash Utilization by coal and lignite thermal power plants 2021 (and subsequent amendments).

6. As per Para A(7) of the Ash Notification dated 31.12.2021: *"Every coal or lignite-based thermal power plant shall ensure that loading, unloading, transport, storage, and disposal of ash are conducted in an environmentally sound manner and that all precautions to prevent air and water pollution are taken. The status in this regard shall be reported to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC)."*

7. As per Para A (9) of the Ash notification dated 31.12.2021, *"Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall provide real time data on daily basis of availability of ash with Thermal Power Plant (TPP), by providing link to Central Pollution Control Board's web portal or mobile phone App for the benefit of actual user(s)"*. In response to that CPCB in association with NTPC and CEA, has developed Ash Portal (https://coalash.cpcb.gov.in/).

8. As per Para B(6) of the Ash Notification dated 31.12.2021, *"Filling of low lying areas with ash shall be carried out* ***with prior permission of the State Pollution Control Board or Pollution Control Committee*** *for approved projects, and in accordance with guidelines laid down by Central Pollution Control Board (CPCB) and the State Pollution Control Board or Pollution Control Committee (PCC) shall publish approved sites, location, area and permitted quantity annually on its website"*. In this regard, CPCB has already laid down *"Guidelines for disposal/utilisation of Fly Ash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries"* as referred to in the above Para 4;

9. Further, vide directions dated 14.10.2024 (**Annexure II**) CPCB directed concerned SPCBs to ensure effective implementation and monitoring of Ash Notification 2021 (and subsequent amendments), registration and regular uploading of monthly ash generation and utilization data in Ash

NOTARY GOVT. OF West Bengal SUMIT BHATTACHARYA City Civil Court Calcutta Regn. No. 065 of 2022 Expiry Date: 1.4.2027

portal and also periodical monitor for the compliance of *"Guidelines on design, Construction, O&M and Annual Certification of Coal Ash Ponds"* published by CPCB and CEA in June 2023.

That this respondent craves leave of this Hon'ble Tribunal to submit relevant provisions of CPCB Guidelines on design, Construction, O&M and Annual Certification of Coal Ash Ponds.

10. Further, Hon'ble NGT in its order dated 29.11.2024, constituted a fact finding committee comprising of DM Jharsuguda, State Pollution Control Board Odisha, and Central Pollution Control Board. As per the said order, DM Jharsuguda is the Nodal Office for all logistic purposes as well as for filing of Joint Committee Report on Affidavit. The said committee has carried out site visit on 19.12.2024 and report of the committee shall be filed by the nodal agency.

11. That, the answering respondent craves leave of the Hon'ble Tribunal to file additional replies in future, if required.

12. That, in light of the above submissions, it is respectfully submitted that this answering respondent, i.e., CPCB, shall abide by any order(s) or direction(s) passed by this Hon'ble Tribunal in this Original Application.

Mrinal Kanti Biswas
Regional Director & Scientist 'E'
CPCB, Kolkata

NOTARY
SUMITRA BHATTACHARYYA
City Civil Court
Calcutta
Regn. No. 065 of 2022
Expiry Date: 1.4.2027
Govt. of West Bengal

BEFORE THE NATIONAL GREEN TRIBUNAL

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IN

O.A. No. 216 of 2024/EZ

NOTARY Govt. of West Bengal SUMITRA BHATTACHARYYA City Civil Court Calcutta Regn. No. 065 of 2022 Expiry Date: 1.4.2027

IN THE MATTER OF:

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APPLICANT (S)

VERSUS

State of Odisha

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AFFIDAVIT

I, Mrinal Kanti Biswas, S/o Saroj Kumar Biswas aged about 43 years, having office at the Regional Directorate, Central Pollution Control Board, Southend Conclave' Block No.502, 5th& 6th Floor, 1582, Rajdanga Main Road, Kolkata-700107, do hereby solemnly affirm and sincerely state as follows: -

1. That the deponent is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

Solemnly Affirmed and Declared befofe me U/S 139 CPC (C)
Notary
Sumitra Bhattacharyya
Sumitra Bhattacharyya
Notary,Govt. of W.B.
Regd. No. 065 of 2022
City Civil Court. Calcutta

0 8 APR 2025

DEPONENT

Identified by me

Advocate

VERIFICATION

Verified at Kolkata on this day of _____ 2025 that the contents of the above reply are correct and true on the basis of the record of the cases as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

Verified at Kolkata on this the....Day of _____ 2025.

DEPONENT

Identified by me

Advocate

CWB 535-A/1998

NOTARY
SUMITRA BHATTACHARYYA
City Civil Court
Calcutta
Regn. No. 065 of 2022
Expiry Date:
1.4.2027
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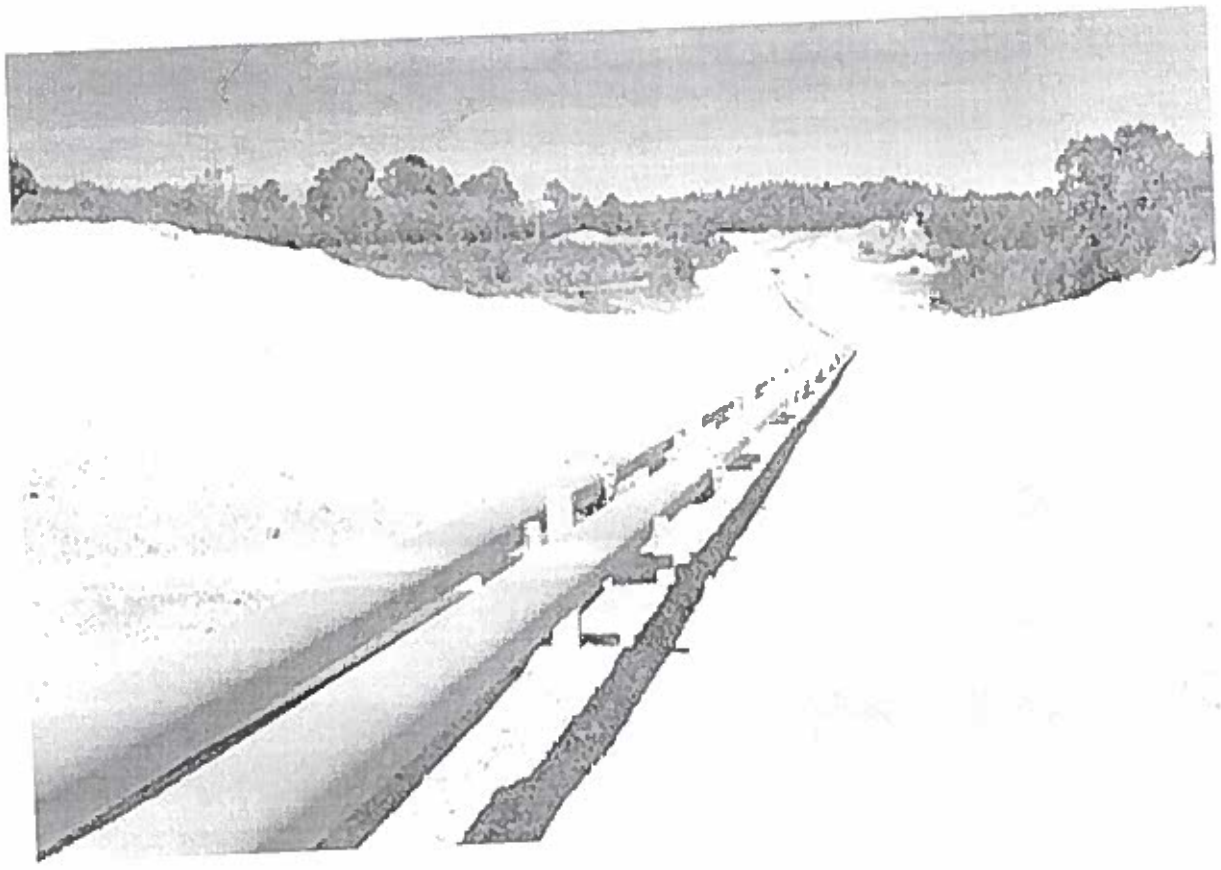
Annexure-I

Guidelines for disposal/utilisation of Fly Ash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries



cpcb

Central Pollution Control Board
March, 2019

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2.Guidelines for Low Lying area development using Ash, ash Policy 2015, NTPC Ltd.

3.Permission of DGMS to M/s JSPL & JPL for disposing ash in coal mines

Guidelines for disposal/utilisation of flyash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries

1.0 Introduction:

Management of huge quantity of ash (fly ash, bottom ash and pond ash) generated from coal fired Thermal Power Plants (TPPs) is a serious environmental challenge. Ash generation from coal or lignite based thermal power plants, has increased from 40 Million tonne per year in 1993-94, to more than 200 Million tonne per year in 2017-18 and is projected to increase to 275 Million Tons / year by 2032.

The ash generation in coal and lignite based thermal power plants in various forms such as dry ash, bottom ash, pond ash and mound ash that are required to be managed in such a manner that it does not affect the environment. Utilisation of ash for reclamation of low lying areas and abandoned quarries is recognised as an alternate option and therefore, MoEF&CC has issued a notification to address utilisation off ash for various purposes including these two options

The Ministry of Environment, Forest and Climate Change (MoEF&CC) issued the Fly Ash notification on 14th September, 1999, which has subsequently been amended in 2003, 2009 and 2016. The Fly Ash notification (1999) mandates the use of fly ash for the purpose of manufacturing ash-based products such as cement, concrete blocks, bricks, panels or any other material and for construction of roads, embankments, dams or for any other construction activity within a radius of 300 km from thermal power stations (TPPs). Besides, it also mandates use of fly ash in mines backfilling or stowing of mines within a distance of 50 km.

2.0 Status of fly ash utilisation:

Since 1999 when flyash utilisation was made mandatory, the utilization of fly ash has increased from 6.64 million-ton in 1996-97 to 147.7 million-ton in 2017-18. Fly ash generation and utilization in 2017-18 from 182 coal/lignite based TPPs of various power utilities in the country was 220.7 and 147.7 million-ton, respectively. The percentage of fly ash utilization during 2017-18 has been 66.9%. During 2017-18, out of total fly ash generation, 35.6 % of total fly ash was used in the cement sector, followed by 14.28 % in making bricks & tiles, 11.57 % stored in ash dyke raising,

7.99% in mine filling, 16.85 % in reclamation of low lying area, 5.43 % in roads & embankments, 1.34% in concrete making, 0.21 % in agriculture, 6.73 % in others and 33.1% remained as unutilized fly ash.

Mine reclamation represents a potential beneficial use of flyash that has been receiving increased attention in recent years. Coal mining operations have produced both open pits and deep underground mine voids that can be filled by flyash. Placement of flyash into deep mines can provide structural support to abate subsidence, and placement of flyash in surface mines or other open pits can aid in restoring mined land to beneficial use. The use of flyash as mine backfill may provide the additional benefit of limiting impacts of acid mine drainage (AMD). Mostly flyashe is alkaline material that can neutralize acidic water and/or inhibit production of acid. Placement of fly ash may also reduce the permeability of mine strata and divert water away from acid-generating materials. Although flyash possess these beneficial physical and chemical properties, there are concerns regarding potential for release of toxic chemicals in the leachates from the fly ash. Therefore, scientifically sound fly ash management is needed so that environmental concerns can be adequately and reliably identified and addressed.

3.0 Need of Guidelines:

Ministry of Environment and Forests and Climate Change (MoEF&CC) vide Notification No. S.O. 763 (E) dated 14th September 1999, last amended on 25th January, 2016 issued following directions for reclamation low lying area and stowing of mines;

i. No agency, person or organization shall within a radius of three hundred Kilometres of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low-lying areas with soil; only ash shall be used for compaction and reclamation.

ii. Soil required for top or side covers of embankments of roads or flyovers shall be excavated from the embankment site and if it is not possible to do so, only the minimum quantity of soil required for the purpose shall be excavated from soil borrow area. In either case, the topsoil should be kept or stored separately. Voids created at soil borrow area shall be filled up with fly ash with proper compaction and covered with topsoil kept separately as above and this would be done as an integral part of embankment project.

iii. No person or agency shall within fifty kilometers (by road) from coal or lignite based Thermal Power Plants, undertake or approve stowing of mine without using at least 25 % of fly ash on weight to weight basis, of the total stowing materials used and this shall be done under the guidance of the Director General of Mines Safety (DGMS).

iv. No person or agency shall within fifty kilometers (by road) from coal or lignite based Thermal Power Plants, undertake or approve external dump of mining Over Burden (OB) without using at least 25 % of ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of back filling of opencast mines and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

v. All agencies undertaking construction of roads of flyover bridges and reclamation and compaction of low lying areas, including Department of Road Transport and Highways (DORTH), National Highways Authority of India (NHAI), Central Public Works Department (CPWD), State Public Works Department and other State Government Agencies, shall within a period of four months from the publication of this Notification " make provisions in their tender documents, schedules of approved materials and rates as well as technical documents for implementation of this Notification, including those relating to soil borrow area or pit".

vi. The pond ash should be made available free of any charge as is as where basis to manufacturers of bricks, blocks, tiles including clay flyash bricks production manufacturer's units, farmers, central and the state road construction agencies, Public Works Department and to agencies engaged in backfilling or stowing of mines.

Though, flyash utilisation has gained momentum progressively over the years, further efforts are required to explore new areas of ash utilisation. With suitable safeguards, mine backfilling including disposal of flyash in abandoned quarries and road construction specially in the construction of National Highways and Expressways could be the major mode of flyash utilisation in the near future as these areas have vast potential. It would perhaps be desirable that the concerned Ministries should take steps in sorting out the bottlenecks such as declaring a list of abandoned mines, making adequate provisions in respective schedules for flyash utilisation by the Indian Road Congress & construction agencies etc.

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MoEF & CC vide letter dated 01.03.2019 asked CPCB to come out with guidelines based on Odisha Pollution Control Board experience for reclamation of low lying areas and abandoned quarries with ash as recommended by the Expert Committee that was constituted by Niti Aayog vide O.M. No. 25 (11)/2014-Minerals dated 12.06.2018 for developing a focus strategy for best utilisation of fly ash to manufacture end products recommended.

The scope of guidelines covers transportation and disposal of flaysh in low lying areas and abandoned quarries in an environmentally friendly manner.

4.0 Loading/unloading and transportation of flyash

4.1 Current Practice for Handling & Disposal of Flyash & Bottom ash (within the power plant)

Flyash is collected in dry form from ESP hopper and disposed either in dry form or through wet slurry form. While, bottom ash collected at the bottom of boiler and is disposed in wet slurry form into the ash ponds.

Following technologies are conventionally used for handling & disposal of flyash and bottom ash collected from ESPs hoppers and boiler bottom respectively within the plant or upto the ash pond area:

I. Dry Pneumatic conveying
II. Dry (moist) Conveying system through belt conveyor/tube belt conveyor
III. High concentration slurry disposal system
IV. Medium concentration slurry disposal system
V. Lean concentration slurry disposal system

Amongst the above technologies, Dry Pneumatic conveying, Medium concentration slurry disposal system, High concentration slurry disposal system, and Dry (moist) Conveying system through belt conveyor/tube belt conveyor are preferable as compared to Lean concentration slurry disposal system.

The dry ash is typically conveyed pneumatically from the ESP or filter fabric hoppers to storage silos where it is kept dry, pending utilization or further processing, or to a system where the dry ash is mixed with water and conveyed (sluiced) to an on-site storage pond. Fly ash is stored in silos, domes and other bulk storage facilities. Fly ash can be transferred using air

slides, bucket conveyors and screw conveyors, or it can be pneumatically conveyed through pipelines under positive or negative pressure conditions.

Dry fly ash collected is also be suitably moistened with water and wetting agents, as applicable, using specialized equipment (conditioned) and hauled in covered dump trucks for special applications such as structural fills. Water conditioned fly ash can also be suitably stockpiled at jobsites. Exposed stockpiled material must be kept moist or suitably covered to prevent fugitive emission.

The dry bottom ash removal and its transportation is certainly more environment friendly, compared to that of wet ash removal and transport system.

4.2 Guidelines for loading, unloading, storage, transportation of flyash

The power plants need to maximise dry collection of fly ash & bottom ash and also adopt adequate measures to prevent fugitive dust emission during loading, unloading, storage, transportation and various uses of dry as well as ash bottom ash and pond ash. Following guidelines are, therefore, suggested for prevention of pollution and augmentation of flyash utilisation

4.2.1 Maximise dry collection of fly ash and bottom ash

a. Coarse fly ash from first field of ESP hoppers need to be collected and stored separately.

b. Fine fly ash from second field onwards of ESP Hoppers should be collected separately. For some specific usage, fine fly ash may be passed through Classifier for further separation of fine fly ash and stored in separate silo.

c. Bottom ash which is not utilised presently could also be collected in dry form and converted into a valuable resource if processed to match the end use specification. Wet collection & disposal of bottom ash should be minimised as far as possible

4.2.2 Loading, Unloading and Storage

Installation of Bag Filters with dry flyash collection and storage in Silos at loading and unloading points are standard practices at both locations i.e loading at power plant site as well as at the unloading point at user's site. Suggestions for further improvement in existing practices are as under:

a. Current practice of loading of fly ash in Bulkers/Tankers requires improvement at the stage of loading of fly ash in Tankers. The opening of telescopic chutes at the loading end should be air tight and confined to avoid fugitive dust emission.

b. The Pollution Control Equipment / Cascade Filters, attached with fly ash loading chute should be periodically cleaned along with regular scheduled maintenance of bag filter to avoid choking and malfunctioning of Bag Filter. It would mitigate the dust emission during loading of fly ash.

c. Malfunctioning of level sensors can be avoided, with regular maintenance, to prevent over filling of fly ash in Tankers .

d. The Weigh Bridge to be installed under fly ash loading chute to fill just the required quantity of fly ash in tankers so that overflow/spillage of fly ash in open areas is avoided which otherwise results in heavy fugitive emission all around.

e. Opening of tankers need to be properly locked during transportation of fly ash. Automatic opening / closing system need to be installed without fail.

f. Current practice of unloading of fly ash from tanker to storage hopper through pneumatic system is fairly good. Otherwise, the leakage of fly ash will occur at bends and joints of transportation pipe line. The fly ash being abrasive in nature causes damage at bends and joint locations. Fly ash should, therefore be transported through PVC coated pipes to avoid abrasion otherwise it may lead to leakage of flyash. The mechanical unloading system should be envisaged to avoid high pressure and dust leakage from unloading pipe lines. As far as possible, number of bends should be minimised.

g. The fly ash storage silo should be of or coated with anti-abrasive or anti-corrosive material. It is better to provide concrete silo/hopper to avoid leakages.

h. Proper functioning of all the level sensor of Storage Hopper to be ensured to avoid any possible spillage from Hopper opening.

i. The Bag Filter made of anti-abrasive material/cloth be provided with telescopic chute.

j. Dumping of ash in Ash pond should be done mechanically in moist condition so that ash does not get air borne and pose fugitive dust problem.

k. The bottom ash discharged from boiler bed, may be transported pneumatically in dry form / in slurry form to the ash pond

4.2.3 Transportation

Fly ash transportation has many challenges like distance to be transported, form of ash i.e. dry or wet ash, user's requirement, economic feasibility, requirement of surrounding vicinity and many other site specific issues. In any case, control of dust emission during transportation is prime concern and more challenging being a non-point source of pollution and larger area coverage due to movement from one place to other passing through various receptors. As flyash is used by different users for different purposes such as cement manufacturing, brick manufacturing, mine back filling, road construction and filling of low lying area, the handling and transportation have to accordingly decided. Following modes of transportation and precautions are suggested for mine back filling and development of low lying areas by disposal of flyash or bottom ash to avoid fugitive dust emission:

a. Transportation for abandoned mine back filling

I. Pipe conveyors, wherever feasible, based on the topography of the area should be used.

II. Tankers/ railway wagons/ bulkers or mechanically designed covered trucks need to be used

III. Thermal Power Plants using wet ash disposal, if permitted can transport ash slurry directly to abandoned mine through ash slurry pipe line.

b. Transportation for filling of low lying area

I. Tankers/ bulkers or mechanically designed covered Trucks need to be used.

In no case, flyash or bottom ash shall be transported by open trucks / trollies irrespective of distance or end use. Thermal power plants and fly ash user agency shall collectively ensure that fly ash or bottom ash is transported in environmentally sound manner by following the guidelines mentioned in para 4.2.3 & 4.2.4.

4.2.4 General Code of Practices for Maintenance of roads, vehicles and conditioning of flyash

a. Roads inside power plant and that of flyash user agency should be paved and plantation of adequate width should be done at both sides. Mechanised road sweepers should be deployed. In addition, adequate arrangements for water sprinkling should be made to suppress fugitive dust emission, if any.

b. Thermal power plants and user agencies should make arrangements (two stages) for washing of wheels of the vehicles (bulkers/trucks) before deployed for fly ash ransportation.

c. Pond ash to be transported should be conditioned with water to maintain minimum of 15% moisture at the disposal point so that ash does not get air borne and cause fugitive emission.

d. Adequate free board in trucks should be kept to avoid overflow/spillage during transportation.

e. In case of any spillage enroute during transportation of fly ash, the agency shall ensure that spilled ash is collected and transported to the disposal/usage site immediately.

f. All the bulkers and trucks responsible for carrying fly ash should be with valid Pollution Under Control certificates.

g. Provision should be preferably made for weighing of fly ash loaded into tankers/ railway wagons/bulkers etc under the silo.

h. The speed limit of vehicles carrying flyash should be strictly enforced and it should not exceed 40 km per hour.

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i. State Pollution Control Boards shall clearly indicate mode of transportation and method of loading and unloading while granting the consent.

j. Transportation of flyash through thickly populated areas should be avoided as far as possible.

k. General awareness/ training programmes be organised regularly for tanker operating staff like drivers and cleaners on the impact of hazards of fly ash.

5.0 Reclamation of Low Lying area using Ash

Filling of Low lying areas inside the plant premises and outside within 300 km. of power plant may be taken up using ash. Low lying area reclamation with ash should be taken up adopting standard practices as per 2015 technical specification mentioned in NTPC Policy. Following steps should be taken up prior to initiate low lying area developmental activities.

5.1 Preconditions:

5.1.1 **Consent from land owner:** Consent/ permission should be obtained in writing from the land owner before start of work.

5.1.2 **Permission from Regulatory authority:** Power plant/ land owner/ agency shall obtain statutory permission from regulatory authorities such as SPCB as per the requirement.

5.1.3 **Prevention of pollution:** Suitable methods should be adopted and necessary arrangement should be made to prevent pollution during excavation of pond ash at ash pond, filling area and during transportation of ash.

5.1.4 **Soil Cover on the top of ash fill:** As per the MOEF&CC gazette notification of ash utilization dated 14-09-1999 and as amendment on dated 27-08-2003 and 03-11-2009, the soil required for soil cover shall be excavated from land fill site itself and kept separately before taking for ash filling. If it is not possible to do so, only the minimum quantity of soil required for the purpose of cover shall be excavated from the soil borrow area. The voids so created due to removal of soil shall be filled up with ash with proper compaction and covered at top with soil cover. About 300-500 mm thick soil layer shall be placed over the ash fill area. This should be done as an integral part of low lying area development work.

5.1.6 **Restrictions :**

Reclamation of area by ash shall not be permitted in the following areas :

i. Flood plain area/Ecologically Sensitive Areas.
ii. Agriculture land / area.
iii. Reclamation of Forest land / area is permissible only if clearance from MoEF&CC as per Forest Conservation Act, 1980 is available.
iv. Gochar Kisan Land.

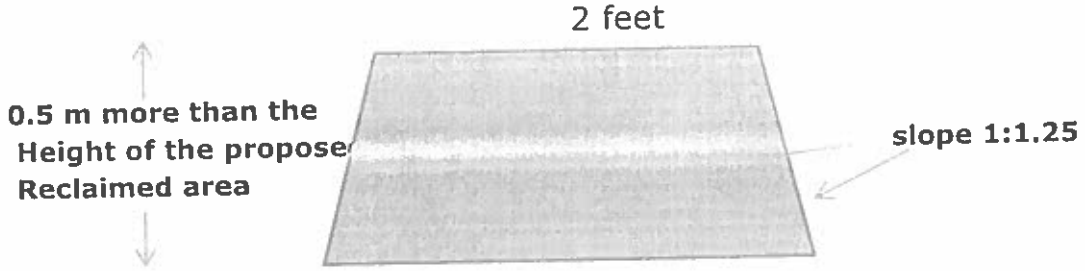
5.2 Preparation of filling area

5.2.1 The entire area meant to receive the ash and earth filling shall be stripped by minimum 150 mm. The exact depth of stripping shall be decided by the Engineer-in-Charge depending upon nature of top soil and the vegetation present. All organic matter, vegetation, roots, stumps, bushes, rubbish, swamp materials, etc. shall be removed from the site. The stripping material and other unsuitable materials as referred above shall be kept away from the area to be filled up so that these do not get mixed up with filling material and disposed off to a place as decided by the Engineer-in-Charge.

5.2.2 Levelling

All existing undulations, holes, cavities and excavations made for plate load rests and other soil investigations, etc. shall be filled with pond ash having requisite moisture content. The ash thus filled shall be compacted with the help of vibratory rollers so as to achieve dry density of not less 95% as per I.S–2720 (Part-VII). This would result in a levelled surface upon which layer wise filling of compacted ash can be done.

5.2.3 Protection of pond or water body adjoining or within the working site: If any pond or water body exists within or adjoining the low lying area /quarry then an earthen embankment of the cross-section as given in the Figure below be constructed around the pond or water body to protect it from
spilling of ash or ingress of surface runoff into it.



Cross- section of water body protection embankment

The soil used for the embankment should neither be granular nor black cotton soil. It should be of good quality for geo-technical application. Soil should be compacted to 95% proctor by Vibratory Roller of 15 T minimum capacity, in the layers of 25-30 cm and the optimum moisture content determined before execution of work. After attaining the desired height, the disposal area should be thoroughly compacted, graded followed by soil cover at least 15 cm thickness for proper reclamation of the land by grass turfing or appropriate plantation.

5.3 Excavation of pond ash from borrow area

5.3.1 Borrow Area-location

The location and permissible depth of excavation of the Borrow areas for pond ash shall be got specifically approved from concerned Thermal Power Station. The boundaries and permissible depth of excavation so approved shall be strictly followed and no deviation shall be allowed. Similarly, routes for movement of all ash transportation vehicles, water tankers, equipment, etc. shall be got approved from Thermal Power Station. These shall be strictly followed and no deviation shall be allowed.

The excavation surfaces and surface of waste materials shall be left in a reasonably smooth and even condition. All the excavations within the ash pond shall be at a minimum slope of 4 (Horizontal): 1(Vertical)

5.3.2 Site Clearance

All areas required for borrowing shall be cleared of all trees and stumps, roots, bushes, rubbish and other objectionable material. Particular care shall be taken to exclude all organic matter from the ash to be placed in the fill. The cleared areas shall be maintained free of vegetation growth during the progress of the work.

5.3.3 Stripping

Borrow area shall be stripped of top layer by a depth of minimum 150 mm. The exact depth of stripping shall be decided by the Engineer-in-charge depending upon nature of top layer and the vegetation present.

5.3.4 Borrow area watering & dewatering

The natural moisture content of material in the borrow areas as well as the optimum moisture corresponding to the Proctor's maximum dry density for the material in the particular borrow area shall be obtained from laboratory tests. Additional moisture, if required, shall be introduced into the borrow area by watering well in advance of excavation to ensure uniformity of moisture content. If in any borrow area before or during excavation there is excess moisture, steps shall be taken to reduce the moisture by the selective excavation to secure the materials of required moisture content by excavating drainage ditches, by all owing adequate time for drying or by other means. To avoid formation of pools in the borrow areas during excavation operations, drainage ditches from borrow areas to the nearest outlets shall be excavated so as to obtain homogeneous mix. In general, all materials from a particular borrow area shall be mixture of materials obtained for the full depth of cut.

5.3.5 Earth cover in Borrow Area

It shall be the responsibility of Thermal Power plant to arrange sweet soil from approved external borrows areas. The earth cover material shall consist of sandy loam free of admixture of stiff clay, refuse, stumps, roots, rock, bushes, weeds or any other material which would be detrimental to the proper development of vegetation growth. It shall not contain stone of size 25 mm and over . The loamy top soil shall be of healthy crops, grass or other plant growth, that is of good quality and reasonably free draining. Other specifications for Borrow area e.g. site clearance, stripping, Borrow area watering/De-watering etc. shall be as per relevant clauses of Borrow area for ash as outlined above i.e clause nos. 5.3.1 to 5.3.4.

5.4 Filling with pond ash

5.4.1 Placement

After the area has been prepared and levelled, pond ash excavated from Borrow areas having required moisture content shall be placed in layers not exceeding 300 mm in compacts thickness. The placing operations shall be such that in strips of 10-15 m of the material when compacted in the fill will be blended sufficiently to produce specified degree of compaction and stability. No stones, cobbles or rock fragments, having maximum dimensions more than 100 mm shall be placed in the fill. Stones and

cobbles shall be removed either at the borrow pit site before it is used as soil cover.

5.4.2 Procedure

The material shall be placed in the fill in continuous horizontal layers, stretching right across the whole section, not more than 300 mm in compacted thickness and rolled as herein specified. The length of one layer shall not exceed 150 meters at one stretch. The layers shall be compacted in strips overlapping not less than 600 mm, if the rolled surface of any fill is found to be too wet for proper compaction, it shall be raked up, allowed to dry, or shall be worked with a harrow or any other approved equipment to reduce the moisture content to the required amount and then it shall be re-compacted before the next layer of ash is placed. Ash surfaces are likely to become dry in short intervals especially during hot and dry weather and hence enough moisture shall be added between difference passes to ensure proper compaction

5.4.3 Compaction

The compaction of each layer shall be carried out so as to achieve maximum in-situ dry density 95% of maximum dry density (MDD) of the material found out as per I.S 2720 (Part VII). To achieve maximum compaction level use of vibratory rollers shall be made. Required number of passes shall be made so as to achieve desired compaction. Number of passes required shall be verified through trials tests before actual execution of work. The broad specifications of vibratory rollers required for the purpose is as follows:

a)Static Weight = 6 to 10 t
b)Static Linear Load = 20 – 35 kg/cm
c)Frequency = 18 – 30 Hz (1100 to 1800 vibrations/ minute)
d)Amplitude of vibrations = 0.5 mm to 1.5 mm

5.4.4 Moisture control

So far as practicable, the materials shall be brought to the proper moisture content in the borrow area before excavation. If additional moisture is required, it shall be added at the fill site by sprinkling water before rolling the layer. Thermal Power Plant shall make arrangements for supply of water to the borrow areas as well as to the fill area. If the moisture content is more than requirement, the material shall be spread and allowed to dry

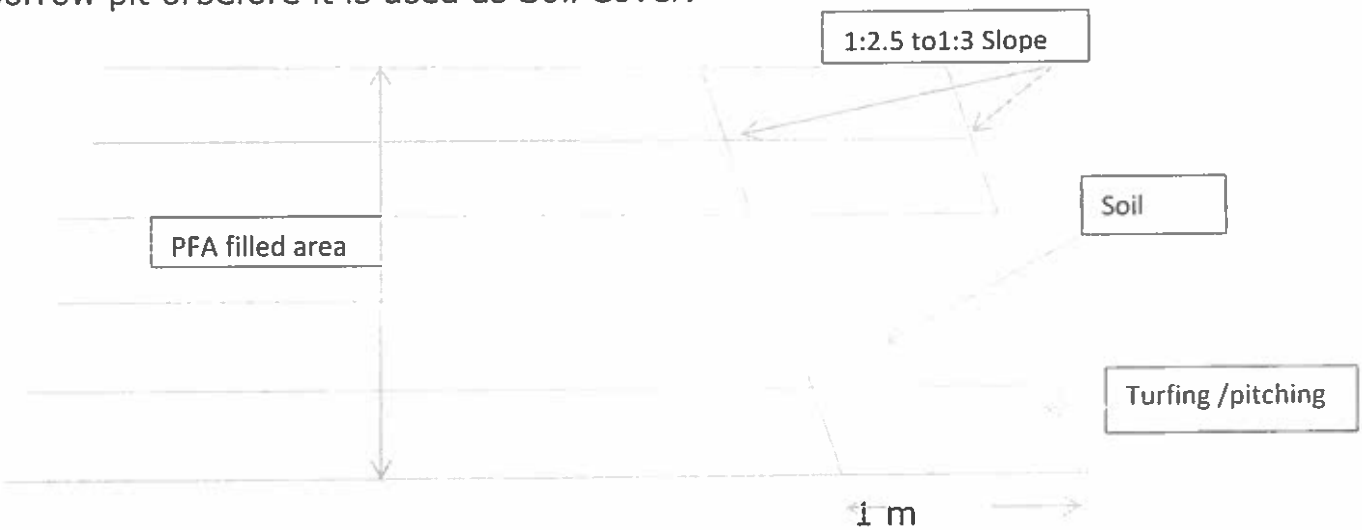
before rolling. The moisture content shall be at most uniform throughout the layer of material and ploughing or other methods of mixing to obtain uniform distribution. If the moisture content is more or less than the range of the required moisture content, or if it is not uniformly distributed throughout the layer, rolling shall be stopped, and shall be started again only when the above conditions are met with.

Fill materials shall be placed only when the weather conditions are satisfactory to permit accurate control of the moisture content in the materials.

5.4.5 **Placement of earth cover in filing area**

Earth cover shall be laid simultaneously with the laying of compacted ash layers and on side slopes. As in the case of ash layers, compacted thickness of earth layers shall not be exceeding 300 mm. As far as top cover of earth is concerned, after the area has been covered with compacted ash up to 500 mm below the required finished level of the area, a compacted layer of 500 mm thickness of suitable earth shall be placed over ash surface. This cover shall be placed in layers, each layer shall be of 250 mm in compacted thickness.

The combined excavation and placing operations shall be such that the materials when compacted in the fill will be blended sufficiently to produce specified degree of compaction on stability. No stones, cobbles or rock fragments, having maximum dimensions more than 25 mm shall be placed in the earth cover. Such stones or cobbles shall be removed either at the borrow pit orbefore it is used as Soil Cover.



Exposed boundary configuration

Other requirements of earth cover laying shall be similar to those of ash laying i.e. as outlined in 5.4.1 to 5.4.4 above.

5.5 Prevention of Pollution

It shall be responsibility of thermal power plant or his contractor that no air borne and water borne pollution shall occur during all stages of operations such as in Borrow areas, during transportation of ash/ earth, during placement of fill material etc. All measures such as water sprinkling covering moist ash/ earth with tarpaulins in open trucks, etc., shall be taken to done care of above.

6.0 Disposal of flyash in voids of abandoned mines

As per notifications 1999 and 2009, power plant shall undertake or approve stowing of mines without using at least 25% of fly ash on weight to weight basis, of the total stowing materials used. Mine void filling on pilot basis is being carried out at the power plants of NTPC Ltd., Bhushan Steel and NALCO in Odisha with prior permission from MoEF & CC and OSPCB. Based on their experience and study conducted by CMPDIL, Ranchi for NTPC Talcher, following methodology is suggested for filling of mine voids with flyash.

6.1 The power plant authority shall carry out following study prior to taking up ash disposal activities in mine void to ensure no change/damage/deterioration in water quality and hydrology in and around the proposed area:

- Ash Characterisation and Leachate Study (Table 1.1)
- Techno-Economic Feasibility Study for disposal of ash into the Quarry
- Topographical Survey of Pipeline Corridor & Mine Void area
- Feasibility of transportation of ash to mine void
- Geotechnical study of the Pipeline Corridor & Mine Void area
- Pre and post filling mine water quality including leachability of metals (Table 1.1)

6.2 Mode of ash transportation to mine void area

One of flowing mode of transport actions of flyash shall be used depending upon the topography of the area:

1. Pipeline using pneumatic conveying system

2. Dumpers/ Trucks
3. Merry Go Round (MGR) System
4. Belt Conveyors in case of dry ash disposal
5. Wet ash (lean slurry or high concentration slurry) through pipeline

6.3 Monitoring:

6.3.1 Regular environmental monitoring to be undertaken during the period of disposal of ash into mine void as well as after the reclamation of mine void. The detailed monitoring programme is given in Tables below:

Table 1.1 : Proposed Monitoring Programme during Disposal of Ash

Samples	Parameters to be Analysed	Frequency
Ash Samples	Chemical Parameters (%): SiO_2, Al_2O_3, Fe_2O_3, K_2O, TiO_2, CaO, MgO, Na_2O, P_2O_5, SO_3 Trace Elements (mg/kg, using TCLP Test): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn Radio-activity (Bq/kg): ^{238}U, ^{236}Ra, 232_{Th}, 228_{Ra}, 230_{Pb}, 40_K, 137_{Cs}	Once before initiation of filling
Ash Leachate Analysis	Trace Elements (mg/kg, using TCLP Test): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn	Once a year
Piezometer Water Samples	Chemical Parameters (mg/l, except, pH and EC): pH, EC, TDS, Total Alkalinity, Ca, Mg, Na, K, Cl, SO_4, NO_3, PO_4, Trace Elements (mg/l): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn	Monthly
Mine Water Sample	Same as above	Monthly
Ground Water	Same as above	Twice a year - Pre-monsoon and Post-monsoon
Surface Water Samples	Same as above	Twice a year - Pre-monsoon and Post-monsoon
Soil Samples	Texture, type, pH & cation exchange capacity. Trace Elements (mg/l): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn	Once a year

Survey of Flora and Fauna	• Listing of Flora (herbs, shrubs and trees) and Fauna (soil invertebrates and other animals) based on field observations and review of information available • Analysis of trace elements in plants (herbs, shrubs and trees), the invertebrates • Analysis of trace elements in aquatic fauna from the mine void filled with fly ash • Bio-accumulation and Bio-magnification tests	Once in two years

Table 1.2: Proposed Monitoring Programme After Reclamation of Mine void

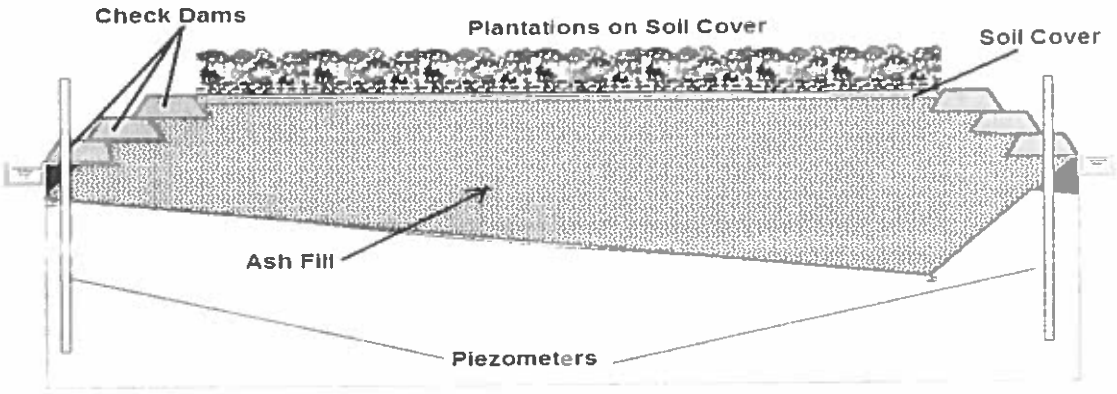
Samples	Parameters to be Analysed	Frequency
Piezometer Water Samples	Chemical Parameters (mg/l, except, pH and EC): pH, EC, TDS, Total Alkalinity, Ca, Mg, Na, K, Cl, SO_4, NO_3, PO_4, Trace Elements (mg/l): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn	Twice a year - Pre-monsoon and Post-monsoon
Ground Water Samples	Same as above	Once a year - Pre-monsoon
Surface Water Samples	Same as above	Once a year - Pre-monsoon
Survey of Flora and Fauna	• Listing of Flora (herbs, shrubs and trees) and Fauna (soil invertebrates and other animals) based on field observations and review of information available • Analysis of trace elements in plants (herbs, shrubs and trees), the invertebrates • Analysis of trace elements in aquatic fauna from the mine void filled with fly ash • Bio-accumulation and Bio-magnification tests	Once in five years

In the event of deterioration of environmental quality, the same will be reported to concerned SPCB immediately and suitable preventive/ corrective action will be undertaken.

6.4 Reclamation of Land filled site

After the quarry is filled to the permitted height as per DGMS, the same shall be provided with a soil cover and plantation shall be done with local fast growing species (preferably trees), to make it a part of the overall

post-mining land use pattern envisaged in the mine closure plan The design of surface contours and land profile will be in consonance with the surrounding features. A three tier plantation approach (consisting of large trees, smaller trees and shrubs) will be followed for overall eco-restoration of the area. This will also help in checking the surface run-off, preventing the water from percolation and maintaining the aesthetics beauty of the surrounding in general. A conceptual diagram of the reclaimed mine void is presented below.



Conceptual Plan for Reclamation of Mine Void (Drawing not to Scale)

During the mine void reclamation, the following measures are to be undertaken:

i. Storm water drains shall be constructed for channelizing the run-off water away from the disposal site.

ii. A 30 cm thick soil cover shall be provided to promote vegetation growth.

iii. For plantation purpose, preference shall be given to both native species and mixed culture. The species will be selected carefully from the following groups for quick reclamation under the guidance of a taxonomist:

- Tree species for fuel wood and timber
- Forestry type tree species.
- Tree species with dense foliage for shade.
- Native species.

iv. However, fruit bearing species shall be avoided.

7.0 Precaution

The following precautionary measures are required for safe working during the reclamation activity:

(i) Appropriate measures should be taken to prevent entry of cattle/livestock inside the disposal area during execution period.
(ii) Care shall be taken to avoid any kind of nuisance / inconvenience to the public due to such dumping / filling activities.
(iii) Water sprinkling for dust suppression during handling of Ash shall be ensured from being air borne.
(iv) After complete reclamation of the site, sign board shall be kept indicating the low lying land / abandoned quarry has been reclaimed with ash. This will help to propagate the message of mine void using ash.

8.0 Regulatory Procedure for Processing the Application for consideration of grant of permission for Reclamation of Low Lying Areas / Abandoned Quarries :

8.1 The activity of reclamation of Low Lying Areas / Abandoned Quarries will be regulated under the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air Water (Prevention and Control of Pollution) Act, 1981. The stipulations specified in this guideline is consistent with the provisions of Fly Ash Notification, 1999 and amended thereafter which should be a special condition mentioned in consent order issued under the Water (Water (Prevention and Control of Pollution) Act,1974 and the Air Water (Prevention and Control of Pollution) Act, 1981. Thereafter any deviations from the guidelines shall be treated as violation of both Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 and action as deemed proper shall be taken under Consent Administration by the Board.

8.2 Necessary clearances shall be obtained from the concerned agencies such as DGMS, SPCB, IBM, MoC, etc .

Appendix

Guidelines for disposal of flyash in open cast mines along with Over Burden (OB)

As per notifications 1999 and 2009, "No person or agency shall within fifty kilometres (by road) from coal or lignite based Thermal Power Plants, undertake or approve without using at least 25 % of ash on volume to volume basis of the total materials used for external dump of overburden (OB) and same percentage in upper benches of back filling of opencast mines and this ***shall be done under the guidance of the Director General of Mines Safety (DGMS).***

The methodology as approved by Directorate General of Mine Safety (DGMS) in case of M/s JSPL & JPL (RGR/JPL/P-98(1) &(3)/Flyash/18/2014/1518 dated 31.07.2014) may be referred for filling ash in coal mines. **However, for each case separate approval of methodology from DGMS shall be sought.** Following methodology for disposal of flyash in open cast mines along with Over Burden in case of JSPL was approved by DGMS.

1.1 Distance of the internal/overbuden dump area from the working faces of mine shall not be less than 100 m.

1.2 The area of filling ash shall be specifically earmarked and the same shall be marked on the plan and dumping fly ash shall be carried out accordingly.

1.3 Height of each deck shall not be more than 30 m and the total height of the dump shall not exceed 90 m.

1.4 The road leading to the dump site for transportation of fly ash shall be independent from the main haul road for transporting OB to the dump site from the mine.

1.5 Method of dumping fly ash

1.5.1 The fly ash shall be dumped in alternate layers/stages, of height not exceeding 5.0 m in each layer/stage.

1.5.2 Initially a row of OB dumps not less than 15.0 m width shall be dumped having height of 5.0 m all around the area proposed for ash dump over a deck (of 30.0 m height) of only overburden dump adequately compacted. A number of such areas shall be formed in a layer/stage wherein the fly ash shall be dumped so that one dump of fly ash is separated by another with 15 m wide over burden dump.

1.5.3 Thereafter, fly ash (25%) and overburden shall be dumped within the area surrounded by such OB dumps. In this manner, the dumping shall be laid in the section/layer of 5.0 m height containing both over burden as well as fly ash so as to form a deck of height not more than 30.0 m , distance between two consecutive decks shall not be less than 30.0 m.

1.5.4 In the next section i.e. immediately above bottom section/stage, only OB dumping shall be made to ensure that the Ash is totally covered and protected from the OB dumps all around.

1.5.5 In the same manner as explained above the alternate layer/section of the over burden and over burden with fly ash shall be dumped. Each layer/stage shall be adequately compacted by dozing.

1.5.6 At the top of the dump i.e. at the final stage, the dump shall be covered with 2.0 m thick soil and adequately compacted by dozing. Adequate precaution against rain fall shall be taken by way of plantation, geo-synthetic, or jute/coir reinforcement and formation of gully drains along the slope of the dump and formation of toe walls and peripheral drains as suggested by the scientific agency conducing geo-technical study. The precaution measures shall periodically be checked for its efficacy.

1.5.7 Plan and section in suitable scale (1:2000) shall be maintained showing the details of the dump both external and interval, height of each deck and dump, distance between the dumps containing fly ash and also the distance from the active working faces, plantation done, gully drains, peripheral drains, toe walls, etc. Such plan shall be signed by the Surveyor and countersigned by the Manager as prescribed in the statute.

1.5.8 Code of practices for transportation, dumping compaction of fly ash as mentioned in para 5(4.2.3 & 5.4.3 of main guidelines), shall be implemented.

1.5.9 **1.6 Dump slope management**

1.6.1 The sides of the OB dumps shall be kept benched and height thereof shall not exceed 30.0 m at an angle of slope not exceeding the angle of repose of the dumped material or 28° whichever is less.

1.6.2 Width of the OB dump shall not be less than 40.0 m which shall also be compacted. The benches shall be laid in such a manner that the overall slope of the dump shall not exceed 21° from horizontal.

1.6.3 The toe of the OB dumps shall be protected or armored in such a manner that the sludge does not flow down into the working faces.

1.6.4 A geotechnical study shall be conducted to assess the stability of the dump and the monitoring of various parameters during the course of dumping and also thereafter till the mine is closed permanently.

1.7**Dust control measures**: The fly ash dumping including the OB dumps shall be kept moist all the time to prevent ash getting airborne. The quality of the Ash shall be chemically and physically tested at least once in every quarter.

1.8 **Surface and ground water quality monitoring**

1.8.1The surface and ground water measurement (Chemical Parameters (mg/l): pH, EC, TDS, Total Alkalinity, Ca, Mg, Na, K, Cl, SO_4, NO_3, PO_4, Trace Elements (mg/l): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn,Ni, Pb, Zn) shall be carried out once in a year (post monsoon) in consultation with the State Pollution Control Board in order to ensure that no harmful heavy metals or any other chemicals pollute the surface or ground water sources or any other water sources present in the area.

1.9 **Provision of check drains** Proper Check Drains/garland drains having width of adequate size and section shall be made around the OB dumps to ensure that the sludge or waste materials along with the ash does not go into any river, nullah, water streams or any other surface water bodies.

1.10 Impact assessment of flora, fauna, aquatic lives and habitat, water & air quality:

1.10.1 A scientific study shall be carried out by an independent scientific organization to study the impact of Ash filling on Flora, Fauna, Aquatic Life and Habitation (once during the filing and at the end of filling).

1.10.2The Monitoring of all the aforementioned parameters shall be carried out through any accredited institute/organization/Labs and monitoring report shall be submitted to SPCB and DGMS.

1.10.3 A dedicated team of qualified persons headed by senior officer at the level of General Manager shall be established in the mine level, who shall be responsible for the entire ash filling operation, conducing different studies and shall maintain all records as prescribed.

1.10.4Record of every analysis and study shall be maintained in a bound page register kept for the purpose and the same shall be signed by the person in-charge of the operation and countersigned by the manager of the mine. Records shall also be maintained showing the details about the slope of each dump, quantity of ash filled, quantity of overburden removed, etc.

1.10.5Risk Analysis about the risk arising out of ash filling operation shall specifically be conducted at regular intervals and Safety Management Plan including the control mechanism shall be prepared as per the guideline contained in DGMS(Tech)(S&T) Circular No.13 of 2002 dated 31.12.2002 and implemented and the same shall be reviewed time to time

1.10.6In case, any adverse impact is observed, it should be brought to the notice of the DGMS and also to the State Pollution Control Board including the Environment and Forest Ministries of the State and Central Government. No further use of fly ash shall be done in the mine till permitted in writing afresh from DGMS.

*****

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA
CPCB
LiFE Lifestyle for Environment

EMAIL & SPEED POST

IPC-II/TPP/CP-11/76/2022/ 5520-5550

October 14, 2024

To,

The Member Secretary
State Pollution Control Board
(As per the list enclosed)

Sub: Directions under Section 18(1)(b) of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 for ensuring effective implementation and monitoring of the Ash Notification No. S.O. 5481 (E) dated 31.12.2021 by the coal or lignite-based thermal power plants (including captive or co-generating stations or both).

WHEREAS, amongst others, under Section 17 of the Water (Prevention and Control of Pollution) Act, 1974, one of the functions of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), constituted under the Water (Prevention and Control of Pollution) Act, 1974, is to plan a comprehensive program for prevention, control and abatement of pollution of streams and wells located in the State/U.T. and to secure the execution thereof; and

WHEREAS, amongst others, under Section 17 of the Air (Prevention and Control of Pollution) Act, 1981, one of the functions of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), constituted under Water (Prevention and Control of Pollution) Act, 1974, is to plan a comprehensive program for prevention, control and abatement of air pollution in the State/U.T. and to secure the execution thereof; and

WHEREAS, by notification of the Government of India in the erstwhile Ministry of Environment and Forests vide S.O.763 (E), dated the 14.09.1999, as amended from time to time, the Central Government, issued directions for promoting the utilisation of fly ash in the manufacturing of building materials and in construction activity within a specified radius of three hundred kilometres from the coal or lignite based thermal power plants; and

WHEREAS, in super-session of the aforesaid notification the Central Government has issued Notification No. S.O. 5481 (E) dated 31.12.2021, which has been subsequently amended on 30.12.2022 and 01.01.2024, to ensure more effective implementation of 100 percent fly ash utilisation/disposal by the coal or lignite-based thermal power plants in various permitted avenues/uses. In this regard, Central Pollution Control Board (CPCB) vide **letter dated 09.11.2022** requested all SPCBs to take necessary action for enforcement of the provisions of the Ash Notification by the coal or lignite based thermal power plants and monitoring of compliance by the SPCBs (**copy enclosed** for ready reference); and

WHEREAS, as per Para A(1) of the Ash Notification dated 31.12.2021, "*Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilisation of ash (fly ash, and bottom ash) generated by it in an eco-friendly manner as given in sub-paragraph (2)*"; and

WHEREAS, as per Para A(2) of the Ash Notification dated 31.12.2021, the ash generated from coal or lignite based thermal power plants shall be utilised only for the eco-friendly purposes prescribed at A(2) (i) to (xi) (it doesn't include "ash dyke raising" or "disposal of ash into the operational ash ponds/dykes"). Further, the utilization avenue mentioned under Para A(2)(xi) of the notification i.e. *"Any other eco-friendly purpose as notified from time to time"* is not applicable as of now, as any additional avenue has not been notified by the Central Government; and

WHEREAS, as per Para A(4) of the Ash Notification dated 31.12.2021, *"Every coal or lignite based thermal power plant shall be responsible to utilise 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilisation fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilisation of 100 per cent in a three years cycle* (first compliance cycle of four/five year is prescribed for specific cases with exemption from minimum 80 per cent annual ash utilization target for initial 1/2 years). In this regard, CPCB vide **letter dated 20.02.2024** circulated the status of compliance of the Ash Notification dated 31.12.2021 by the independent thermal power plants across the country during the first compliance cycle i.e. FY 2022-23 to the concerned SPCBs requesting to take appropriate action in the matter (**copy enclosed** for ready reference); and

WHEREAS, as per Para A(5) of the Ash Notification dated 31.12.2021, "…. *Provided further that the legacy ash utilisation shall not be required where ash pond or dyke has stabilised and the reclamation has taken place with greenbelt or plantation or solar power plant or wind power plant as per the guidelines issued by the Central Pollution Control Board (CPCB) as specified in sub-para (6) and the concerned State Pollution Control Board shall certify in this regard. Stabilisation and reclamation of an ash pond or dyke including certification by the State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall be carried out within three years from 1st April, 2022* (i.e. by **31st March 2025**). *The ash remaining in all other ash ponds or dykes shall be utilised in progressive manner as per the above mentioned timelines. Provided that ash stored in all ash ponds or dykes other than operational ash pond or dyke designated for temporary storage of ash as specified in sub-para (6) shall constitute the legacy ash and either to be reclaimed or stabilised or utilised"*; and

WHEREAS, as per Para A(6) of the Ash Notification dated 31.12.2021, "…. *Provided that up to two operational ash ponds or dykes for thermal power plants commissioned before 31st December, 2021, having installed capacity less than or equal to 1600 MW, and up to four operational ash ponds or dykes for thermal power plants having installed capacity more than 1600 MW, having multiple lagoons, within the specified area from the existing ash ponds or dykes, may be designated with clear demarcation along with coordinates, and shall inform to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) by 31st March, 2023"*. In this regard, Central Pollution Control Board (CPCB) and Central Electricity Authority (CEA) have issued "***Guidelines on Design, Construction, O&M and Annual Certification of Coal Ash Ponds, June 2023***" for coal or lignite based thermal power plant (**copy enclosed** for reference); and

WHEREAS, as per Para A(7) of the Ash Notification dated 31.12.2021, *"Every coal or lignite based thermal power plant shall ensure that loading, unloading, transport, storage*

and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water pollution are taken and status in this regard shall be reported to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in Annexure attached to this notification"; and

WHEREAS, as per Para A(8) of the Ash Notification dated 31.12.2021, *"Every coal or lignite based thermal power plant shall install dedicated silos for storage of dry fly ash silos for at least sixteen hours of ash based on installed capacity and it shall be reported upon to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in the Annexure and shall be inspected by Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) from time to time"*. In this regard, the aforesaid CPCB's **letter dated 20.02.2024** to the concerned SPCBs also highlighted the non-compliance of the said provision of the Ash Notification dated 31.12.2021 by a large number of thermal power plants; and

WHEREAS, as per Paras A(9) and E(2) of the Ash Notification dated 31.12.2021, all coal or lignite-based thermal power plants shall upload monthly information regarding ash generation and utilisation by 5th of the next month and ash pond details on yearly basis on the web portal developed by the CPCB for the benefit of actual user(s). In this regard, CPCB in association with NTPC and CEA, has developed **Ash Portal** (***https://coalash.cpcb.gov.in/***) for this purpose; and

WHEREAS, CPCB vide **letters dated 18.07.2023, 02.08.2023 and 25.08.2023** requested all concerned SPCBs to obtain the SPCB's login credentials for the **Ash Portal** and to issue necessary directions/instructions to all Captive Power Plants (CPPs) in the State to ensure immediate registration and regular uploading of ash data on the **Ash Portal**, along with ensuring regular uploading of ash data on the **Ash Portal** by all coal or lignite-based thermal power plants (including captive or co-generating plants or both) in the State; and

WHEREAS, CPCB issued **directions under Section 18(1)(b)** of the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, to all concerned SPCBs vide **dated 13.09.2023** *a) To issue necessary directions/instructions to coal or lignite-based CPPs (including co-generating plants) in the State to ensure registration on the Ash Portal developed by CPCB (https://coalash.cpcb.gov.in/) immediately and uploading monthly information regarding ash generation and utilisation by 5th of the next month, and ash pond details on yearly basis, and b) To ensure regular uploading of ash data on the Ash Portal by all coal or lignite based thermal power plants (including captive or co-generating stations or both) in the State*; and

WHEREAS, CPCB vide **letters dated 19.01.2024 and 29.08.2024** circulated to all concerned SPCBs the status of registration of the coal or lignite-based CPPs on the Ash Portal along with the state-wise lists with further instructions to SPCBs to ensure compliance of the directions dated 13.09.2023 (**copies enclosed** for ready reference); and

WHEREAS, as per Para B(5)(ii) of the Ash Notification dated 31.12.2021, *"Thermal power plants or mines shall not wait for disposal of ash till the identification is done by the above mentioned committee* [under Para B(5)(i)], *to meet the utilisation targets mandated as above* [under Para A(4) and A(5)]". In this regard, as per the decisions of the committee constituted under Para B(5)(i) taken during 1st and 3rd meeting held on 01.08.2022 and 06.10.2023, CPCB vide **letter dated 08.09.2022** (and **20.10.2023**) and has requested all

SPCBs/PCCs to constitute District Level Working Groups for deciding allocation of non-coal mines (major and minor minerals) for ash disposal to the coal or lignite based power plants, with Regional Officers, SPCB as the nodal agency (**copies enclosed** for ready reference); and

WHEREAS, as per Para B(6) of the Ash Notification dated 31.12.2021, *"Filling of low lying areas with ash shall be carried out with prior permission of the State Pollution Control Board or Pollution Control Committee for approved projects, and in accordance with guidelines laid down by Central Pollution Control Board (CPCB) and the State Pollution Control Board or Pollution Control Committee (PCC) shall publish approved sites, location, area and permitted quantity annually on its website"*. In this regard, CPCB has laid down ***"Guidelines for disposal/utilisation of Fly Ash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries, 2019"*** which were issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India vide **O.M. dated 28.08.2019**; and

WHEREAS, as per Para C(4) of the Ash Notification dated 31.12.2021, *"It shall be the responsibility of the transporters or vehicle owner to deliver ash to authorised purchaser or user agency and if it is not complied, then an environmental compensation of Rs. 1500 per ton on such quantity as mis-delivered to unauthorised users or non- delivered to authorised users will be imposed besides prosecution of such non-compliant transporters by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC)"*; and,

WHEREAS, as per Para C(5) of the Ash Notification dated 31.12.2021, *"It is the responsibility of the purchasers or user agencies to utilise ash in an eco-friendly manner as laid down at para B of this notification and if it is not complied, then an environmental compensation of Rs. 1500 or per ton shall be imposed by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC)"*; and

WHEREAS, as per Para D(4) of the Ash Notification dated 31.12.2021, *"The coal or lignite based thermal power plants, while utilising ash under this notification shall reserve certain percentage of ash for supply to all micro and small enterprises engaged in ash-based product manufacturing namely, bricks, blocks, tiles, sintered or cold bonded ash aggregates, fibre cement sheets, pipes, boards, panels for sale at concessional price or through limited auction in accordance with the guidelines issued by the Central Government in the Ministry of Power"*. In this regard, the Ministry of Power, Government of India has issued **guidelines** on the aforesaid subject vide **dated 15.03.2024** to all coal or lignite based thermal power plants and concerned State Governments (**copy enclosed** for reference); and

WHEREAS, as per Para E(4) of the Ash Notification dated 31.12.2021, *"For the purpose of resolving disputes between thermal power plants and users of ash or manufacturer of ash based products, the State Governments or Union territory administration constitute a Committee within three months from the date of publication of this notification under the Chairman, State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) with representatives from Department of Power, and one representative from the Department which deals with the subject of concerned agency with which dispute is made"*, and

WHEREAS, as per Para E(5) of the Ash Notification dated 31.12.2021, *"The compliance audit for ash disposal by the thermal power plants and the user agency shall be conducted by auditors, authorised by Central Pollution Control Board (CPCB) and audit*

report shall be submitted to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) by 30th November every year. Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall initiate action against non-compliant thermal power plants within fifteen days of receipt of audit report". In this regard, CPCB vide **O.M. dated 09.09.2024** (earlier **O.M. dated 06.03.2023 and 17.07.2023**) has issued the list of authorized auditors to undertake the compliance audit for ash disposal by the coal or lignite based thermal power plants and the users as per Ash Notification No. 5481(E) dated 31.12.2021 (**copy enclosed** for ready reference); and

WHEREAS, the Ash Notification dated 31.12.2021 designates SPCBs as the enforcing and monitoring authority in their States for ensuring compliance of various provisions of the Ash Notification on quarterly basis [Para E(1)];

NOW, THEREFORE, in exercise of the powers under Section 18(1)(b) of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, and with the approval of the Chairman, Central Pollution Control Board (CPCB), the __(as per list enclosed)__ State Pollution Control Board is hereby directed as follows:

a) To ensure effective enforcement and monitoring of compliance of the various provisions of the Ash Notification by all coal or lignite-based thermal power plants (including captive or co-generating stations or both) in the State on quarterly basis,

b) To ensure immediate registration and regular uploading of monthly ash generation and utilisation data by 5th of the next month, and ash pond details on yearly basis ont the Ash Portal by all coal or lignite-based thermal power plants (including captive or co-generating stations or both) in the State,

c) To ensure that the ash generated from coal or lignite based thermal power plants (including captive or co-generating stations or both) shall be utilised only for the eco-friendly purposes prescribed at A(2) (i) to (x) of the Ash Notification,

d) To ensure stabilisation, reclamation and certification of un-operational ash ponds/dykes and operational ash ponds/dykes beyond the permitted numbers (two for plants with installed capacity up to 1600 MW and four for plants with installed capacity above 1600 MW) by 31.03.2025 if the plant has not decided to utilise ash from such ash ponds/dykes in a progressive manner within 10 years as per the Ash Notification,

e) To ensure and periodically monitor the compliance of the "*Guidelines on Design, Construction, O&M and Annual Certification of Coal Ash Ponds, June 2023*" (issued by CPCB and CEA) by the coal or lignite-based thermal power plants (including captive or co-generating stations or both) in the State,

f) To ensure that the loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water pollution are taken by all coal or lignite-based thermal power plants (including captive or co-generating stations or both) in the State.

g) To ensure the installation of dedicated dry fly ash silos for storage of at least 16 hours of ash based on installed capacity by all coal or lignite-based thermal power plants (including captive or co-generating stations or both) in the State and periodic inspection of the same,

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h) To ensure that the filling of low lying areas with ash shall be carried out only with prior permission of the SPCB and for approved projects complying with the CPCB's guidelines and the SPCB shall publish approved sites, location, area and permitted quantity annually on its website,

i) To ensure that the transporters or vehicle owner deliver ash to authorised purchaser or user agency only, and take appropriate action for the non-compliant cases as per the provisions of the Ash Notification, which include imposition of environmental compensation and prosecution of such non-compliant transporters by SPCB,

j) To ensure compliance of the guidelines dated 15.03.2024 issued by the Ministry of Power, Government of India regarding reserving certain percentage of ash for supply to all micro and small enterprises engaged in ash-based product manufacturing namely, bricks, blocks, tiles, sintered or cold bonded ash aggregates, fibre cement sheets, pipes, boards, panels for sale at concessional price or through limited auction,

k) To ensure effective mechanism for resolving disputes between thermal power plants and users of ash or manufacturer of ash based products, through the State Level Committee under the Chairman, SPCB, and

l) To ensure submission of the annual implementation report and annual compliance audit report by 30th April and 30th November every year, respectively, by the coal or lignite based thermal power plants in the State to the concerned authorities and take appropriate action against the non-compliant thermal power plants as per the provisions of the Ash Notification dated 31.12.2021.

The SPCB shall submit the latest status/action taken report on the above mentioned directions within one month from the receipt of these directions, and ensure regular compliance of the above mentioned diirections and submission of annual status report by 31st December every year from December 2024 onward.

(Bharat Kumar Sharma)
Member Secretary

Copy to:

1. Additional Secretary (HSM Division)
   Ministry of Environment, Forest and Climate Change,
   Indira Paryavaran Bhawan, Aliganj,
   Jor Bagh Road, **New Delhi – 110 003**

2. The Joint Secretary (Thermal)
   Ministry of Power,
   Shram Shakti Bhawan, Rafi Marg,
   New Delhi

3. The Regional Directors : For follow-up with the concerned SPCBs.
   Central Pollution Control Board,
   (As per the list enclosed)

4. The Divisional Head - IT, CPCB, Delhi : For uploading the directions on the website.

(Bharat Kumar Sharma)
Member Secretary

List of State Pollution Control Boards

1. The Member Secretary,
   Andhra Pradesh Pollution Control Board
   D. No. 33-26-14 D/2, Near Sunrise Hospital,
   Pushpa Hotel Centre, Chalamalavari Street,
   Kasturibaipet, **Vijayawada – 520 010**

2. The Member Secretary,
   Pollution Control Board- Assam,
   Bamunimaidam, **Guwahati – 781 021**, Assam

3. The Member Secretary,
   Bihar State Pollution Control Board
   Parivesh Bhawan, Plot No. NS-B/2,
   Paliputra Industrial Area, Patliputra,
   Patna – 800 023, Bihar

4. The Member Secretary,
   Chhattisgarh Environment Conservation Board,
   Paryavas Bhavan, North Block Sector-19,
   Atal Nagar, **Raipur – 492 002**, Chhattisgarh

5. The Member Secretary,
   Gujarat Pollution Control Board
   Paryavaran Bhavan, Sector 10-A,
   Gandhi Nagar - 382 010, Gujarat

6. The Member Secretary,
   Goa State Pollution Control Board
   Nr. Pilerne Industrial Estate, Opp. Saligao
   Seminary, Saligao – Bardez, **Goa – 403 511**

7. The Member Secretary,
   Haryana State Pollution Control Board
   C-11, Sector-6, **Panchkula- 134109**, Haryana

8. The Member Secretary,
   Jharkhand State Pollution Control Board,
   T.A. Bldg., HEC, P. O. Dhurwa,
   Ranchi – 834 004, Jharkhand

9. The Member Secretary,
   Karnataka State Pollution Control Board
   "Parisara Bhavan", #49,4th & 5th Floor,
   Church Street, **Bangalore 560 001**

10. The Member Secretary,
    Madhya Pradesh Pollution Control Board,
    Paryavaran Parisar, E-5, Arera Colony,
    Bhopal – 462 016, Madhya Pradesh

11. The Member Secretary,
Maharashtra Pollution Control Board,
Kalpataru Points, 3rd & 4th Floor,
Road No. 8, Sion Circle, Opp. PVR Theatre,
Mumbai – 400 022, Maharashtra

12. The Member Secretary,
Meghalaya State Pollution Control Board,
"ARDEN", Lumpyngngad,
Shillong – 793 014, Meghalaya

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

14. The Member Secretary,
Punjab Pollution Control Board
Vatavaran Bhawan, Nabha Road
Patiala 147 001, Punjab

15. The Member Secretary,
Rajasthan Pollution Control Board,
A-4, Institutional Area, Jalana Dungri,
Jaipur 302 004, Rajasthan

16. The Member Secretary,
Tamil Nadu Pollution Control Board
76, Anna Salai, Guindy Industrial Estate,
Race View Colony, Guindy,
Chennai – 600 032, Tamil Nadu

17. The Member Secretary,
Telangana State Pollution Control Board,
Paryavaran Bhawan, A-III, Industrial Estate,
Sanathnagar, **Hyderabad – 500 018**

18. The Member Secretary,
Uttar Pradesh Pollution Control Board,
H. No. TC-12 V, Vibhuti Khand, Gomti Nagar,
Lucknow - 226 010, Uttar Pradesh

19. The Member Secretary,
Uttarakhand Pollution Control Board,
Gaura Devi Bhawan, 46 B, IT Park,
Sahastradhara, **Dehradun – 248 001**, Uttarakhand

20. The Member Secretary,
West Bengal Pollution Control Board,
Paribesh Bhawan, 10A, Block-LA, Sector III,
Bidhannagar, **Kolkata-700 106**, West Bengal