

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE BENCH AT CHENNAI
ORIGINAL APPLICATION NO. 30 OF 2021 (SZ)

In the matter of:

Dharmesh Shah
No. 92, Thiruvalluvar Nagar
3rd Street, Besant Nagar
Chennai – 600 090
Email: litigation.life@gmail.com
Ph: +91 93124 07881

... **APPLICANT**

Vs.

Union of India
Through the Secretary
Ministry of Environment, Forests & Climate Change
Indira Parayavaran Bhawan, New Delhi
Email: secy-moef@nic.in
Ph: 91-11-24695262

And 3 Other

... **RESPONDENTS**

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BEHALF OF THE FOURTH RESPONDENT

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The above copies are true copies of the respective originals.

Dated at Chennai on the 22nd day of June, 2020.



COUNSEL FOR FOURTH RESPONDENT



[PUBLISHED IN THE GAZETTE OF INDIA, EXTRAORDINARY, PART II,
SECTION 3, SUB-SECTION (i)]

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 04th April, 2016

G.S.R No. 395 (E). - Whereas the draft rules, namely the Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2015, were published by the Government of India in the Ministry of Environment, Forest and Climate Change *vide* number G.S.R. 582(E), dated the 24th July, 2015 in the Gazette of India, Extraordinary Part II, section 3, sub-section (ii) inviting objections and suggestions from all persons likely to be affected thereby, before the expiry of the period of sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

AND WHEREAS the copies of the said Gazette containing the said notification were made available to the public on the 24th day of July, 2015;

AND WHEREAS the objections and suggestions received within the specified period from the public in respect of the said draft rules have been duly considered by the Central Government;

NOW, THEREFORE, in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, except as respects things done or omitted to be done before such supersession, the Central Government hereby makes the following rules, namely:-

CHAPTER I

PRELIMINARY

1. Short title and commencement. - (1) These rules may be called the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Application. - These rules shall apply to the management of hazardous and other wastes as specified in the Schedules to these rules but shall not apply to -

- (a) waste-water and exhaust gases as covered under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder and as amended from time to time;
- (b) wastes arising out of the operation from ships beyond five kilometres of the relevant baseline as covered under the provisions of the Merchant Shipping Act, 1958 (44 of 1958) and the rules made thereunder and as amended from time to time;

- (c) radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and the rules made thereunder and as amended from time to time;
- (d) bio-medical wastes covered under the Bio-Medical Wastes (Management and Handling) Rules, 1998 made under the Act and as amended from time to time; and
- (e) wastes covered under the Municipal Solid Wastes (Management and Handling) Rules, 2000 made under the Act and as amended from time to time.

3. Definitions. - (1) In these rules, unless the context otherwise requires,-

1. "Act" means the Environment (Protection) Act, 1986 (29 of 1986);
2. "actual user" means an occupier who procures and processes hazardous and other waste for reuse, recycling, recovery, pre-processing, utilisation including co-processing;
3. "authorisation" means permission for generation, handling, collection, reception, treatment, transport, storage, reuse, recycling, recovery, pre-processing, utilisation including co-processing and disposal of hazardous wastes granted under sub-rule (2) of rule 6;
4. "Basel Convention" means the United Nations Environment Programme Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal;
5. "captive treatment, storage and disposal facility" means a facility developed within the premises of an occupier for treatment, storage and disposal of wastes generated during manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, offering for sale, transfer or the like of hazardous and other wastes;
6. "Central Pollution Control Board" means the Central Pollution Control Board constituted under sub-section (1) of section 3 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);
7. "common treatment, storage and disposal facility" means a common facility identified and established individually or jointly or severally by the State Government, occupier, operator of a facility or any association of occupiers that shall be used as common facility by multiple occupiers or actual users for treatment, storage and disposal of the hazardous and other wastes;
8. "co-processing" means the use of waste materials in manufacturing processes for the purpose of energy or resource recovery or both and resultant reduction in the use of conventional fuels or raw materials or both through substitution;
9. "critical care medical equipment" means life saving equipment and includes such equipment as specified by the Ministry of Health and Family Welfare from time to time;
10. "disposal" means any operation which does not lead to reuse, recycling, recovery, utilisation including co-processing and includes physico-chemical treatment, biological treatment, incineration and disposal in secured landfill;

11. "export", with its grammatical variations and cognate expressions, means taking out of India to a place outside India;
12. "exporter". means any person or occupier under the jurisdiction of the exporting country who exports hazardous or other wastes, including the country which exports hazardous or other waste;
13. "environmentally sound management of hazardous and other wastes" means taking all steps required to ensure that the hazardous and other wastes are managed in a manner which shall protect health and the environment against the adverse effects which may result from such waste;
14. "environmentally sound technologies" means any technology approved by the Central Government from time to time;
15. "facility" means any establishment wherein the processes incidental to the generation, handling, collection, reception, treatment, storage, reuse, recycling, recovery, pre-processing, co-processing, utilisation and disposal of hazardous and, or, other wastes are carried out;
16. "Form" means a form appended to these rules;
17. "hazardous waste" means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances, and shall include -
 - (i) waste specified under column (3) of Schedule I;
 - (ii) waste having equal to or more than the concentration limits specified for the constituents in class A and class B of Schedule II or any of the characteristics as specified in class C of Schedule II; and
 - (iii) wastes specified in Part A of Schedule III in respect of import or export of such wastes or the wastes not specified in Part A but exhibit hazardous characteristics specified in Part C of Schedule III;
18. "import", with its grammatical variations and cognate expressions, means bringing into India from a place outside India;
19. "importer" mean any person or occupier who imports hazardous or other waste;
20. "manifest" means transporting document prepared and signed by the sender authorised in accordance with the provisions of these rules;
21. "occupier" in relation to any factory or premises, means a person who has, control over the affairs of the factory or the premises and includes in relation to any hazardous and other wastes, the person in possession of the hazardous or other waste;
22. "operator of disposal facility" means a person who owns or operates a facility for collection, reception, treatment, storage and disposal of hazardous and other wastes;
23. "other wastes" means wastes specified in Part B and Part D of Schedule III for import or export and includes all such waste generated indigenously within the country;

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24. "pre-processing" means the treatment of waste to make it suitable for co-processing or recycling or for any further processing;
25. "recycling" means reclamation and processing of hazardous or other wastes in an environmentally sound manner for the originally intended purpose or for other purposes;
26. "reuse" means use of hazardous or other waste for the purpose of its original use or other use;
27. "recovery" means any operation or activity wherein specific materials are recovered;
28. "Schedule" means a Schedule appended to these rules;
29. "State Government" in relation to a Union territory means, the Administrator thereof appointed under article 239 of the Constitution;
30. "State Pollution Control Board" means the State Pollution Control Board constituted under section 4 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and includes, in relation to a Union territory, the Pollution Control Committee;
31. "storage" mean storing any hazardous or other waste for a temporary period, at the end of which such waste is processed or disposed of;
32. "transboundary movement" means any movement of hazardous or other wastes from an area under the jurisdiction of one country to or through an area under the jurisdiction of another country or to or through an area not under the jurisdiction of any country, provided that at least two countries are involved in the movement;
33. "transport" means off-site movement of hazardous or other wastes by air, rail, road or water;
34. "transporter" means a person engaged in the off-site transportation of hazardous or other waste by air, rail, road or water;
35. "treatment" means a method, technique or process, designed to modify the physical, chemical or biological characteristics or composition of any hazardous or other waste so as to reduce its potential to cause harm;
36. "used oil" means any oil-
 - (i) derived from crude oil or mixtures containing synthetic oil including spent oil, used engine oil, gear oil, hydraulic oil, turbine oil, compressor oil, industrial gear oil, heat transfer oil, transformer oil and their tank bottom sludges; and
 - (ii) suitable for reprocessing, if it meets the specification laid down in Part A of Schedule V but does not include waste oil;
37. "utilisation" means use of hazardous or other waste as a resource;

38. "waste" means materials that are not products or by-products, for which the generator has no further use for the purposes of production, transformation or consumption.

Explanation.- for the purposes of this clause,

- (i) waste includes the materials that may be generated during, the extraction of raw materials, the processing of raw materials into intermediates and final products, the consumption of final products, and through other human activities and excludes residuals recycled or reused at the place of generation; and
- (ii) by-product means a material that is not intended to be produced but gets produced in the production process of intended product and is used as such;
39. "waste oil" means any oil which includes spills of crude oil, emulsions, tank bottom sludge and slop oil generated from petroleum refineries, installations or ships and can be used as fuel in furnaces for energy recovery, if it meets the specifications laid down in Part-B of Schedule V either as such or after reprocessing.

(2) Words and expressions used in these rules and not defined but defined in the Act shall have the meanings respectively assigned to them in the Act.

CHAPTER II

PROCEDURE FOR MANAGEMENT OF HAZARDOUS AND OTHER WASTES

4. Responsibilities of the occupier for management of hazardous and other wastes.-

(1) For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:-

- (a) prevention;
- (b) minimization;
- (c) reuse,
- (d) recycling;
- (e) recovery, utilisation including co-processing;
- (f) safe disposal.

(2) The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes.

(3) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorised actual user or shall be disposed of in an authorised disposal facility.

(4) The hazardous and other wastes shall be transported from an occupier's establishment to an authorised actual user or to an authorised disposal facility in accordance with the provisions of these rules.

(5) The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the operator of that facility, such specific information as may be needed for safe storage and disposal.

(6) The occupier shall take all the steps while managing hazardous and other wastes to-

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- (a) contain contaminants and prevent accidents and limit their consequences on human beings and the environment; and
- (b) provide persons working in the site with appropriate training, equipment and the information necessary to ensure their safety.

5. Responsibilities of State Government for environmentally sound management of hazardous and other wastes. – (1) Department of Industry in the State or any other government agency authorised in this regard by the State Government, to ensure earmarking or allocation of industrial space or shed for recycling, pre-processing and other utilisation of hazardous or other waste in the existing and upcoming industrial park, estate and industrial clusters;

(2) Department of Labour in the State or any other government agency authorised in this regard by the State Government shall,-

- (a) ensure recognition and registration of workers involved in recycling, pre-processing and other utilisation activities;
- (b) assist formation of groups of such workers to facilitate setting up such facilities;
- (c) undertake industrial skill development activities for the workers involved in recycling, pre-processing and other utilisation;
- (d) undertake annual monitoring and to ensure safety and health of workers involved in recycling, pre-processing and other utilisation.

(3) Every State Government may prepare integrated plan for effective implementation of these provisions and to submit annual report to the Ministry of Environment, Forest and Climate Change, in the Central Government.

6. Grant of authorisation for managing hazardous and other wastes.- (1) Every occupier of the facility who is engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other wastes shall be required to make an application in **Form 1** to the State Pollution Control Board and obtain an authorisation from the State Pollution Control Board within a period of sixty days from the date of publication of these rules. Such application for authorisation shall be accompanied with a copy each of the following documents, namely:-

- (a) consent to establish granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981);
- (b) Consent to operate granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and/or Air (Prevention and Control of Pollution) Act, 1981, (21 of 1981);
- (c) in case of renewal of authorisation, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorisation for hazardous and other wastes:

Provided that an application for renewal of authorisation may be made three months before the expiry of such authorisation:

Provided further that-

- (i) any person authorised under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, prior to the date of commencement

of these rules, shall not be required to make an application for authorisation till the period of expiry of such authorisation;

- (ii) any person engaged in recycling or reprocessing of the hazardous waste specified in Schedule IV and having registration under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, shall not be required to make an application for authorisation till the period of expiry of such registration.

(2) On receipt of an application complete in all respects for the authorisation, the State Pollution Control Board may, after such inquiry as it considers necessary, and on being satisfied that the applicant possesses appropriate facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other waste, as the case may be, and after ensuring technical capabilities and equipment complying with the standard operating procedure or other guidelines specified by the Central Pollution Control Board from time to time and through site inspection, grant within a period of one hundred and twenty days, an authorisation in **Form 2** to the applicant, which shall be valid for a period of five years subject to such conditions as may be laid down therein. For commonly recyclable hazardous waste as given in Schedule IV, the guidelines already prepared by the Central Pollution Control Board shall be followed:

Provided that in the case of an application for renewal of authorisation, the State Pollution Control Board may, before granting such authorisation, satisfy itself that there has been no violation of the conditions specified in the authorisation earlier granted by it and same shall be recorded in the inspection report.

(3) The authorisation granted by the State Pollution Control Board under sub-rule (2) shall be accompanied by a copy of the field inspection report signed by that Board indicating the adequacy of facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilisation, offering for sale, transfer or disposal of the hazardous and other wastes and compliance to the guidelines or standard operating procedures specified by the Central Pollution Control Board from time to time.

(4) The State Pollution Control Board may, for the reasons to be recorded in writing and after giving reasonable opportunity of being heard to the applicant, refuse to grant any authorisation under these rules.

(5) Every occupier authorised under these rules, shall maintain a record of hazardous and other wastes managed by him in **Form 3** and prepare and submit to the State Pollution Control Board, an annual return containing the details specified in **Form 4** on or before the 30th day of June following the financial year to which that return relates.

(6) The State Pollution Control Board shall maintain a register containing particulars of the conditions imposed under these rules for management of hazardous and other wastes and it shall be open for inspection during office hours to any interested or affected person.

(7) The authorised actual user of hazardous and other wastes shall maintain records of hazardous and other wastes purchased in a passbook issued by the State Pollution Control Board along with the authorisation.

(8) Handing over of the hazardous and other wastes to the authorised actual user shall be only after making the entry into the passbook of the actual user.

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7. Power to suspend or cancel an authorisation.- (1) The State Pollution Control Board, may, if in its opinion the holder of the authorisation has failed to comply with any of the conditions of the authorisation or with any provisions of the Act or these rules and after giving him a reasonable opportunity of being heard and after recording reasons thereof in writing cancel or suspend the authorisation issued under rule 6 for such period as it considers necessary in the public interest.

(2) Upon suspension or cancellation of the authorisation, the State Pollution Control Board may give directions to the person whose authorisation has been suspended or cancelled for the safe storage and management of the hazardous and other wastes, and such occupier shall comply with such directions.

8. Storage of hazardous and other wastes.- (1) The occupiers of facilities may store the hazardous and other wastes for a period not exceeding ninety days and shall maintain a record of sale, transfer, storage, recycling, recovery, pre-processing, co-processing and utilisation of such wastes and make these records available for inspection:

Provided that the State Pollution Control Board may extend the said period of ninety days in following cases, namely:-

- (i) small generators (up to ten tonnes per annum) up to one hundred and eighty days of their annual capacity;
- (ii) actual users and disposal facility operators up to one hundred and eighty days of their annual capacity,
- (iii) occupiers who do not have access to any treatment, storage, disposal facility in the concerned State; or
- (iv) the waste which needs to be specifically stored for development of a process for its recycling, recovery, pre-processing, co-processing or utilisation;
- (v) in any other case, on justifiable grounds up to one hundred and eighty days.

9. Utilisation of hazardous and other wastes.- (1) The utilisation of hazardous and other wastes as a resource or after pre-processing either for co-processing or for any other use, including within the premises of the generator (if it is not part of process), shall be carried out only after obtaining authorisation from the State Pollution Control Board in respect of waste on the basis of standard operating procedures or guidelines provided by the Central Pollution Control Board.

(2) Where standard operating procedures or guidelines are not available for specific utilisation, the approval has to be sought from Central Pollution Control Board which shall be granting approval on the basis of trial runs and thereafter, standard operating procedures or guidelines shall be prepared by Central Pollution Control Board:

Provided, if trial run has been conducted for particular waste with respect to particular utilisation and compliance to the environmental standards has been demonstrated, authorisation may be granted by the State Pollution Control Board with respect to the same waste and utilisation, without need of separate trial run by Central Pollution Control Board and such cases of successful trial run, Central Pollution Control Board shall intimate all the State Pollution Control Board regarding the same.

(3) No trial runs shall be required for co-processing of waste in cement plants for which guidelines by the Central Pollution Control Board are already available; however, the actual users shall

ensure compliance to the standards notified under the Environment (Protection) Act, 1986 (29 of 1986), for cement plant with respect to co-processing of waste:

Provided that till the time the standards are notified, the procedure as applicable to other kind of utilisation of hazardous and other waste, as enumerated above shall be followed.

10. Standard Operating Procedure or guidelines for actual users.- The Ministry of Environment, Forest and Climate Change or the Central Pollution Control Board may issue guidelines or standard operating procedures for environmentally sound management of hazardous and other wastes from time to time.

CHAPTER III

IMPORT AND EXPORT OF HAZARDOUS AND OTHER WASTES

11. Import and export (transboundary movement) of hazardous and other wastes.- The Ministry of Environment, Forest and Climate Change shall be the nodal Ministry to deal with the transboundary movement of the hazardous and other wastes in accordance with the provisions of these rules.

12. Strategy for Import and export of hazardous and other wastes.- (1) No import of the hazardous and other wastes from any country to India for disposal shall be permitted.

(2) The import of hazardous and other wastes from any country shall be permitted only for recycling, recovery, reuse and utilisation including co-processing.

(3) The import of hazardous waste in Part A of Schedule III may be allowed to actual users with the prior informed consent of the exporting country and shall require the permission of the Ministry of Environment, Forest and Climate Change.

(4) The import of other wastes in Part B of Schedule III may be allowed to actual users with the permission of the Ministry of Environment, Forest and Climate Change.

(5) The import of other wastes in Part D of Schedule III will be allowed as per procedure given in rule 13 and as per the note below the said Schedule.

(6) No import of the hazardous and other wastes specified in Schedule VI shall be permitted.

(7) The export of hazardous and other wastes from India listed in Part A and Part B of Schedule III and Schedule VI shall be with the permission of Ministry of Environment, Forest and Climate Change. In case of applications for export of hazardous and other waste listed in Part A of Schedule III and Schedule VI, they shall be considered on the basis of prior informed consent of the importing country.

(8) The import and export of hazardous and other wastes not specified in Schedule III, but exhibiting the hazardous characteristics outlined in Part C of Schedule III shall require prior written permission of the Ministry of Environment, Forest and Climate Change before it is imported to or exported from India, as the case may be.

13. Procedure for import of hazardous and other wastes.- (1) Actual users intending to import or transit for transboundary movement of hazardous and other wastes specified in Part A and Part B of Schedule III shall apply in **Form 5** along with the documents listed therein, to the Ministry of Environment, Forest and Climate Change for the proposed import together with the prior informed consent of the exporting country in respect of Part A of Schedule III waste, and shall send a copy of the application, simultaneously, to the concerned State Pollution Control Board for information and the acknowledgement in this respect from the concerned State Pollution Control Board shall be submitted to the Ministry of Environment, Forest and Climate Change along with the application.

(2) For the import of other wastes listed in Part D of Schedule III, the importer shall not require the permission of the Ministry of Environment, Forest and Climate Change. However, the importer shall furnish the required information as per **Form 6** to the Customs authorities, accompanied with the following documents in addition to those listed in Schedule VIII, wherever applicable. For used electrical and electronic assemblies listed at serial numbers 4 (e) to 4(i) of Schedule VIII (Basel No. B1110), there is no specific requirement of documentation under these rules:

- (a) the import license from Directorate General of Foreign Trade, if applicable;
- (b) the valid consents under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981) and the authorisation under these rules as well as the authorisation under the E-Waste (Management and Handling) Rules, 2011, as amended from time to time, whichever applicable;
- (c) importer who is a trader, importing waste on behalf of actual users, shall obtain one time authorisation in **Form 7** and copy of this authorisation shall be appended to **Form 6**.

(3) For Part B of Schedule III, in case of import of any used electrical and electronic assemblies or spares or part or component or consumables as listed under Schedule I of the E-Waste (Management and Handling) Rules, 2011, as amended from time to time, the importer need to obtain extended producer responsibility-authorisation as producer under the said E-Waste (Management and Handling) Rules, 2011.

(4) Prior to clearing of consignment of wastes listed in Part D of Schedule III, the Custom authorities shall verify the documents as given in column (3) of Schedule VIII.

(5) On receipt of the complete application with respect to Part A and Part B of Schedule III, the Ministry of Environment, Forest and Climate Change shall examine the application considering the comments and observations, if any, received from the State Pollution Control Boards, and may grant the permission for import within a period of sixty days subject to the condition that the importer has -

- (i) the environmentally sound facilities;
- (ii) adequate arrangements for treatment and disposal of wastes generated;
- (iii) a valid authorisation and consents from the State Pollution Control Board;
- (iv) prior informed consent from the exporting country in case of Part A of Schedule III wastes.

(6) The Ministry of Environment, Forest and Climate Change shall forward a copy of the permission to the concerned Port and Customs authorities, Central Pollution Control Board and the concerned State Pollution Control Board for ensuring compliance with respect to their respective functions given in Schedule VII.

(7) The importer of the hazardous and other wastes shall maintain records of the hazardous and other waste imported by him in **Form 3** and the record so maintained shall be made available for inspection.

(8) The importer of the hazardous and other wastes shall file an annual return in **Form 4** to the State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

(9) Samples of hazardous and other wastes being imported for testing or research and development purposes up to 1000 gm or 1000 ml shall be exempted from need of taking permission for import under these rules.

(10) The Port and Customs authorities shall ensure that shipment is accompanied with the movement document as given in **Form 6** and the test report of analysis of the waste, consignment, wherever applicable, from a laboratory accredited or recognised by the exporting country. In case of any doubt, the customs may verify the analysis.

14. Procedure for Export of hazardous and other wastes from India.- (1) Any occupier intending to export waste specified in Part A of Schedule III, Part B of Schedule III and Schedule VI, shall make an application in **Form 5** along with insurance cover to the Ministry of Environment, Forest and Climate Change for the proposed transboundary movement of the hazardous and other wastes together with the prior informed consent in writing from the importing country in respect of wastes specified in Part A of Schedule III and Schedule VI.

(2) On receipt of an application under sub-rule (1), the Ministry of Environment, Forest and Climate Change may give permission for the proposed export within a period of sixty days from the date of submission of complete application and may impose such conditions as it may consider necessary.

(3) The Ministry of Environment, Forest and Climate Change shall forward a copy of the permission granted under sub-rule (2) to the State Pollution Control Board of the State where the waste is generated and the Pollution Control Board of the State where the port of export is located and the concerned Port and Customs authorities for ensuring compliance of the conditions of the export permission.

(4) The exporter shall ensure that no consignment is shipped before the prior informed consent is received from the importing country, wherever applicable.

(5) The exporter shall also ensure that the shipment is accompanied with movement document in **Form 6**.

(6) The exporter of the hazardous and other wastes shall maintain the records of the hazardous or other waste exported by him in **Form 3** and the record so maintained shall be available for inspection.

15. Illegal traffic.- (1) The export and import of hazardous or other wastes from and into India, respectively shall be deemed illegal, if,-

- (i) it is without permission of the Central Government in accordance with these rules; or
- (ii) the permission has been obtained through falsification, mis-representation or fraud;
or
- (iii) it does not conform to the shipping details provided in the movement documents; or

- (iv) it results in deliberate disposal (i.e., dumping) of hazardous or other waste in contravention of the Basel Convention and of general principles of international or domestic law.

(2) In case of illegal import of the hazardous or other waste, the importer shall re-export the waste in question at his cost within a period of ninety days from the date of its arrival into India and its implementation will be ensured by the concerned Port and the Custom authority. In case of disposal of such waste by the Port and Custom authorities, they shall do so in accordance with these rules with the permission of the Pollution Control Board of the State where the Port exists.

(3) In case of illegal import of hazardous or other waste, where the importer is not traceable then the waste either can be sold by the Customs authority to any user having authorisation under these rules from the concerned State Pollution Control Board or can be sent to authorised treatment, storage and disposal facility.

CHAPTER - IV

TREATMENT, STORAGE AND DISPOSAL FACILITY FOR HAZARDOUS AND OTHER WASTES

16. Treatment, storage and disposal facility for hazardous and other wastes.- (1) The State Government, occupier, operator of a facility or any association of occupiers shall individually or jointly or severally be responsible for identification of sites for establishing the facility for treatment, storage and disposal of the hazardous and other waste in the State.

(2) The operator of common facility or occupier of a captive facility, shall design and set up the treatment, storage and disposal facility as per technical guidelines issued by the Central Pollution Control Board in this regard from time to time and shall obtain approval from the State Pollution Control Board for design and layout in this regard.

(3) The State Pollution Control Board shall monitor the setting up and operation of the common or captive treatment, storage and disposal facility, regularly.

(4) The operator of common facility or occupier of a captive facility shall be responsible for safe and environmentally sound operation of the facility and its closure and post closure phase, as per guidelines or standard operating procedures issued by the Central Pollution Control Board from time to time.

(5) The operator of common facility or occupier of a captive facility shall maintain records of hazardous and other wastes handled by him in **Form 3**.

(6) The operator of common facility or occupier of a captive facility shall file an annual return in **Form 4** to the State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

CHAPTER - V

PACKAGING, LABELLING, AND TRANSPORT OF HAZARDOUS AND OTHER WASTES.

17. Packaging and Labelling.- (1) Any occupier handling hazardous or other wastes and operator of the treatment, storage and disposal facility shall ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling, storage and transport as per the guidelines issued by the Central Pollution Control Board from time to time. The labelling shall be done as per **Form 8**.

(2) The label shall be of non-washable material, weather proof and easily visible.

18. Transportation of hazardous and other wastes.- (1) The transport of the hazardous and other waste shall be in accordance with the provisions of these rules and the rules made by the Central Government under the Motor Vehicles Act, 1988 and the guidelines issued by the Central Pollution Control Board from time to time in this regard.

(2) The occupier shall provide the transporter with the relevant information in **Form 9**, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and shall label the hazardous and other wastes containers as per **Form 8**.

(3) In case of transportation of hazardous and other waste for final disposal to a facility existing in a State other than the State where the waste is generated, the sender shall obtain 'No Objection Certificate' from the State Pollution Control Board of both the States.

(4) In case of transportation of hazardous and other waste for recycling or utilisation including co-processing, the sender shall intimate both the State Pollution Control Boards before handing over the waste to the transporter.

(5) In case of transit of hazardous and other waste for recycling, utilisation including co-processing or disposal through a State other than the States of origin and destination, the sender shall give prior intimation to the concerned State Pollution Control Board of the States of transit before handing over the wastes to the transporter.

(6) In case of transportation of hazardous and other waste, the responsibility of safe transport shall be either of the sender or the receiver whosoever arranges the transport and has the necessary authorisation for transport from the concerned State Pollution Control Board. This responsibility should be clearly indicated in the manifest.

(7) The authorisation for transport shall be obtained either by the sender or the receiver on whose behalf the transport is being arranged.

19. Manifest system (Movement Document) for hazardous and other waste to be used within the country only.- (1) The sender of the waste shall prepare seven copies of the manifest in **Form 10** comprising of colour code indicated below and all seven copies shall be signed by the sender:

Copy number with colour code	Purpose
(1)	(2)
Copy 1 (White)	To be forwarded by the sender to the State Pollution Control Board after signing all the seven copies.
Copy 2 (Yellow)	To be retained by the sender after taking signature on it from the transporter and the rest of the five signed copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the receiver (actual user or treatment storage and disposal facility operator) after receiving the waste and the remaining four copies are to be duly signed by the receiver.
Copy 4 (Orange)	To be handed over to the transporter by the receiver after accepting waste.
Copy 5 (Green)	To be sent by the receiver to the State Pollution Control Board.
Copy 6 (Blue)	To be sent by the receiver to the sender.
Copy 7 (Grey)	To be sent by the receiver to the State Pollution Control Board of the sender in case the sender is in another State.

(2) The sender shall forward copy 1 (white) to the State Pollution Control Board, and in case the hazardous or other wastes is likely to be transported through any transit State, the sender shall intimate State Pollution Control Boards of transit States about the movement of the waste.

(3) No transporter shall accept waste from the sender for transport unless it is accompanied by signed copies 3 to 7 of the manifest.

(4) The transporter shall submit copies 3 to 7 of the manifest duly signed with date to the receiver along with the waste consignment.

(5) The receiver after acceptance of the waste shall hand over copy 4 (orange) to the transporter and send copy 5 (green) to his State Pollution Control Board and send copy 6 (blue) to the sender and the copy 3 (pink) shall be retained by the receiver.

(6) The copy 7 (grey) shall only be sent to the State Pollution Control Board of the sender, if the sender is in another State.

CHAPTER VI MISCELLANIOUS

20. Records and returns.- (1) The occupier handling hazardous or other wastes and operator of disposal facility shall maintain records of such operations in **Form 3**.

(2) The occupier handling hazardous and other wastes and operator of disposal facility shall send annual returns to the State Pollution Control Board in **Form 4**.

(3) The State Pollution Control Board based on the annual returns received from the occupiers and the operators of the facilities for disposal of hazardous and other wastes shall prepare an annual inventory of the waste generated; waste recycled, recovered, utilised including co-processed; waste re-exported and waste disposed and submit to the Central Pollution Control Board by the 30th day of September every year. The State Pollution Control Board shall also prepare the inventory of hazardous waste generators, actual users, and common and captive

disposal facilities and shall submit the information to Central Pollution Control Board every two years.

(4) The Central Pollution Control Board shall prepare the consolidated review report on management of hazardous and other wastes and forward it to the Ministry of Environment, Forest and Climate Change, along with its recommendations before the 30th day of December once in every year.

21. Responsibility of authorities. - The authority specified in column (2) of Schedule VII shall perform the duties as specified in column (3) of the said Schedule subject to the provisions of these rules.

22. Accident reporting. - Where an accident occurs at the facility of the occupier handling hazardous or other wastes and operator of the disposal facility or during transportation, the occupier or the operator or the transporter shall immediately intimate the State Pollution Control Board through telephone, e-mail about the accident and subsequently send a report in **Form 11**.

23. Liability of occupier, importer or exporter and operator of a disposal facility.-

(1) The occupier, importer or exporter and operator of the disposal facility shall be liable for all damages caused to the environment or third party due to improper handling and management of the hazardous and other waste.

(2) The occupier and the operator of the disposal facility shall be liable to pay financial penalties as levied for any violation of the provisions under these rules by the State Pollution Control Board with the prior approval of the Central Pollution Control Board.

24. Appeal.- (1) Any person aggrieved by an order of suspension or cancellation or refusal of authorisation or its renewal passed by the State Pollution Control Board may, within a period of thirty days from the date on which the order is communicated to him, prefer an appeal in **Form 12** to the Appellate Authority, namely, the Environment Secretary of the State.

(2) The Appellate Authority may entertain the appeal after expiry of the said period of thirty days, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(3) Every appeal filed under this rule shall be disposed of within a period of sixty days from the date of its filing.

SCHEDULE I
[See rule 3 (1) (17) (i)]

List of processes generating hazardous wastes

S.No. (1)	Processes (2)	Hazardous Waste* (3)
1.	Petrochemical processes and pyrolytic operations	1.1 Furnace or reactor residue and debris 1.2 Tarry residues and still bottoms from distillation 1.3 Oily sludge emulsion 1.4 Organic residues 1.5 Residues from alkali wash of fuels

(1)	(2)	(3)
		1.6 Spent catalyst and molecular sieves 1.7 Oil from wastewater treatment
2.	Crude oil and natural gas production	2.1 Drill cuttings excluding those from water based mud 2.2 Sludge containing oil 2.3 Drilling mud containing oil
3.	Cleaning, emptying and maintenance of petroleum oil storage tanks including ships	3.1 cargo residue, washing water and sludge containing oil 3.2 cargo residue and sludge containing chemicals 3.3 Sludge and filters contaminated with oil 3.4 Ballast water containing oil from ships
4.	Petroleum refining or re-processing of used oil or recycling of waste oil	4.1 Oil sludge or emulsion 4.2 Spent catalyst 4.3 Slop oil 4.4 Organic residue from processes 4.5 Spent clay containing oil
5.	Industrial operations using mineral or synthetic oil as lubricant in hydraulic systems or other applications	5.1 Used or spent oil 5.2 Wastes or residues containing oil 5.3 Waste cutting oils
6.	Secondary production and / or industrial use of zinc	6.1 Sludge and filter press cake arising out of production of Zinc Sulphate and other Zinc Compounds. 6.2 Zinc fines or dust or ash or skimmings in dispersible form 6.3 Other residues from processing of zinc ash or skimmings 6.4 Flue gas dust and other particulates
7.	Primary production of zinc or lead or copper and other non-ferrous metals except aluminium	7.1 Flue gas dust from roasting 7.2 Process residues 7.3 Arsenic-bearing sludge 7.4 Non-ferrous metal bearing sludge and residue. 7.5 Sludge from scrubbers
8.	Secondary production of copper	8.1 Spent electrolytic solutions 8.2 Sludge and filter cakes 8.3 Flue gas dust and other particulates
9.	Secondary production of lead	9.1 Lead bearing residues 9.2 Lead ash or particulate from flue gas 9.3 Acid from used batteries
10.	Production and/or industrial use of cadmium and arsenic and their compounds	10.1 Residues containing cadmium and arsenic
11.	Production of primary and secondary aluminum	11.1 Sludges from off-gas treatment 11.2 Cathode residues including pot lining wastes 11.3 Tar containing wastes 11.4 Flue gas dust and other particulates 11.5 Drosses and waste from treatment of salt sludge

(1)	(2)	(3)
		11.6 Used anode butts 11.7 Vanadium sludge from alumina refineries
12.	Metal surface treatment, such as etching, staining, polishing, galvanizing, cleaning, degreasing, plating, etc.	12.1 Acidic and alkaline residues 12.2 Spent acid and alkali 12.3 Spent bath and sludge containing sulphide, cyanide and toxic metals 12.4 Sludge from bath containing organic solvents 12.5 Phosphate sludge 12.6 Sludge from staining bath 12.7 Copper etching residues 12.8 Plating metal sludge
13.	Production of iron and steel including other ferrous alloys (electric furnace; steel rolling and finishing mills; Coke oven and by products plant)	13.1 Spent pickling liquor 13.2 Sludge from acid recovery unit 13.3 Benzol acid sludge 13.4 Decanter tank tar sludge 13.5 Tar storage tank residue 13.6 Residues from coke oven by product plant.
14.	Hardening of steel	14.1 Cyanide-, nitrate-, or nitrite -containing sludge 14.2 Spent hardening salt
15.	Production of asbestos or asbestos-containing materials	15.1 Asbestos-containing residues 15.2 Discarded asbestos 15.3 Dust or particulates from exhaust gas treatment.
16.	Production of caustic soda and chlorine	16.1 Mercury bearing sludge generated from mercury cell process 16.2 Residue or sludges and filter cakes 16.3 Brine sludge
17.	Production of mineral acids	17.1 Process acidic residue, filter cake, dust 17.2 Spent catalyst
18.	Production of nitrogenous and complex fertilizers	18.1 Spent catalyst 18.2 Carbon residue 18.3 Sludge or residue containing arsenic 18.4 Chromium sludge from water cooling tower
19.	Production of phenol	19.1 Residue or sludge containing phenol 19.2 Spent catalyst
20.	Production and/or industrial use of solvents	20.1 Contaminated aromatic, aliphatic or napthenic solvents may or may not be fit for reuse. 20.2 Spent solvents 20.3 Distillation residues 20.4 Process Sludge
21.	Production and/or industrial use of paints, pigments, lacquers, varnishes and inks	21.1 Process wastes, residues and sludges 21.2 Spent solvent
22.	Production of plastics	22.1 Spent catalysts 22.2 Process residues
23.	Production and /or industrial use of glues, organic cements,	23.1 Wastes or residues (not made with vegetable or animal materials)

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(1)	(2)	(3)
	adhesive and resins	23.2 Spent solvents
24.	Production of canvas and textiles	24.1 Chemical residues
25.	Industrial production and formulation of wood preservatives	25.1 Chemical residues 25.2 Residues from wood alkali bath
26.	Production or industrial use of synthetic dyes, dye-intermediates and pigments	26.1 Process waste sludge/residues containing acid, toxic metals, organic compounds 26.2 Dust from air filtration system 26.3 Spent acid 26.4 Spent solvent 26.5 Spent catalyst
27.	Production of organic-silicone compound	27.1 Process residues
28.	Production/formulation of drugs/pharmaceutical and health care product	28.1 Process Residue and wastes 28.2 Spent catalyst 28.3 Spent carbon 28.4 Off specification products 28.5 Date-expired products 28.6 Spent solvents
29.	Production, and formulation of pesticides including stock-piles	29.1 Process wastes or residues 29.2 Sludge containing residual pesticides 29.3 Date-expired and off-specification pesticides 29.4 Spent solvents 29.5 Spent catalysts 29.6 Spent acids
30.	Leather tanneries	30.1 Chromium bearing residue and sludge
31.	Electronic Industry	31.1 Process residue and wastes 31.2 Spent etching chemicals and solvents
32.	Pulp and Paper Industry	32.1 Spent chemicals 32.2 Corrosive wastes arising from use of strong acid and bases 32.3 Process sludge containing adsorbable organic halides(AO _x)
33.	Handling of hazardous chemicals and wastes	33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes 33.2 Contaminated cotton rags or other cleaning materials
34.	De-contamination of barrels / containers used for handling of hazardous wastes/chemicals	34.1 Chemical-containing residue arising from decontamination. 34.2 Sludge from treatment of waste water arising out of cleaning / disposal of barrels / containers
35.	Purification and treatment of exhaust air/gases, water and waste water from the processes in this schedule and common industrial effluent treatment plants (CETP's)	35.1 Exhaust Air or Gas cleaning residue 35.2 Spent ion exchange resin containing toxic metals 35.3 Chemical sludge from waste water treatment 35.4 Oil and grease skimming 35.5 Chromium sludge from cooling water
36.	Purification process for organic	36.1 Any process or distillation residue

(1)	(2)	(3)
	compounds/solvents	36.2 Spent carbon or filter medium
37.	Hazardous waste treatment processes, e.g. pre-processing, incineration and concentration	37.1 Sludge from wet scrubbers 37.2 Ash from incinerator and flue gas cleaning residue 37.3 Concentration or evaporation residues
38.	Chemical processing of Ores containing heavy metals such as Chromium, Manganese, Nickel, Cadmium etc.	38.1 Process residues 38.2 Spent acid

* The inclusion of wastes contained in this Schedule does not preclude the use of Schedule II to demonstrate that the waste is not hazardous. In case of dispute, the matter would be referred to the Technical Review Committee constituted by Ministry of Environment, Forest and Climate Change.

Note: The high volume low effect wastes such as fly ash, Phosphogypsum, red mud, jarosite, Slags from pyrometallurgical operations, mine tailings and ore beneficiation rejects are excluded from the category of hazardous wastes. Separate guidelines on the management of these wastes shall be issued by Central Pollution Control Board.

SCHEDULE II
[See rule 3 (1) (17) (ii)]

List of waste constituents with concentration limits

Class A: Based on leachable concentration limits [Toxicity Characteristic Leaching Procedure (TCLP) or Soluble Threshold Limit Concentration (STLC)]

Class	Constituents	Concentration in mg/l
(1)	(2)	(3)
A1	Arsenic	5.0
A2	Barium	100.0
A3	Cadmium	1.0
A4	Chromium and/or Chromium (III) compounds	5.0
A5	Lead	5.0
A6	Manganese	10.0
A7	Mercury	0.2
A8	Selenium	1.0
A9	Silver	5.0
A10	Ammonia	50*
A11	Cyanide	20*
A12	Nitrate (as nitrate-nitrogen)	1000.0
A13	Sulphide (as H ₂ S)	5.0
A14	1,1-Dichloroethylene	0.7
A15	1,2-Dichloroethane	0.5
A16	1,4-Dichlorobenzene	7.5
A17	2,4,5-Trichlorophenol	400.0
A18	2,4,6-Trichlorophenol	2.0
A19	2,4-Dinitrotoluene	0.13
A20	Benzene	0.5
A21	Benzo (a) Pyrene	0.001
A22	Bromodichloromethane	6.0
A23	Bromoform	10.0
A24	Carbon tetrachloride	0.5
A25	Chlorobenzene	100.0
A26	Chloroform	6.0
A27	Cresol (ortho+ meta+ para)	200.0
A28	Dibromochloromethane	10.0
A29	Hexachlorobenzene	0.13
A30	Hexachlorobutadiene	0.5
A31	Hexachloroethane	3.0
A32	Methyl ethyl ketone	200.0
A33	Naphthalene	5.0
A34	Nitrobenzene	2.0
A35	Pentachlorophenol	100.0
A36	Pyridine	5.0
A37	Tetrachloroethylene	0.7
A38	Trichloroethylene	0.5

(1)	(2)	(3)
A39	Vinyl chloride	0.2
A40	2,4,5-TP (Silvex)	1.0
A41	2,4-Dichlorophenoxyacetic acid	10.0
A42	Alachlor	2.0
A43	Alpha HCH	0.001
A44	Atrazine	0.2
A45	Beta HCH	0.004
A46	Butachlor	12.5
A47	Chlordane	0.03
A48	Chlorpyrifos	9.0
A49	Delta HCH	0.004
A50	Endosulfan (alpha+ beta+ sulphate)	0.04
A51	Endrin	0.02
A52	Ethion	0.3
A53	Heptachlor (& its Epoxide)	0.008
A54	Isoproturon	0.9
A55	Lindane	0.4
A56	Malathion	19
A57	Methoxychlor	10
A58	Methyl parathion	0.7
A59	Monocrotophos	0.1
A60	Phorate	0.2
A61	Toxaphene	0.5
A62	Antimony	15
A63	Beryllium	0.75
A64	Chromium (VI)	5.0
A65	Cobalt	80.0
A66	Copper	25.0
A67	Molybdenum	350
A68	Nickel	20.0
A69	Thallium	7.0
A70	Vanadium	24.0
A71	Zinc	250
A72	Fluoride	180.0
A73	Aldrin	0.14
A74	Dichlorodiphenyltrichloroethane (DDT), Dichlorodipenyldichloroethylene (DDE), Dichlorodipenyldichloroethane (DDD)	0.1
A75	Dieldrin	0.8
A76	Kepone	2.1
A77	Mirex	2.1
A78	Polychlorinated biphenyls	5.0
A79	Dioxin (2,3,7,8-TCDD)	0.001

Class B: Based on Total Threshold Limit Concentration (TTLC)

Class	Constituent	Concentration in mg/kg
(1)	(2)	(3)
B1	Asbestos	10000
B2	Total Petroleum Hydrocarbons (TPH) (C5 - C36)	5,000

Note:

- (1) The testing method for list of constituents at A1 to A61 in Class-A, shall be based on Toxicity Characteristic Leaching Procedure (TCLP) and for extraction of leachable constituents, USEPA Test Method 1311 shall be used.
- (2) The testing method for list of constituents at A62 to A79 in Class- A, shall be based on Soluble Threshold Limit Concentration (STLC) and Waste Extraction Test (WET) Procedure given in Appendix II of section 66261 of Title 22 of California Code regulation (CCR) shall be used.
- (3) In case of ammonia (A10), cyanide (A11) and chromium VI (A64), extractions shall be conducted using distilled water in place of the leaching media specified in the TCLP/STLC procedures.
- (4) A summary of above specified leaching/extraction procedures is included in manual for characterization and analysis of hazardous waste published by Central Pollution Control Board and in case the method is not covered in the said manual, suitable reference method may be adopted for the measurement.
- (5) In case of asbestos, the specified concentration limits apply only if the substances are in a friable, powdered or finely divided state.
- (6) The hazardous constituents to be analyzed in the waste shall be relevant to the nature of the industry and the materials used in the process.
- (7) Wastes which contain any of the constituents listed below shall be considered as hazardous, provided they exhibit the characteristics listed in Class-C of this Schedule :

1.	Acid Amides
2.	Acid anhydrides
3.	Amines
4.	Anthracene
5.	Aromatic compounds other than those listed in Class A
6.	Bromates, (hypo-bromites)
7.	Chlorates (hypo-chlorites)
8.	Carbonyls
9.	Ferro-silicate and alloys
10.	Halogen- containing compounds which produce acidic vapours on contact with humid air or water e.g. silicon tetrachloride, aluminum chloride, titanium tetrachloride
11.	Halogen- silanes
12.	Halogenated Aliphatic Compounds
13.	Hydrazine (s)

14.	Hydrides
15.	Inorganic Acids
16.	Inorganic Peroxides
17.	Inorganic Tin Compounds
18.	Iodates
19.	(Iso- and thio-) Cyanates
20.	Manganese-silicate
21.	Mercaptans
22.	Metal Carbonyls
23.	Metal hydrogen sulphates
24.	Nitrides
25.	Nitriles
26.	Organic azo and azoxy Compounds
27.	Organic Peroxides
28.	Organic Oxygen Compounds
29.	Organic Sulphur Compounds
30.	Organo- Tin Compounds
31.	Organo nitro- and nitroso compounds
32.	Oxides and hydroxides except those of hydrogen, carbon, silicon, iron, aluminum, titanium, manganese, magnesium, calcium
33.	Phenanthrene
34.	Phenolic Compounds
35.	Phosphate compounds except phosphates of aluminum, calcium and iron
36.	Salts of pre-acids
37.	Total Sulphur
38.	Tungsten Compounds
39.	Tellurium and tellurium compounds
40.	White and Red Phosphorus
41.	2-Acetylaminofluorene
42.	4-Aminodiphenyl
43.	Benzidine and its salts
44.	Bis (Chloromethyl) ether
45.	Methyl chloromethyl ether
46.	1,2-Dibromo-3-chloropropane
47.	3,3'-Dichlorobenzidine and its salts
48.	4-Dimethylaminoazobenzene
49.	4-Nitrobiphenyl
50.	Beta-Propiolactone

CLASS C : Based on hazardous Characteristics

Apart from the concentration limit given above, the substances or wastes shall be classified as hazardous waste if it exhibits any of the following characteristics due to the presence of any hazardous constituents:

Class C1: Flammable- A waste exhibits the characteristic of flammability or ignitability if a representative sample of the waste has any of the following properties, namely:-

- (i) flammable liquids, or mixture of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc; but not including substances or wastes otherwise classified on account of their dangerous characteristics), which give off a flammable vapour at temperature less than 60°C. This flash point shall be measured as per ASTM D 93-79 closed-cup test method or as determined by an equivalent test method published by Central Pollution Control Board;
- (ii) it is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns vigorously and persistently creating a hazard;
- (iii) it is an ignitable compressed gas;
- (iv) It is an oxidizer and for the purposes of characterisation is a substance such as a chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter.

Class C2: Corrosive- A waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties, namely:-

- (i) it is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5;
- (ii) it is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm per year at a test temperature of 55 °C;
- (iii) it is not aqueous and, when mixed with an equivalent weight of water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5;
- (iv) it is not a liquid and, when mixed with an equivalent weight of water, produces a liquid that corrodes steel (SAE1020) at a rate greater than 6.35 mm per year at a test temperature of 55 °C.

Note:

For the purpose of determining the corrosivity, the Bureau of Indian Standard 9040 C method for pH determination, NACE TM 01 69 : Laboratory Corrosion Testing of Metals and EPA 1110A method for corrosivity towards steel (SAE1020) to establish the corrosivity characteristics shall be adopted.

Class C3: Reactive or explosive- A waste exhibits the characteristic of reactivity if a representative sample of the waste it has any of the following properties, namely:-

- (i) it is normally unstable and readily undergoes violent change without detonating;
- (ii) it reacts violently with water or forms potentially explosive mixtures with water;
- (iii) when mixed with water, it generates toxic gases, vapours or fumes in a quantity sufficient to present a danger to human health or the environment;
- (iv) it is a cyanide or sulphide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapours or fumes in a quantity sufficient to present a danger to human health or the environmental;
- (v) it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;
- (vi) it is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure;
- (vii) it is a forbidden explosive.

Class C4: Toxic- A waste exhibits the characteristic of toxicity, if, :-

- (i) the concentration of the waste constituents listed in Class A and B (of this schedule) are equal to or more than the permissible limits prescribed therein;
- (ii) it has an acute oral LD50 less than 2,500 milligrams per kilogram;
- (iii) it has an acute dermal LD50 less than 4,300 milligrams per kilogram;
- (iv) it has an acute inhalation LC50 less than 10,000 parts per million as a gas or vapour;
- (v) it has acute aquatic toxicity with 50% mortality within 96 hours for zebra fish (*Brachidanio rerio*) at a concentration of 500 milligrams per litre in dilution water and test conditions as specified in BIS test method 6582 – 2001.
- (vi) it has been shown through experience or by any standard reference test- method to pose a hazard to human health or environment because of its carcinogenicity, mutagenicity, endocrine disruptivity, acute toxicity, chronic toxicity, bio-accumulative properties or persistence in the environment.

Class C5: Substances or Wastes liable to spontaneous combustion -Substances or Wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.

Class C6: Substances or Wastes which, in contact with water emit flammable gases-Substances or Wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

Class C5: Oxidizing - Substances or Wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.

Class C8: Organic Peroxides - Organic substances or Wastes which contain the bivalent O-O structure, which may undergo exothermic self-accelerating decomposition.

Class C9: Poisons (acute) -Substances or Wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

Class C10: Infectious substances - Substances or Wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

Class C11: Liberation of toxic gases in contact with air or water - Substances or Wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

Class C12: Eco-toxic- Substances or Wastes which if released, present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation or toxic effects upon biotic systems or both.

Class C13: Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above.

SCHEDULE III

[See rules 3 (1) (17) (iii), 3 (23), 12, 13 and 14]

Part A

List of hazardous wastes applicable for import and export with Prior Informed Consent [Annexure VIII of the Basel Convention*]

Basel No.	Description of Hazardous Wastes
(1)	(2)
A1	Metal and Metal bearing wastes
A1010	Metal wastes and waste consisting of alloys of any of the following but excluding such wastes specifically listed in Part B and Part D
	- Antimony
	- Cadmium
	- Lead
	- Tellurium
A1020	Waste having as constituents or contaminants, excluding metal wastes in massive form, any or the following:
	- Antimony, antimony compounds
	- Cadmium, cadmium compounds
	- Lead, lead compounds
	- Tellurium, tellurium compounds
A1040	Waste having metal carbonyls as constituents
A1050	Galvanic sludges
A1070	Leaching residues from zinc processing, dust and sludges such as jarosite, hematite, etc.
A1080	Waste zinc residues not included in Part B, containing lead and cadmium in concentrations sufficient to exhibit hazard characteristics indicated in Part C
A1090	Ashes from the incineration of insulated copper wire
A1100	Dusts and residues from gas cleaning systems of copper smelters
A1120	Waste sludges, excluding anode slimes, from electrolyte purification systems in copper electrorefining and electrowinning operations
A1140	Waste cupric chloride and copper cyanide catalysts not in liquid form note the related entry in Schedule VI
A1150	Precious metal ash from incineration of printed circuit boards not included in Part B
A1160	Waste lead acid batteries, whole or crushed
A1170	Unsorted waste batteries excluding mixtures of only Part B batteries. Waste batteries not specified in Part B containing constituents mentioned in Schedule II to an extent to render them hazardous
A2	Wastes containing principally inorganic constituents, which may contain metals and organic materials
A2010	Glass waste from cathode-ray tubes and other activated glasses
A2030	Waste catalysts but excluding such wastes specified in Part B
A3	Wastes containing principally organic constituents, which may contain metals and inorganic materials
A3010	Waste from the production or processing of petroleum coke and bitumen
A3020	Waste mineral oils unfit for their originally intended use
A3050	Wastes from production, formulation and use of resins, latex, plasticizers, glues or adhesives excluding such wastes specified in Part B (B4020)
A3120	Fluff-light fraction from shredding

(1)	(2)
A3130	Waste organic phosphorus compounds
A4	Wastes which may contain either inorganic or organic constituents
A4010	Wastes from the production, preparation and use of pharmaceutical products but excluding such waste specified in Part B
A4040	Wastes from the manufacture, formulation and use of wood-preserving chemicals (does not include wood treated with wood preserving chemicals)
A4070	Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish excluding those specified in Part B (B4010)
A4100	Wastes from industrial pollution control devices for cleaning of industrial off-gases but excluding such wastes specified in Part B
A4120	Wastes that contain, consist of or are contaminated with peroxides.
A4130	Wastes packages and containers containing Schedule II constituents in concentration sufficient to exhibit Part C of Schedule III hazard characteristics.
A4140	Waste consisting of or containing off specification or outdated chemicals (unused within the period recommended by the manufacturer) corresponding to constituents mentioned in Schedule II and exhibiting Part C of Schedule III hazard characteristics.
A4160	Spent activated carbon not included in Part B, B2060

*This List is based on Annexure VIII of the Basel Convention on Transboundary Movement of Hazardous Wastes and comprises of wastes characterized as hazardous under Article I, paragraph 1(a) of the Convention. Inclusion of wastes on this list does not preclude the use of hazard.

Characteristics given in Annexure VIII of the Basel Convention (Part C of this Schedule) to demonstrate that the wastes are not hazardous. **Hazardous wastes in Part-A are restricted and cannot be allowed to be imported without permission from the Ministry of Environment, Forest and Climate Change and the Directorate General of Foreign Trade license, if applicable.**

Part B

List of other wastes applicable for import and export and not requiring Prior Informed Consent [Annex IX of the Basel Convention*]

Basel No.	Description of wastes
(1)	(2)
B1	Metal and metal-bearing wastes
B1010	Metal and metal-alloy wastes in metallic, non-dispersible form: <ul style="list-style-type: none"> - Thorium scrap - Rare earths scrap
B1020	Clean, uncontaminated metal scrap, including alloys, in bulk finished form (sheet, plates, beams, rods, etc.), of: <ul style="list-style-type: none"> - Antimony scrap - Beryllium scrap - Cadmium scrap - Lead scrap (excluding lead acid batteries) - Selenium scrap - Tellurium scrap
B1030	Refractory metals containing residues

(1)	(2)
B1031	Molybdenum, tungsten, titanium, tantalum, niobium and rhenium metal and metal alloy wastes in metallic dispersible form (metal powder), excluding such wastes as specified in Part A under entry A1050, Galvanic sludges
B1040	Scrap assemblies from electrical power generation not contaminated with lubricating oil, PCB or PCT to an extent to render them hazardous
B1050	Mixed non-ferrous metal, heavy fraction scrap, containing cadmium, antimony, lead & tellurium mentioned in Schedule II in concentrations sufficient to exhibit Part C characteristics
B1060	Waste selenium and tellurium in metallic elemental form including powder
B1070	Waste of copper and copper alloys in dispersible form, unless they contain any of the constituents mentioned in Schedule II to an extent that they exhibit Part C characteristics
B1080	Zinc ash and residues including zinc alloys residues in dispersible form unless they contain any of the constituents mentioned in Schedule II in concentration such as to exhibit Part C characteristics
B1090	Waste batteries conforming to a standard battery specification, excluding those made with lead, cadmium or mercury
B1100	Metal bearing wastes arising from melting, smelting and refining of metals:
	- Slags from copper processing for further processing or refining containing arsenic, lead or cadmium
	- Slags from precious metals processing for further refining
	- Wastes of refractory linings, including crucibles, originating from copper smelting
B1110	Used Electrical and electronic assemblies other than those listed in Part D of Schedule III
	Electronic assemblies consisting only of metals or alloys Waste electrical and electronic assemblies or scrap (including printed circuit boards) not containing components such as accumulators and other batteries included in Part A of Schedule III, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Schedule II constituents such as cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Part C of Schedule III (note the related entry in Schedule VI, A1180)
B1120	Spent catalysts excluding liquids used as catalysts, containing any of: Transition metals, excluding waste catalysts (spent catalysts, liquid used catalysts or other catalysts) in Part A and Schedule VI: <ul style="list-style-type: none"> - Scandium - Titanium - Vanadium - Chromium - Manganese - Iron - Cobalt - Nickel - Copper - Zinc - Yttrium - Zirconium - Niobium - Molybdenum - Hafnium - Tantalum

(1)	(2)
	<ul style="list-style-type: none"> - Tungsten - Rhenium Lanthanides (rare earth metals): <ul style="list-style-type: none"> - Lanthanum - Cerium
	<ul style="list-style-type: none"> - Praseodymium - Neodymium - Samarium - Europium - Gadolinium - Terbium - Dysprosium - Holmium - Erbium - Thulium - Ytterbium - Lutetium
B1130	Cleaned spent precious metal bearing catalysts
B1140	Precious metal bearing residues in solid form which contain traces of inorganic cyanides
B1150	Precious metals and alloy wastes (gold , silver, the platinum group but not mercury) in a dispersible form, non-liquid form with appropriate packaging and labelling
B1160	Precious metal ash from the incineration of printed circuit boards (note the related entry in Part A A1150)
B1170	Precious metal ash from the incineration of photographic film
B1180	Waste photographic film containing silver halides and metallic silver
B1190	Waste photographic paper containing silver halides and metallic silver
B1200	Granulated slag arising from the manufacture of iron and steel
B1210	Slag arising from the manufacture of iron and steel including slags as a source of Titanium dioxide and Vanadium
B1220	Slag from zinc production, chemically stabilised, having a high iron content (above 20%) and processed according to industrial specifications mainly for construction
B1230	Mill scale arising from the manufacture of iron and steel
B1240	Copper Oxide mill-scale
B2	Wastes containing principally inorganic constituents, which may contain metals and organic materials
B2010	Wastes from mining operations in non-dispersible form: <ul style="list-style-type: none"> - Natural graphite waste - Slate wastes - Mica wastes - Leucite, nepheline and nepheline syenite waste - Feldspar waste - Fluorspar waste - Silica wastes in solid form excluding those used in foundry operations
B2020	Glass wastes in non-dispersible form: <ul style="list-style-type: none"> - Cullet and other waste and scrap of glass except for glass from cathode-ray tubes and other activated glasses
B2030	Ceramic wastes in non-dispersible form: <ul style="list-style-type: none"> - Cermet wastes and scrap (metal ceramic composites) - Ceramic based fibres
B2040	Other wastes containing principally inorganic constituents: <ul style="list-style-type: none"> - Partially refined calcium sulphate produced from flue gas desulphurization (FGD) - Waste gypsum wallboard or plasterboard arising from the demolition of buildings

(1)	(2)
	<ul style="list-style-type: none"> - Slag from copper production, chemically stabilized, having a high iron content (above 20%) and processed according to industrial specifications mainly for construction and abrasive applications - Sulphur in solid form - Limestone from production of calcium cyanamide (pH<9) - Sodium, potassium, calcium chlorides - Carborundum (silicon carbide) - Broken concrete - Lithium-tantalum and lithium-niobium containing glass scraps
B2060	Spent activated carbon not containing any of Schedule II constituents to the extent they exhibit Part C characteristics, for example, carbon resulting from the treatment of potable water and processes of the food industry and vitamin production (note the related entry in Part A A4160)
B2070	Calcium fluoride sludge
B2080	Waste gypsum arising from chemical industry processes not included in Schedule VI (note the related entry in A2040)
B2090	Waste anode butts from steel or aluminium production made of petroleum coke or bitumen and cleaned to normal industry specifications (excluding anode butts from chlor alkali electrolyses and from metallurgical industry)
B2100	Waste hydrates of aluminium and waste alumina and residues from alumina production, excluding such materials used for gas cleaning, flocculation or filtration processes
B2130	Bituminous material (asphalt waste) from road construction and maintenance, not containing tar (note the related entry in Schedule VI, A3200)
B3	Wastes containing principally organic constituents, which may contain metals and inorganic materials
B3027	Self-adhesive label laminate waste containing raw materials used in label material production
B3030	<p>Textile wastes</p> <p>The following materials, provided they are not mixed with other wastes and are prepared to a specification:</p> <ul style="list-style-type: none"> - Silk waste (including cocoons unsuitable for reeling, yarn waste and garnetted stock) <ul style="list-style-type: none"> • not carded or combed • other - Waste of wool or of fine or coarse animal hair, including yarn waste but excluding garnetted stock <ul style="list-style-type: none"> • noils of wool or of fine animal hair • other waste of wool or of fine animal hair • waste of coarse animal hair - Cotton waste (including yarn waste and garnetted stock) <ul style="list-style-type: none"> • yarn waste (including thread waste) • garnetted stock • other - Flax tow and waste - Tow and waste (including yarn waste and garnetted stock) of true hemp (<i>Cannabis sativa L.</i>) - Tow and waste (including yarn waste and garnetted stock) of jute and other textile bast fibres (excluding flax, true hemp and ramie) - Tow and waste (including yarn waste and garnetted stock) of sisal

(1)	(2)
	and other textile fibres of the genus Agave <ul style="list-style-type: none"> - Tow, noils and waste (including yarn waste and garneted stock) of coconut - Tow, noils and waste (including yarn waste and garneted stock) of abaca (Manila hemp or Musa textilis Nee) - Tow, noils and waste (including yarn waste and garneted stock) of ramie and other vegetable textile fibres, not elsewhere specified or included - Waste (including noils, yarn waste and garneted stock) of man-made fibres <ul style="list-style-type: none"> • of synthetic fibres • of artificial fibres - Worn clothing and other worn textile articles - Used rags, scrap twine, cordage, rope and cables and worn out articles of twine, cordage, rope or cables of textile materials <ul style="list-style-type: none"> • sorted • other
B3035	Waste textile floor coverings, carpets
B3040	Rubber Wastes The following materials, provided they are not mixed with other wastes: <ul style="list-style-type: none"> - Waste and scrap of hard rubber (e.g., ebonite) - Other rubber wastes (excluding such wastes specified elsewhere)
B3050	Untreated cork and wood waste: <ul style="list-style-type: none"> - Wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms - Cork waste: crushed, granulated or ground cork
B3060	Wastes arising from agro-food industries provided it is not infectious: <ul style="list-style-type: none"> - Wine lees - Dried and sterilized vegetable waste, residues and by-products, whether or not in the form of pellets, of a kind used in animal feeding, not elsewhere specified or included - Degras: residues resulting from the treatment of fatty substances or animal or vegetable waxes - Waste of bones and horn-cores, unworked, defatted, simply prepared (but not cut to shape), treated with acid or degelatinised - Fish waste - Cocoa shells, husks, skins and other cocoa waste - Other wastes from the agro-food industry excluding by-products which meet national and international requirements and standards for human or animal consumption
B3070	The following wastes: <ul style="list-style-type: none"> - Waste of human hair - Waste straw - Deactivated fungus mycelium from penicillin production to be used as animal feed
B3080	Waste parings and scrap of rubber
B3090	Paring and other wastes of leather or of composition leather not suitable for the manufacture of leather articles, excluding leather sludges, not containing hexavalent chromium compounds and biocides (note the related entry in Schedule VI, A3100)

(1)	(2)
B3100	Leather dust, ash, sludges or flours not containing hexavalent chromium compounds or biocides (note the related entry in Schedule VI, A3090)
B3110	Fellmongery wastes not containing hexavalent chromium compounds or biocides or infectious substances (note the related entry in Schedule VI, A3110)
B3120	Wastes consisting of food dyes
B3130	Waste polymer ethers and waste non-hazardous monomer ethers incapable of forming peroxides
B3140	Waste pneumatic and other tyres, excluding those which do not lead to resource recovery, recycling, reclamation but not for direct reuse
B4	Wastes which may contain either inorganic or organic constituents
B4010	Wastes consisting mainly of water-based or latex paints, inks and hardened varnishes not containing organic solvents, heavy metals or biocides to an extent to render them hazardous (note the related entry in Part A, A4070)
B4020	Wastes from production, formulation and use of resins, latex, plasticizers, glues or adhesives, not listed in Part A, free of solvents and other contaminants to an extent that they do not exhibit Part C characteristics (note the related entry in Part A, A3050)
B4030	Used single-use cameras, with batteries not included in Part A

* This list is based on Annexure IX of the Basel Convention on Transboundary Movement of Hazardous Wastes and comprises of wastes not characterized as hazardous under Article-I of the Basel Convention. **The wastes in Part- B are restricted and cannot be allowed to be imported without permission from the Ministry of Environment, Forest and Climate Change and the Directorate General of Foreign Trade license, if applicable.**

Note:

- (1) Copper dross containing copper greater than 65% and lead and Cadmium equal to or less than 1.25% and 0.1% respectively; spent cleaned metal catalyst containing copper; and copper reverts, cake and residues containing lead and cadmium equal to or less than 1.25% and 0.1% respectively are allowed for import without Director General of Foreign Trade license to units (actual users) authorised by State Pollution Control Board and with the Ministry of Environment, Forest and Climate Change's permission. Copper reverts, cake and residues containing lead and cadmium greater than 1.25% and 0.1% respectively are under restricted category for which import is permitted only against Director General of Foreign Trade license for the purpose of processing or reuse by units permitted with the Ministry of Environment, Forest and Climate Change (actual users).
- (2) Zinc ash or skimmings in dispersible form containing zinc more than 65% and lead and cadmium equal to or less than 1.25% and 0.1% respectively and spent cleaned metal catalyst containing zinc are allowed for import without Director General of Foreign Trade license to units authorised by State Pollution control Board, Ministry of Environment, Forest and Climate Change's permission (actual users) upto an annual quantity limit indicated in registration letter. Zinc ash and skimmings containing less than 65% zinc and lead and cadmium equal to or more than 1.25% and 0.1% respectively and hard zinc spelter and brass dross containing lead greater than 1.25% are under restricted category for which import is permitted against Director General of Foreign Trade license and only for purpose of processing or reuse by units registered with the Ministry of Environment Forest and Climate Change (actual users).

Part C
List of Hazardous Characteristics

<u>Code</u>	<u>Characteristic</u>
H 1	<p>Explosive</p> <p>An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surrounding.</p>
H 3	<p>Flammable liquids</p> <p>The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc. but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5°C, closed-cup test, or not more than 65.6°C, open-cup test. (Since the results of open-cups tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition).</p>
H 4.1	<p>Flammable solids</p> <p>Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.</p>
H 4.2	<p>Substances or wastes liable to spontaneous combustion</p> <p>Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.</p>
H 4.3	<p>Substances or wastes which, in contact with water emit flammable gases</p> <p>Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.</p>
H 5.1	<p>Oxidizing</p> <p>Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion or other materials.</p>
H 5.2	<p>Organic Peroxides</p> <p>Organic substances or wastes which contain the bivalent-o-o-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.</p>

H 6.1 Poisons (acute)

Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

H 6.2 Infectious substances

Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

H 8 Corrosives

Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.

H 10 Liberation of toxic gases in contact with air or water

Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

H 11 Toxic (delayed or chronic)

Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity).

H 12 Eco-toxic

Substances or wastes which if released, present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation or toxic effects upon biotic systems or both.

H 13 Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above.

Part D

List of other wastes applicable for import and export without permission from Ministry of Environment, Forest and Climate Change [Annex IX of the Basel Convention*]

Basel No.	Description of wastes
(1)	(2)
B1	Metal and metal-bearing wastes
B1010	Metal and metal-alloy wastes in metallic, non-dispersible form : <ul style="list-style-type: none"> - Precious metals (gold, silver, platinum but not mercury) ** - Iron and steel scrap ** - Nickel scrap ** - Aluminium scrap ** - Zinc scrap ** - Tin scrap ** - Tungsten scrap ** - Molybdenum scrap ** - Tantalum scrap ** - Cobalt scrap ** - Bismuth scrap ** - Titanium scrap ** - Zirconium scrap ** - Manganese scrap ** - Germanium scrap ** - Vanadium scrap ** - Hafnium scrap ** - Indium scrap ** - Niobium scrap ** - Rhenium scrap ** - Gallium scrap ** - Magnesium scrap ** - Copper scrap ** - Chromium scrap **
B1050	Mixed non-ferrous metal, heavy fraction scrap, containing metals other than specified in Part B1050 and not containing constituents mentioned in Schedule II in concentrations sufficient to exhibit Part C characteristics* *
B1100	Metal bearing wastes arising from melting, smelting and refining of metals: <ul style="list-style-type: none"> - Hard Zinc spelter ** - Zinc-containing drosses * *: <ul style="list-style-type: none"> ~ Galvanizing slab zinc top dross (>90% Zn) ~ Galvanizing slab zinc bottom dross (>92% Zn) ~ Zinc die casting dross (>85% Zn) ~ Hot dip galvanizers slab zinc dross (batch) (>92% Zn) ~ Zinc skimmings - Aluminium skimmings (or skims) excluding salt slag

(1)	(2)
B1110	<p>Electrical and electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse and not for recycling or final disposal</p> <ul style="list-style-type: none"> - Used electrical and electronic assemblies imported for repair and to be re-exported back after repair within one year of import * * * - Used electrical and electronic assemblies imported for rental purpose and re-exported back within one year of import * * * - Used electrical and electronic assemblies exported for repair and to be re-import after repair - Used electrical and electronic assemblies imported for testing, research and development, project work purposes and to be re-exported back within a period of three years from the date of import * * * - Spares imported for warranty replacements provided equal number of defective or non-functional parts are exported back within one year of the import * * * - Used electrical and electronic assemblies imported by Ministry of Defence, Department of Space and Department of Atomic Energy * * * - Used electrical and electronic assemblies (not in bulk; quantity less than or equal to three) imported by the individuals for their personal uses - Used Laptop, Personal Computers, Mobile, Tablet up to 01 number each imported by organisations in a year - Used electrical and electronic assemblies owned by individuals and imported on transfer of residence - Used multifunction print and copying machines (MFDs)* * * * - Used electrical and electronic assemblies imported by airlines for aircraft maintenance and remaining either on board or under the custodianship of the respective airlines warehouses located on the airside of the custom bonded areas.
B3	Wastes containing principally organic constituents, which may contain metals and inorganic materials
B3020	<p>Paper, paperboard and paper product wastes ** The following materials, provided they are not mixed with hazardous wastes: Waste and scrap of paper or paperboard of:</p> <ul style="list-style-type: none"> - unbleached paper or paperboard or of corrugated paper or paperboard - other paper or paperboard, made mainly of bleached chemical pulp, not coloured in the mass - paper or paperboard made mainly of mechanical pulp (for example newspapers, journals and similar printed matter) - other, including but not limited to <ul style="list-style-type: none"> (1) laminated paperboard (2) unsorted scrap
B3140	Aircraft Tyres exported to Original Equipment Manufacturers for re-treading and re-imported after re-treading by airlines for aircraft maintenance and remaining either on board or under the custodianship of the respective airlines warehouses located on the airside of the custom bonded areas

Note:

* This list is based on Annexure IX of the Basel Convention on Transboundary Movement of Hazardous Wastes and comprises of wastes not characterized as hazardous under Article-I of the Basel Convention.

* * Import permitted in the country to the actual user or to the trader on behalf of the actual users authorised by SPCB on one time basis and subject to verification of documents specified in Schedule VIII of these rules by the Custom Authority.

* * * Import permitted in the country only to the actual users from Original Equipment Manufacturers (OEM) and subject to verification of documents specified in Schedule VIII of these rules by the Custom Authority.

* * * * Import permitted in the country to the actual users or trader on behalf of the actual user in accordance with the documents required and verified by the Custom Authority as specified under Schedule VIII of these rules. The policy for free trade for multifunction print and copying machine to be reviewed once the MFDs are domestically manufactured.

All other wastes listed in Part D of Schedule III having no "Stars" are permitted without any documents from MoEF&CC subject to compliance of the conditions of the Customs Authority, if any.

SCHEDULE IV

[See rules 6 (1) (ii) and 6 (2)]

List of commonly recyclable hazardous wastes

S.No.	Wastes
(1)	(2)
1.	Brass Dross
2.	Copper Dross
3.	Copper Oxide mill scale
4.	Copper reverts, cake and residue
5.	Waste Copper and copper alloys in dispersible form
6.	Slags from copper processing for further processing or refining
7.	Insulated Copper Wire Scrap or copper with PVC sheathing including ISRI-code material namely "Druid"
8.	Jelly filled Copper cables
9.	Spent cleared metal catalyst containing copper
10.	Spent catalyst containing nickel, cadmium, Zinc, copper, arsenic, vanadium and cobalt
11.	Zinc Dross-Hot dip Galvanizers SLAB
12.	Zinc Dross-Bottom Dross
13.	Zinc ash/Skimmings arising from galvanizing and die casting operations
14.	Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining
15.	Zinc ash and residues including zinc alloy residues in dispersible form
16.	Spent cleared metal catalyst containing zinc
17.	Used Lead acid battery including grid plates and other lead scrap/ashes/residues not covered under Batteries (Management and Handling) Rules, 2001. [Battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes". Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains".

(1)	(2)
18.	Components of waste electrical and electronic assemblies comprising accumulators and other batteries included in Part A of Schedule III, mercury-switches, activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule II constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in part C of Schedule III.
19.	Paint and ink Sludge/residues
20.	Used oil and waste oil

SCHEDULE V
[See rules 3 (36) and 3 (39)]

PART A
Specifications of Used Oil Suitable for recycling

S.No.	Parameter	Maximum permissible Limits
(1)	(2)	(3)
1.	Polychlorinated biphenyls (PCBs)	< 2ppm *
2.	Lead	100 ppm
3.	Arsenic	5 ppm
4.	Cadmium+Chromium+Nickel	500 ppm
5.	Polyaromatic hydrocarbons (PAH)	6%

Part B
Specification of fuel derived from waste oil

S.No.	Parameter	Maximum permissible limits
(1)	(2)	(3)
1.	Sediment	0.25%
2.	Lead	100 ppm
3.	Arsenic	5 ppm
4.	Cadmium+Chromium+Nickel	500 ppm
5.	Polyaromatic hydrocarbons (PAH)	6%
6.	Total halogens	4000 ppm
7.	Polychlorinated biphenyls (PCBs)	<2 ppm *
8.	Sulfur	4.5%
9.	Water Content	1%

*The detection limit is 2 ppm by gas Liquid Chromatography (GLC) using Electron Capture detector (ECD)

SCHEDULE VI
 [See rules 12 (6), 12 (7) and 14(1)]

Hazardous and Other wastes prohibited for import

Basel No	Description of hazardous and other wastes
(1)	(2)
A1	Metal and Metal bearing wastes
A1010	Metal wastes and waste consisting of alloys of any of the following but excluding such wastes specifically listed in Part B and Part D of Schedule III - Arsenic - Beryllium - Mercury - Selenium - Thallium
A1020	Wastes having as constituents or contaminants, excluding metal wastes in massive form, any of the following: - Beryllium; beryllium compounds - Selenium; selenium compounds
A1030	Wastes having as constituents or contaminants any of the following: - Arsenic; arsenic compounds - Mercury; mercury compounds - Thallium; thallium compounds
A1040	Waste having hexavalent chromium compounds as constituents
A1140	Waste cupric chloride and copper cyanide catalysts in liquid form (note the related entry in Part A of Schedule III)
A1060	Wastes liquors from the pickling of metals
A1110	Spent electrolytic solutions from copper electrorefining and electrowinning operations
A1130	Spent etching solutions containing dissolved copper
A1180	Waste electrical and electronic assemblies or scrap (does not include scrap assemblies from electric power generation) containing components such as accumulators and other batteries included in Part A of Schedule III, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Schedule II constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in Part C of Schedule III (note the related entry in Part B B1110)
A1190	Waste metal cables coated or insulated with plastics containing or contaminated with coal tar, PCB, lead, cadmium, other organohalogen compounds or other constituents as mentioned in Schedule II to the extent that they exhibit hazard characteristics indicated in Part C of Schedule III
A2	Wastes containing principally inorganic constituents, which may contain metals and organic materials
A2020	Waste inorganic fluorine compounds in the form of liquids or sludges but excluding such wastes specified in Part B

(1)	(2)
A2040	Waste gypsum arising from chemical industry processes, if it contains any of the constituents mentioned in Schedule 2 to the extent that they exhibit hazard characteristics indicated in Part C of Schedule III (note the related entry in Part B B2080)
A2050	Waste asbestos (dusts and fibres)
A2060	Coal-fired power plant fly-ash containing Schedule II constituents in concentrations sufficient to exhibit Part C characteristics
A3	Wastes containing principally organic constituents, which may contain metals and inorganic materials
A3030	Wastes that contain, consist of or are contaminated with leaded anti-knock compounds sludges.
A3040	Waste thermal (heat transfer) fluids
A3060	Waste nitrocellulose
A3070	Waste phenols, phenol compounds including chlorophenol in the form of liquids or sludges
A3080	Waste ethers not including those specified in Part B
A3090	Waste leather dust, ash, sludges and flours when containing hexavalent chromium compounds or biocides (note the related entry in Part B B3100)
A3100	Waste paring and other waste of leather or of composition leather not suitable for the manufacture of leather articles, containing hexavalent chromium compound and biocides (note the related entry in Part B B3090)
A3110	Fellmongery wastes containing hexavalent chromium compounds or biocides or infectious substances (note the related entry in Part B B3110)
A3140	Waste non-halogenated organic solvents but excluding such wastes specified in Part B
A3150	Waste halogenated organic solvents
A3160	Waste halogenated or unhalogenated non-aqueous distillation residues arising from organic solvent recovery operations
A3170	Waste arising from the production of aliphatic halogenated hydrocarbons (such as chloromethane, dichloro-ethane, vinyl chloride, vinylidene chloride, allyl chloride and epichlorhydrin)
A3180	Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB) or any other polybrominated analogues of these compounds
A3190	Waste tarry residues (excluding asphalt cements) arising from refining, distillation and any pyrolytic treatment of organic materials
A3200	Bituminous material (asphalt waste) from road construction and maintenance, containing tar (note the related entry in Part B, B2130)
A4	Wastes which may contain either inorganic or organic constituents
A4020	Clinical and related wastes; that is wastes arising from medical, nursing, dental, veterinary, or similar practices, and wastes generated in hospitals or other facilities during the investigation or treatment of patients, or research projects.
A4030	Waste from the production, formulation and use of biocide and phyto-pharmaceuticals, including waste pesticides and herbicides which are off-specification, out-dated (unused within the period recommended by the manufacturer), or unfit for their originally intended use,

(1)	(2)
A4050	Wastes that contain, consist of, or are contaminated with any of the following: <ul style="list-style-type: none"> - Inorganic cyanides, excepting precious-metal-bearing residues in solid form containing traces of inorganic cyanides. - Organic cyanides
A4060	Waste oils/water, hydrocarbons/water mixtures, emulsions
A4080	Wastes of an explosive nature (but excluding such wastes specified in Part B)
A4090	Waste acidic or basic solutions, other than those specified at B2120 of this Schedule
A4110	Wastes that contain, consist of or are contaminated with any of the following: <ul style="list-style-type: none"> - Any congener of polychlorinated dibenzo-furan. - Any congener of polychlorinated dibenzo-P-dioxin.
A4150	Waste chemical substances arising from research and development or teaching activities which are not identified and /or are new and whose effects on human health and /or the environment are not known
B1	Metal and Metal bearing wastes
B 1110	Used critical care medical equipment for re-use
B1115	Waste metal cables coated or insulated with plastics, not included in A1190 of this schedule, excluding those destined for operations which do not lead to resource recovery, recycling, reclamation, direct re-use or alternative uses or any other disposal operations involving, at any stage, uncontrolled thermal processes, such as open-burning.
B1250	Waste end-of-life motor vehicles, containing neither liquids nor other hazardous components
B2	Wastes containing principally inorganic constituents, which may contain metals and organic materials
B2050	Coal-fired power plant fly-ash, note the related entry at A2060 of this Schedule
B2110	Bauxite residue (red mud) (pH moderated to less than 11.5)
B2120	Waste acidic or basic solutions with a pH greater than 2 and less than 11.5, which are not corrosive or otherwise hazardous (note the related entry at A4090 of this schedule)
B3	Wastes containing principally organic constituents, which may contain metals and inorganic materials
B3010	Solid plastic waste The following plastic or mixed plastic waste, prepared to a specification: <ul style="list-style-type: none"> - Scrap plastic of non-halogenated polymers and co-polymers, including but not limited to the following: Ethylene, Styrene, Polypropylene, polyethylene terephthalate, Acrylonitrile, Butadiene, Polyacetals, Polyamides, polybutylene terephthalate, Polycarbonates, Polyethers, polyphenylene sulphides, acrylic polymers, alkanes C10-C13 (plasticiser), polyurethane (not containing CFC's), Polysiloxanes, polymethyl methacrylate, polyvinyl alcohol, polyvinyl butyral, Polyvinyl acetate - Cured waste resins or condensation products including the following: urea formaldehyde resins, phenol formaldehyde resins, melamine formaldehyde resins, epoxy resins, alkyd resins, polyamides - The following fluorinated polymer wastes (excluding post-consumer wastes):

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(1)	(2)
	perfluoroethylene/ propylene, perfluoro alkoxy alkane, tetrafluoroethylene/per fluoro vinyl ether (PFA), tetrafluoroethylene/per fluoro methylvinyl ether (MFA), polyvinylfluoride , polyvinylidene fluoride
B3026	The following waste from the pre-treatment of composite packaging for liquids, not containing constituents mentioned in Schedule II in concentrations sufficient to exhibit Part C characteristics: <ul style="list-style-type: none"> - Non-separable plastic fraction - Non-separable plastic-aluminium fraction -
B3065	Waste edible fats and oils of animal or vegetable origin (e.g. frying oil)
B3140	Waste pneumatic tyres for direct reuse
Y 46	Wastes collected from household/municipal waste
Y 47	Residues arising from the incineration of household wastes

SCHEDULE VII

[See rules 13 (6) and 21]

List of authorities and corresponding duties

S. No.	Authority	Corresponding Duties
(1)	(2)	(3)
1.	Ministry of Environment, Forests and Climate Change under the Environment (Protection) Act, 1986	<ul style="list-style-type: none"> (i) Identification of hazardous and other wastes (ii) Permission to exporters of hazardous and other wastes (iii) Permission to importer of hazardous and other wastes (iv) Permission for transit of hazardous and other wastes through India. (v) Promote environmentally sound management of hazardous and other waste. (vi) Sponsoring of training and awareness programme on Hazardous and Other Waste Management related activities.
2.	Central Pollution Control Board constituted under the Water (Prevention and Control of Pollution) Act, 1974	<ul style="list-style-type: none"> (i) Co-ordination of activities of State Pollution Control Boards (ii) Conduct training courses for authorities dealing with management of hazardous and other wastes (iii) Recommend standards and specifications for treatment and disposal of wastes and leachates, recommend procedures for characterisation of hazardous wastes.

(1)	(2)	(3)
		<ul style="list-style-type: none"> (iv) Inspection of facilities handling hazardous waste as and when necessary. (v) Sector specific documentation to identify waste for inclusion in these rules. (vi) Prepare and update guidelines to prevent or minimise the generation and handling of hazardous and other wastes. (vii) Prepare and update guidelines/ Standard Operating Procedures (SoPs) for recycling, utilization, pre-processing, co-processing of hazardous and other wastes. (viii) To prepare annual review report on management of hazardous waste. (ix) Any other function assigned by the Ministry of Environment, Forest and Climate Change, from time to time.
3.	State Government/Union Territory Government/Administration	<ul style="list-style-type: none"> (i) Identification of site (s) for common Hazardous and Other Waste Treatment Storage and Disposal Facility (TSDF) (ii) Asses Environment Impact Assessment (EIA) reports and convey the decision of approval of site or otherwise Acquire the site or inform operator of facility or occupier or association of occupiers to acquire the site (iii) Notification of sites. (iv) Publish periodically an inventory of all potential or existing disposal sites in the State or Union Territory
4.	State Pollution Control Boards or Pollution Control Committees constituted under the Water (Prevention and Control of Pollution) Act, 1974	<ul style="list-style-type: none"> (i) Inventorisation of hazardous and other wastes (ii) Grant and renewal of authorisation (iii) Monitoring of compliance of various provisions and conditions of permission including conditions of permission for issued by Ministry of Environment, Forest and Climate Change for exports and imports (iv) Examining the applications for imports submitted by the importers and forwarding the same to Ministry of Environment, Forest and Climate Change (v) Implementation of programmes to prevent or reduce or minimise the generation of hazardous and other wastes. (vi) Action against violations of these rules. (vii) Any other function under these Rules assigned by Ministry of Environment, Forest and Climate Change from time to time.
5.	Directorate General of Foreign	(i) Grant of licence for import of hazardous

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(1)	(2)	(3)
	Trade constituted under the Foreign Trade (Development and Regulation) Act, 1992	and other wastes (ii) Refusal of licence for hazardous and other wastes prohibited for imports and export
6.	Port authority under Indian Ports Act, 1908 (15 of 1908) and Customs Authority under the Customs Act, 1962 (52 of 1962)	(i) Verify the documents (ii) Inform the Ministry of Environment, Forests and Climate Change of any illegal traffic (iii) Analyse wastes permitted for imports and exports, wherever required. (iv) Train officials on the provisions of these rules and in the analysis of hazardous and other wastes (v) Take action against exporter or importer for violations under the Indian Ports Act, 1908 or Customs Act, 1962

SCHEDULE VIII

[See rules 13(2) and 13 (4)]

List of documents for verification by Customs for import of other wastes specified in Part D of Schedule III

S. No.	Basel No.	Description of other wastes	List of Documents
(1)	(2)	(3)	(4)
1	B1010	Metal and metal-alloy wastes in metallic, non-dispersible form: - Precious metals (gold, silver, platinum) - Iron and steel scrap - Nickel scrap - Aluminium scrap - Zinc scrap - Tin scrap - Tungsten scrap - Molybdenum scrap - Tantalum scrap - Cobalt scrap - Bismuth scrap - Titanium scrap - Zirconium scrap - Manganese scrap - Germanium scrap - Vanadium scrap - Hafnium scrap - Indium scrap - Niobium scrap - Rhenium scrap - Gallium scrap - Magnesium scrap - Copper scrap - Chromium scrap	(a) Duly filled up Form 6 - Movement document; (b) The import license from Directorate General of Foreign Trade, wherever applicable; (a) Pre-shipment inspection certificate issued by the inspection agency of the exporting country or the inspection and certification agency approved by Directorate General of Foreign Trade; (c) The valid consents to operate under the Air and Water Acts and the authorisation under these rules, for actual users. For traders, only valid one time authorisation from concerned SPCB is required; (d) The chemical analysis report of the waste being imported; (e) an acknowledged copy of the annual return filed with concerned State Pollution Control Board for import in the last financial year.

(1)	(2)	(3)	(4)
2	B1050	Mixed non-ferrous metal, heavy fraction scrap, containing metals other than specified in Part B1050 and not containing constituents mentioned in Schedule II in concentrations sufficient to exhibit Part C characteristics* *	<p>(a) Duly filled up Form 6 - Movement document;</p> <p>(b) The import license from Directorate General of Foreign Trade, wherever applicable;</p> <p>(b) Pre-shipment inspection certificate issued by the inspection agency of the exporting country or the inspection and certification agency approved by Directorate General of Foreign Trade;</p> <p>(c) The valid consents to operate under the Air and Water Acts and the authorisation under these rules, for actual users. For traders, only valid authorisation from concerned SPCB is required;</p> <p>(d) The chemical analysis report of the waste being imported;</p> <p>(e) An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year.</p>
3	B1100	<p>Metal bearing wastes arising from melting, smelting and refining of metals:</p> <ul style="list-style-type: none"> - Hard Zinc spelter - Zinc-containing drosses: <ul style="list-style-type: none"> ~ Galvanizing slab zinc top dross (>90% Zn) ~ Galvanizing slab zinc bottom dross (>92% Zn) ~ Zinc die casting dross (>85% Zn) ~ Hot dip galvanizers slab zinc dross (batch) (>92% Zn) ~ Zinc skimmings - Aluminium skimmings (or skims) excluding salt slag 	<p>(c) Duly filled up Form 6 - Movement document;</p> <p>(d) The import license from Directorate General of Foreign Trade, wherever applicable;</p> <p>(e) Pre-shipment inspection certificate issued by the inspection agency of the exporting country or the inspection and certification agency approved by Directorate General of Foreign Trade;</p> <p>(f) The valid consents to operate under the Air and Water Acts and the authorisation under these rules, for actual users. For traders, only valid authorisation from concerned SPCB is required;</p> <p>(g) The chemical analysis report of the waste being imported;</p> <p>(h) An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year.</p>
4	B1110	Electrical and electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse and not for recycling or final disposal	
(a)		Used electrical and electronic assemblies imported for repair and	(a) Duly filled up Form 6 - Movement document;

Ab

(1)	(2)	(3)	(4)
		to be re-exported after repair within one year of import	<ul style="list-style-type: none"> (b) Undertaking for re-export; (c) Details of previous import, if there has been any and confirmation regarding their re-export; (d) An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year (e) Certificate from exporting company for accepting the repaired and unrepairable electrical and electronic assemblies and the spares or part or component or consumables being re-exported.
(b)		Used electrical and electronic assemblies imported for rental purpose and re-exported back within one year of import	<ul style="list-style-type: none"> (a) Duly filled up Form 6 - Movement document; (b) Undertaking for re-export; (c) Details of previous import, if there has been any and confirmation regarding their re-export; (d) An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year
(c)		Used electrical and electronic assemblies exported for repair and to be re-imported after repair	<ul style="list-style-type: none"> (a) Duly filled up Form 6 - Movement document; (b) Proof of export of the defective electrical and electronic assemblies i.e. shipping or airway document authenticated by Customs
(d)		Used electrical and electronic assemblies imported for testing, research and development, project work purposes and to be re-exported back within a period of three years from the date of import	<ul style="list-style-type: none"> (a) Duly filled up Form 6 - Movement document; (b) Undertaking for re-export; (c) Details of previous import, if there has been any and confirmation regarding their re-export; (d) Chartered Engineer Certificate or certificate from accredited agency of exporting country indicating the functionality, manufacturing date, residual life and serial number; (e) an acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year; (f) Certificate from exporting company for accepting the second hand functional or non-functional electrical and electronic assemblies and/or the spares or part or component or consumables being

(1)	(2)	(3)	(4)
			re-exported at the end of three years.
(e)		Spares imported for warranty replacements provided equal number of defective / non-functional parts are exported back within one year of the import.	(a) Duly filled up Form 6 - Movement document; (b) if refurbished components being imported as replacement to defective component then undertaking for export of equivalent numbers of defective components; (c) Details of previous import, if there has been any and confirmation regarding their re-export; (d) Certificate from exporting company for accepting the re-export of defective or non-functional spares or part or component or consumables being re-exported; (e) Documents on the declared policy regarding the use of second hand or refurbished spare parts for repair of electrical and electronic assemblies during warranty period.
(f)		Used electrical and electronic assemblies imported by Ministry of Defence, Department of Space and Department of Atomic Energy.	---
(g)		Used electrical and electronic assemblies (not in bulk; quantity less than or equal to three) imported by the individuals for their personal uses.	---
(h)		Used Laptop, Personal Computers, Mobile, Tablet up to 03 number each imported by organisations in a year.	---
(i)		Used electrical and electronic assemblies owned by individuals and imported on transfer of residence.	As per existing guidelines of Custom Authority
(j)		Used electrical and electronic assemblies, spares, imported by airlines for aircraft maintenance and remaining either on board or under the custodianship of the respective airlines warehouses located on the airside of the custom bonded areas.	----

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(1)	(2)	(3)	(4)
(j)		Used multifunction print and copying machines (MFDs)*	<p>(a) The country of Origin Certificate along with bill of lading and packaging;</p> <p>(b) The certificate issued by the inspection agency as certified by the exporting country or the inspection and certification agency approved by Directorate General Foreign Trade (DGFT) for functionality, having residual life of not less than five years and serial number;</p> <p>(c) Extended Producer Responsibility-Authorisation under e-waste (Management and Handling) Rules, 2011 as amended from time to time as Producer;</p> <p>(d) The MFDs shall be for printing A 3 size and above;</p> <p>(e) An acknowledged copy of the annual return filed with concerned SPCB for import in the last financial year.</p>
5	B3020	<p>Paper, paperboard and paper product wastes</p> <p>The following materials, provided they are not mixed with hazardous wastes:</p> <p>Waste and scrap of paper or paperboard of:</p> <ul style="list-style-type: none"> - unbleached paper or paperboard or of corrugated paper or paperboard - other paper or paperboard, made mainly of bleached chemical pulp, not coloured in the mass - paper or paperboard made mainly of mechanical pulp (for example newspapers, journals and similar printed matter) - other, including but not limited to <ul style="list-style-type: none"> (1) laminated paperboard (2) unsorted scrap 	<p>(a) Duly filled up Form 6 – Movement document;</p> <p>(b) The import license from Directorate General of Foreign Trade, wherever applicable;</p> <p>(i) Pre-shipment inspection certificate issued by the inspection agency of the exporting country or the inspection and certification agency approved by Directorate General of Foreign Trade;</p> <p>(c) The valid consents to operate under the Air and Water Acts and the authorisation under these rules, for actual users. For traders, only valid authorisation from concerned SPCB is required;</p> <p>(d) The chemical analysis report of the waste being imported;</p> <p>(e) an acknowledged copy of the annual return filed with concerned State Pollution Control Board for import in the last financial year.</p>
6.	B3140	Aircraft Tyres exported to Original Equipment Manufacturers for re-treading and re-imported after re-treading by airlines for aircraft	As per existing guidelines of Custom Authority

(1)	(2)	(3)	(4)
		maintenance and remaining either on board or under the custodianship of the respective airlines warehouses located on the airside of the custom bonded areas	

Note: * The policy for free trade for multifunction print and copying machine to be reviewed once the MFDs are domestically manufactured.

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FORM 1
[See rule 6 (1)]

Application required for grant/renewal of authorisation for generation or collection or storage or transport or reception or recycling or reuse or recovery or pre-processing or co-processing or utilisation or treatment or disposal of hazardous and other waste

Part A: General (to be filled by all)

1. (a) Name and address of the unit and location of facility :
(b) Name of the occupier of the facility or operator of disposal facility with designation, Tel, Fax and e-mail:
(c) Authorisation required for (Please tick mark appropriate activity or activities:
 - (i) Generation
 - (ii) Collection
 - (iii) Storage
 - (iv) Transportation
 - (v) Reception
 - (vi) Reuse
 - (vii) Recycling
 - (viii) Recovery
 - (ix) Pre-processing
 - (x) Co-processing
 - (xi) Utilisation
 - (xii) Treatment
 - (xiii) Disposal
 - (xiv) Incineration
 - (d) In case of renewal of authorisation previous authorisation numbers and dates and provide copies of annual returns of last three years including the compliance reports with respect to the conditions of Prior Environmental Clearance, wherever applicable:
2. (a) Nature and quantity of waste handled per annum (in metric tonne or kilo litre)
(b) Nature and quantity of waste stored at any time (in metric tonne or kilo litre)
3. (a) Year of commissioning and commencement of production:
(b) Whether the industry works:
 - (i) 01 Shift
 - (ii) 02 Shifts
 - (iii) Round the clock
4. Provide copy of the Emergency Response Plan (ERP) which should address procedures for dealing with emergency situations (viz. Spillage or release or fire) as specified in the guidelines of Central Pollution Control Board. Such ERP shall comprise the following, but not limited to:
 - Containing and controlling incidents so as to minimise the effects and to limit danger to the persons, environment and property;
 - Implementing the measures necessary to protect persons and the environment;
 - Description of the actions which should be taken to control the conditions at events and to limit their consequences, including a description of the safety equipment and resources available;
 - Arrangements for training staff in the duties which they are expected to perform;

- Arrangements for informing concerned authorities and emergency services; and
- Arrangements for providing assistance with off-site mitigatory action.

5. Provide undertaking or declaration to comply with all provisions including the scope of submitting bank guarantee in the event of spillage, leakage or fire while handling the hazardous and other waste.

Part B: To be filled by hazardous waste generators

1. (a) Products and by-products manufactured (names and product wise quantity per annum);
 (b) Process description including process flow sheet indicating inputs and outputs (raw materials, chemicals, products, by-products, wastes, emissions, waste water etc.) Please attach separate sheets;
 (c) Characteristics (waste-wise) and Quantity of waste generation per annum;
 (d) Mode of management of (c) above:
 - i. Capacity and mode of secured storage within the plant;
 - ii. Utilisation within the plant (provide details);
 - iii. If not utilised within the plant, please provide details of what is done with this waste;
 - iv. Arrangement for transportation to actual users/ TSDF;
 (e) Details of the environmental safeguards and environmental facilities provided for safe handling of all the wastes at point (c) above;
2. Hazardous and other wastes generated as per these rules from storage of hazardous chemicals as defined under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989

Part C: To be filled by Treatment, storage and disposal facility operators

1. Provide details of the facility including:
 - (i) Location of site with layout map;
 - (ii) Safe storage of the waste and storage capacity;
 - (iii) The treatment processes and their capacities;
 - (iv) Secured landfills;
 - (v) Incineration, if any;
 - (vi) Leachate collection and treatment system;
 - (vii) Fire fighting systems;
 - (viii) Environmental management plan including monitoring; and
 - (ix) Arrangement for transportation of waste from generators.
2. Provide details of any other activities undertaken at the Treatment, storage and disposal facility site.
3. Attach a copy of prior Environmental Clearance.

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Part D: To be filled by recyclers or pre-processors or co-processors or users of hazardous or other wastes

1. Nature and quantity of different wastes received per annum from domestic sources or imported or both:
2. Installed capacity as per registration issued by the District Industries Centre or any other authorised Government agency. Provide copy:
3. Provide details of secured storage of wastes including the storage capacity:
4. Process description including process flow sheet indicating equipment details, inputs and outputs (input wastes, chemicals, products, by-products, waste generated, emissions, waste water, etc.). Attach separate sheets:
5. Provide details of end users of products or by-products:
6. Provide details of pollution control systems such as Effluent Treatment Plant, scrubbers, etc. including mode of disposal of waste:
7. Provide details of occupational health and safety measures:
8. Has the facility been set up as per Central Pollution Control Board guidelines? If yes, provide a report on the compliance with the guidelines:
9. Arrangements for transportation of waste to the facility:

**Signature of the Applicant
Designation**

Date.....

Place.....

FORM 2
[See rule 6(2)]

FORM FOR GRANT OR RENEWAL OF AUTHORISATION BY STATE POLLUTION CONTROL BOARD TO THE OCCUPIERS, RECYCLERS, REPROCESSORS, REUSERS, USER AND OPERATORS OF DISPOSAL FACILITIES

1. Number of authorisation and date of issue :
2. Reference of application (No. and date) :
3.ofis hereby granted an authorisation based on the enclosed signed inspection report for generation, collection, reception, storage, transport, reuse, recycling, recovery, pre-processing, co-processing, utilisation, treatment, disposal or any other use of hazardous or other wastes or both on the premises situated at.....

Details of Authorisation

Sl. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorised mode of disposal or recycling or utilisation or co-processing, etc.	Quantity (ton/annum)

- (1) The authorisation shall be valid for a period of
- (2) The authorisation is subject to the following general and specific conditions (Please specify any conditions that need to be imposed over and above general conditions, if any):

A. General conditions of authorisation:

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty"
7. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
8. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.

9. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
10. The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilisation of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorisation.
11. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.
12. An application for the renewal of an authorisation shall be made as laid down under these Rules.
13. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.
14. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

B. Specific conditions:

Date:

**Signature of Issuing Authority
Designation and Seal**

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FORM 3

[See rules 6(5), 13(7), 14(6), 16(5) and 20 (1)]

FORMAT FOR MAINTAINING RECORDS OF HAZARDOUS AND OTHER WASTES

1. Name and address of the facility :
2. Date of issuance of authorisation and its reference number :
3. Description of hazardous and other wastes handled (Generated or Received)

Date	Type of waste with category as per Schedules I, II and III of these rules	Total quantity (Metric Tonnes)	Method of Storage	Destined to or received from

* Fill up above table separately for indigenous and imported waste.

4. Date wise description of management of hazardous and other wastes including products sent and to whom in case of recyclers or pre-processor or utiliser:
5. Date of environmental monitoring (as per authorisation or guidelines of Central Pollution Control Board):

Signature of occupier

Date.....

Place.....

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FORM 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

1. Name and address of facility:
2. Authorisation No. and Date of issue:
3. Name of the authorised person and full address with telephone, fax number and e-mail:
4. Production during the year (product wise), wherever applicable

Part A. To be filled by hazardous waste generators

1. Total quantity of waste generated category wise
2. Quantity dispatched
 - (i) to disposal facility
 - (ii) to recycler or co-processors or pre-processor
 - (iii) others
3. Quantity utilised in-house, if any -
4. Quantity in storage at the end of the year –

Part B. To be filled by Treatment, storage and disposal facility operators

1. Total quantity received -
2. Quantity in stock at the beginning of the year -
3. Quantity treated –
4. Quantity disposed in landfills as such and after treatment –
5. Quantity incinerated (if applicable) -
6. Quantity processed other than specified above -
7. Quantity in storage at the end of the year -

Part C. To be filled by recyclers or co-processors or other users

1. Quantity of waste received during the year –
 - (i) domestic sources
 - (ii) imported (if applicable)
2. Quantity in stock at the beginning of the year -

- 3. Quantity recycled or co-processed or used –
- 4. Quantity of products dispatched (wherever applicable) –
- 5. Quantity of waste generated -
- 6. Quantity of waste disposed -
- 7. Quantity re-exported (wherever applicable)-
- 8. Quantity in storage at the end of the year -

**Signature of the Occupier or
Operator of the disposal facility**

Date.....

Place.....

FORM 5
[See rules 13 (1) and 14 (1)]

**APPLICATION FOR IMPORT OR EXPORT OF HAZARDOUS AND OTHER WASTE
FOR REUSE OR RECYCLING OR RECOVERY OR CO-PROCESSING OR UTILISATION**

TO BE FILLED IN BY APPLICANT

S. No.	Description	Details to be furnished by the importer or exporter
(1)	(2)	(3)
1.	Importer or Exporter (name and address) in India	
	Contact person	
	Tel, fax and e-mail	
	Facility location/address	
	Reason for import or export	
2.	Importer or exporter (name and address) outside of India	
3.	Details of waste to be imported or exported	
	(a) Quantity	
	(b) Basel No.	
	(c) Single/multiple movement	
	(d) Chemical composition of waste (attach details), where applicable	
	(e) Physical characteristics	
	(f) Special handling requirements, if applicable	
4.	For Schedule III A hazardous waste whether Prior Informed Consent has been obtained	
5.	For importer (a) Process details along with environmental safeguard measures (attach separate sheet) (b) Capacity of recycling or co-processing or recovery or utilization Enclose a copy each of valid authorisation and valid consent to operate from SPCB	
6.	Details of import against the Ministry of Environment, Forest and Climate Change permission in the previous three years	
7.	Port of entry	

9. Undertaking :

I hereby solemnly undertake that:

- (i) The information is complete and correct to the best of my knowledge and legally-enforceable written contractual obligations have been entered into and that my applicable insurance or other financial guarantees are or shall be in force covering the transboundary movement.
- (ii) The waste permitted shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.

- (iii) The record of consumption and fate of the imported waste shall be recorded and report sent to the SPCB every quarter.
- (iv) The hazardous or other waste which gets generated in our premises by the use of imported hazardous or other wastes in the form of raw material shall be treated and disposed of as per conditions of authorisation.
- (v) I agree to bear the cost of export and mitigation of damages if any.
- (vi) I am aware that there are significant penalties for submitting a false certificate/ undertaking/ disobedience of the rules and lawful orders including the possibility of fine and imprisonment.
- (vii) The exported wastes shall be taken back, if it is not acceptable to the importer.

**Signature of the Applicant
Designation**

Date.....

Place.....

(1)	(2)	(3)
12.	Transporter of waste (Name and Address) ¹ Contact Person Tele, Fax and email Registration number Means of transport (road, rail, inland waterway, sea, air) ² Date of Transfer Signature of Carrier's representative	: : : : :
13.	<p>Exporter's declaration for hazardous and other waste:</p> <p>I certify that the information in Sl. Nos. 1 to 12 above are complete and correct to my best knowledge. I also certify that legally-enforceable written contractual obligations have been entered into and are in force covering the transboundary movement regulations/rules.</p> <p>Date:..... Signature:.....</p> <p>Name:.....</p>	
TO BE COMPLETED BY IMPORTER (ACTUAL USER OR TRADER)		
14.	Shipment received by importer/ actual user/trader ^{2/3} Quantity received.....Kg/litres Date: Name: Signature:	
15.	Methods of recovery R code* Technology employed (Attached details if necessary)	
16.	I certify that nothing other than declared goods covered as per these rules is intended to be imported in the above referred consignment and will be recycled /utilized. Signature: Date:	
17.	SPECIFIC CONDITIONS ON CONSENTING TO THE MOVEMENT if applicable.	(attach details)
<p>Notes:-(1) Attach list, if more than one; (2) Select appropriate option; (3) Immediately contact competent authority in case of any emergency; (4) If more than one transporter carriers, attach information as required in SL. No. 12.</p>		

List of abbreviations used in the Movement Document

Recovery Operations (*)

- R1** Use as a fuel (other than in direct incineration) or other means to generate energy.
- R2** Solvent reclamation/regeneration.

- R3 Recycling/reclamation of organic substances which are not used as solvents.
- R4 Recycling/reclamation of metals and metal compounds.
- R5 Recycling/reclamation of other inorganic materials.
- R6 Regeneration of acids or bases.
- R7 Recovery of components used for pollution abatement.
- R8 Recovery of components from catalysts.
- R9 Used oil re-refining or other reuses of previously used oil.
- R10 Land treatment resulting in benefit to agriculture or ecological improvement
- R11 Uses of residual materials obtained from any of the operations numbered R 1 to R 10

Date:

Signature:

Place:

Designation:

FORM 7
[See rule 13 (2) (c)]

**APPLICATION FORM FOR ONE TIME AUTHORISATION OF TRADERS FOR PART- D OF
SCHEDULE III, WASTE**

[To be submitted by trader to the State Pollution Control Board]

1.	Name and address of trader with Telephone, Fax Number and e-mail	:	
2.	TIN/VAT Number/Import/ Export Code	:	
3.	Description and quantity of other waste to be imported	:	
4.	Details of storage, if any	:	
5.	Names and address of authorised actual user (s)	:	

Signature of the authorised person

Date:

Place:

FORM 8
[See rules 17 (1) and 18 (2)]

LABELLING OF CONTAINERS OF HAZARDOUS AND OTHER WASTE

Handle with care

Waste category and characteristics as per Part C of Schedules II and III of these rules	Incompatible wastes and substances
Total quantity	Date of storage
Physical State of the waste (Solid/Semi-solid/liquid):	
Sender's name and address	Receiver's name and address
Phone.....	Phone.....
E-mail.....	E-mail.....
Tel. and Fax No.....	Tel. and Fax No.....
Contact person.....	Contact person.....
In case of emergency please Contact	

Note:

1. Background colour of label - fluorescent yellow.
2. The word, 'HAZARDOUS WASTES' and 'HANDLE WITH CARE' to be prominent and written in red, in Hindi, English and in vernacular language.
3. The word 'OTHER WASTES' to be written prominently in orange, in Hindi, English and in vernacular language.
4. Label should be of non-washable material and weather proof.

FORM 9
[See rule 18 (2)]

TRANSPORT EMERGENCY (TREM) CARD

[To be carried by the transporter during transportation of hazardous and other wastes, provided by the sender of waste]

1. Characteristics of hazardous and other wastes:

S. No.	Type of waste	Physical properties/	Chemical constituents	Exposure hazards	First Aid requirements

- 2. Procedure to be followed in case of fire :
- 3. Procedure to be followed in case of spillage/accident/explosion :
- 4. For expert services, please contact :
 - (i) Name and Address :
 - (ii) Telephone No. :

(Name, contact number and signature of sender)

Date.....

Place.....

FORM 10
[See rule 19 (1)]

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1.	Sender's name and mailing address (including Phone No. and e-mail) :	
2.	Sender's authorisation No. :	
3.	Manifest Document No. :	
4.	Transporter's name and address: (including Phone No. and e-mail)	
5.	Type of vehicle :	(Truck/Tanker/Special Vehicle)
6.	Transporter's registration No. :	
7.	Vehicle registration No. :	
8.	Receiver's name and mailing address (including Phone No. and e-mail) :	
9.	Receiver's authorisation No. :	
10.	Waste description :	
11.	Total quantity : No. of Containers :m ³ or MTNos.
12.	Physical form :	(Solid/Semi-Solid/Sludge/Oily/Tarry/Slurry/Liquid)
13.	Special handling instructions and additional information :	
14.	Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are categorised, packed, marked, and labelled, and are in all respects in proper conditions for transport by road according to applicable national government regulations.
	Name and stamp: Signature: Month Day Year	<input type="text"/>
15.	Transporter acknowledgement of receipt of Wastes	
	Name and stamp: Signature: Month Day Year	<input type="text"/>
16.	Receiver's certification for receipt of hazardous and other waste	
	Name and stamp: Signature: Month Day Year	<input type="text"/>

FORM 11
[See rule 22]

FORMAT FOR REPORTING ACCIDENT

[To be submitted by the facility or sender or receiver or transporter to the State Pollution Control Board]

- 1. The date and time of the accident :
- 2. Sequence of events leading to accident :
- 3. Details of hazardous and other wastes involved in accident :
- 4. The date for assessing the effects of the accident on health or the environment :
- 5. The emergency measures taken :
- 6. The steps taken to alleviate the effects of accidents :
- 7. The steps take to prevent the recurrence of such an accident :

Date:

Signature:

Place:

Designation:

FORM 12
[See rule 24 (1)]

**APPLICATION FOR FILING APPEAL
AGAINST THE ORDER PASSED BY STATE POLLUTION CONTROL BOARD**

- 1. Name and address of the person making the appeal :
- 2. Number, date of order and address of the authority which passed the order, against which appeal is being made : (certified copy of the order be attached)
- 3. Ground on which the appeal is being made :
- 4. Relief sought for :
- 5. List of enclosures other than the order referred in point 2 against which the appeal is being filed. :

Signature.....

Name and address.....

Date:

-----X-----X-----

[23-16/2009- HSMD]

(Bishwanath Sinha)
Joint Secretary to Government of India

MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 6th April, 2016

S.O. 1327(E).—Whereas, the Central Government had, in exercise of powers conferred under sub-section (1) of section 3 and clause (d) of sub-section (2) of section 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with sub-rule (2) of rule 13 of the Environment (Protection) Rules, 1986, published the draft order on Regulation of Use, Handling and Disposal of Polychlorinated Biphenyls in the Gazette of India, Extraordinary, vide number S.O.219(E), dated the 12th August, 2015 for information of all persons and organisations likely to be affected thereby; and notice was given that the said draft notification would be taken into consideration by the Central Government on or after the expiry of a period of sixty days from the date on which copies of the Gazette containing this notification are made available to the public;

And whereas, the copies of the said notification were made available to the public on the 17th September, 2015;

And whereas, the suggestions or objections received in response to the above mentioned draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred under section 3 and section 6 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 13 of the Environment (Protection) Rules, 1986, the Central Government hereby issue the following Order, namely:-

ORDER

1. (1) **Short title and commencement.**— This Order may be called, the Regulation of Polychlorinated Biphenyls Order, 2016.

(2) It shall come into force on the date of its final publication in the Official Gazette.
2. **Manufacture, Import and ban of Polychlorinated Biphenyls.**— The manufacture and import of the Polychlorinated Biphenyls in India shall be banned from the date of final publication of this Order.
3. **Ban on Import of Polychlorinated Biphenyls containing equipment.**— The import of Polychlorinated Biphenyls containing equipment shall be banned from the date of final publication of this Order.
4. **Import, export or trade of Polychlorinated Biphenyls contaminated equipment.**— The import, export or trade of Polychlorinated Biphenyls contaminated equipment shall be regulated as per the provisions of the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
5. **Prohibition of Polychlorinated Biphenyls.**— The use of Polychlorinated Biphenyls in any form shall be completely prohibited by 31st December, 2025.
6. **Safety measures.**— The use of Polychlorinated Biphenyls containing equipment shall be permitted for their certified life time or 31st December 2025, whichever is earlier, provided that they are maintained properly without possibility of leakage or release of Polychlorinated Biphenyls to environment.
7. **The number, quantity and equipment, etc.**— The occupier shall declare the total quantity of Polychlorinated Biphenyls, the number of Polychlorinated Biphenyls containing equipment and Polychlorinated Biphenyls contaminated equipment which are in use and their stockpiles, as per Polychlorinated Biphenyls inventory form as per Form 'A', to the Ministry of Environment, Forest and Climate Change, Government of India, within one year from the date of final publication of this Order.
8. **Precaution.**— The occupier shall not drain or discharge Polychlorinated Biphenyls directly or indirectly on land, in surface water or effluent treatment plant from defective, out of use Polychlorinated Biphenyls containing or contaminated equipment or in use Polychlorinated Biphenyls containing equipment.
9. **Disposal of Polychlorinated Biphenyls.**— The waste Polychlorinated Biphenyls or Polychlorinated Biphenyls contaminated equipment shall be disposed of as per the provisions of the Hazardous Wastes (Management,

Handling and Transboundary Movement) Rules, 2008 by 31st December, 2028. Stockpiles of Polychlorinated Biphenyls if any shall be destroyed in environment beneficial manner by 31st December, 2028.

10. Use of Polychlorinated Biphenyls for scientific purpose.- Notwithstanding anything contained in the foregoing paragraphs, Polychlorinated Biphenyls may be used, sold and imported in quantities as required for research and development activities in Central Universities, Council of Scientific and Industrial Research Laboratories, Government Institutions or Central Power Research Institute after the concurrence of the Ministry of Environment, Forest and Climate Change, Government of India.

Explanation. - For the purpose of this notification.-

- (a) Polychlorinated Biphenyls containing equipment shall mean any equipment that contains 0.05 per cent or more Polychlorinated Biphenyls by weight (i.e. Polychlorinated Biphenyls \geq 500 mg/kg).
- (b) Polychlorinated Biphenyls contaminated equipment shall mean any equipment that contains 0.005 per cent Polychlorinated Biphenyls by weight or more but less than 0.05 per cent. Polychlorinated Biphenyls by weight (i.e. 50 mg/kg \leq Polychlorinated Biphenyls < 500 mg/kg).
- (c) Polychlorinated Biphenyls contamination free equipment shall mean any equipment that contains Polychlorinated Biphenyls less than 0.005 per cent by weight (i.e. Polychlorinated Biphenyls < 50 mg/kg).
- (d) A dielectric fluid or, mineral oil used in the power equipments (transformer, capacitor, etc.) shall continue to be used till 31st December, 2025 if, it contains Polychlorinated Biphenyls less than 0.005 per cent by weight (i.e. Polychlorinated Biphenyls < 50 mg/kg).
- (e) If dielectric fluid or mineral oil used in power equipments contain Polychlorinated Biphenyls less than 2 mg/kg, it could be reprocessed, recycled or reused till 31st December, 2025.
- (f) Polychlorinated Biphenyls waste means discarded materials or packaging that contains Polychlorinated Biphenyls or has been contaminated with Polychlorinated Biphenyls that are without any safe commercial, industrial, agricultural or economic usage.

[F. No. 22-3/2010 -HSMD]

BISHWANATH SINHA, Jt. Secy.

Form-A

DECLARATION FORM FOR POLYCHLORINATED BIPHENYLS

(See paragraph 7)

[Application by an occupier as per paragraph 7 of the Regulation of Polychlorinated Biphenyls Order, 2016.]

Date

From

To

HSM Division

The Ministry of Environment, Forest and Climate Change

Indira Paryavaran Bhawan

Jal Wing, Jor Bagh Road, New Delhi-110003

Sir,

I/We hereby disclose under paragraph 7 of the Regulation of Polychlorinated Biphenyls (PCBs) Order, 2016, the total quantity of PCBs, the number of PCBs containing equipment and PCBs contaminated equipment, which are in use, not in use or in my/our possession and their stockpiles as an occupier(s).

PART I**General**

S. No.	Item details	Description
1 (a)	Name of Occupier	
(b)	Name and complete address, location, contact details of the unit (Telephone Nos., fax and e-mail).	
2.	Status of Occupier: Individual/Proprietary concern/Partnership firm (whether registered or unregistered)/Joint family concern/Hindu Undivided Family/Private Limited Company/Public Limited Company, Government Company: (State Government/Central Government/Union Territory/Public sector undertaking), Any other association or body.	

PART II**Information related to Polychlorinated Biphenyls, Polychlorinated Biphenyls containing equipment and Polychlorinated Biphenyls contaminated equipment in use and their stockpiles**

S.No.	Item	Description
1.	Name of manufacturer(s) of PCBs and PCBs containing equipment : (in use)	
2.	Type (transformer, capacitor, etc.)	
3.	Year of manufacturing :	
4 (a)	Total quantity of Pure PCBs	
4 (b)	Number of PCBs containing equipment	
4 (c)	Number of PCBs contaminated equipment	
4 (d)	Total quantity of stockpiles of PCBs	
5.	Containers for PCBs	
(i)	Are containers leak –proof	<input type="checkbox"/> Yes <input type="checkbox"/> No
(ii)	Is the place of storage of PCBs, PCBs contaminated equipments and PCBs contained equipments clearly marked	<input type="checkbox"/> Yes <input type="checkbox"/> No
6	PCBS analysis performed.	<input type="checkbox"/> Yes <input type="checkbox"/> No
6 (a)	If yes, method followed and when?	
7.	Address of factory (ies), premise(s) where PCBs, PCBs containing equipment and PCBs contaminated equipment is installed/stored (Survey No., Khasra No., location as per revenue records of village/Town Tehsil, District Police Station, State, jurisdiction of the First-Class Magistrate).	

PART-III**Information on waste likely to contain Polychlorinated Biphenyls**

8 (a)	Nature of wastes (e.g. transformer oil in drums, tankers or, reservoirs)	
(b)	Estimated quantity (in tonnes)	
(c)	Brief on how storage of PCBs waste is done	
(d)	Is the place of PCBs waste storage clearly marked	<input type="checkbox"/> Yes <input type="checkbox"/> No

PART-IV

Polychlorinated Biphenyls elimination Action Plan

9 (a)	Action Plan for PCBs elimination prepared	<input type="checkbox"/> Yes <input type="checkbox"/> No
	If yes, provide a copy along with time frame for elimination	
(b)	Brief history of any previous remediation efforts, e.g removal of PCBs containing equipment, PCBs contaminated equipment and PCBs waste for disposal (when, by whom, where to, etc.)	

PART-V**Other relevant information**

Place, Date

Name and signature of applicant

Note: 1. Strike out which is not applicable / relevant.

F. No. 22-13/2019-IA.III
 Government of India
 Ministry of Environment, Forest and Climate Change
 (Impact Assessment Division)

Indira Paryavaran Bhawan
 Aliganj, Jorbagh Road
 New Delhi-110 003

Dated: 28th August, 2019

Office Memorandum

Sub: Change in conditions stipulated in the Environmental Clearances of Thermal Power Plants and Coal Mines in line with the Fly Ash Notification and subsequent amendments - reg.

The Environment Impact Assessment (EIA) Notification, 2006 under the Environment (Protection) Act, 1986 mandates the requirement of prior environmental clearance to the projects/activities listed in the schedule to the said Notification. These projects/activities have been categorized under category A or B and require appraisal/and approval by the respective regulatory authorities (MoEF&CC/SEIAAs) at the Central/State level.

2. As per the provisions of the EIA Notification, 2006, read with subsequent amendments, mining of minerals is covered under Category A/B of the Schedule to the EIA Notification, 2006 based on their areal extent, and thus requiring prior environmental clearance from the concerned regulatory authority.

3. Based on the proposals submitted by the project proponent and recommendations of the sectoral Expert Appraisal Committee, mining projects and thermal power plants were granted Environmental Clearance by the Ministry/State Environment Impact Assessment Authorities (SEIAAs) from time to time, subject to compliance of certain terms and conditions as environmental safeguards necessitated at that stage, which also included the condition for backfilling of mines voids, use/disposal of fly ash in low lying areas, etc.

4. In order to address the environmental concerns of fly ash and to improve its utilization, MoEF&CC has issued a Notification on 14th September, 1999 and subsequent amendments issued vide Notifications dated 27th August, 2003, 3rd November, 2009 and 25th January, 2016 from time to time.

The Fly Ash Notification issued vide S.O.2804 (E) dated 3rd November, 2009 provides for mandatory use of fly ash in the external overburden dump, backfilling or stowing of mines. The main concern is poor fly ash utilization by the pithead power plants mainly because of limited potential in cement industries/road projects and non-utilization of fly ash in stowing and overburden in coal mines.

5. An Expert Committee was constituted for developing a focussed strategy for best utilization of flyash to manufacture end products. The Committee has made recommendations for enhanced utilization of flyash in various sectors viz. mines, roads, bricks manufacturing, cement manufacturing, etc. During an Inter-ministerial consultation held on 21st January, 2019 under the Chairmanship of Secretary (EF&CC), recommendations of the Expert Committee were accepted, which *inter-alia* included the following:-

- a) MoEF&CC should revisit the conditions stipulated in the existing environmental clearances of Thermal Power Plants for flyash utilization and modify them in consonance with the flyash notification.
- b) Appropriate conditions need to be incorporated in the environmental clearances for utilization of flyash in mines backfilling/stowing.

6. The matter has been examined in the Ministry. Further, the matter has been also been referred to the EAC (Thermal Power Projects) in its meeting held on 28.5.2019 and 12.7.2019. The EAC mentioned that though the Flyash Notification, 1999 and subsequent amendments allow the unrestricted use of flyash in abandoned mines, low lying areas, soil conditioner in agriculture, there are no specific guidelines/methodology available for safe disposal of flyash so as to minimize the damage to the environment. In absence of methodology, EAC has been examining the proposals on case to case basis and recommending for disposal of flyash in abandoned mines. Further, the EAC has also expressed the concerns over the long term impacts of flyash disposal on groundwater, soil quality and impact on associated flora and fauna. Now, the guidelines for disposal of fly ash utilisation in low lying areas and mine voids have been prepared by the Central Pollution Control Board and placed before the EAC (Thermal Power and Coal Mining) in its meeting held on 12.7.2019.

7. In view of the recommendations of the EAC (Thermal Power) in its meeting held on 12.7.2019, after careful examination of the matter and to meet the objectives of the Fly Ash Notification, 1999 & its amendments, the Ministry hereby stipulates the following conditions in the existing Environmental Clearances of Thermal Power Plants and Coal mines which have valid Environmental Clearance accorded by the Ministry/SEIAA, that will replace the existing conditions (Specific & General) which prohibited the use of fly ash in abandoned mines/low lying areas/soil conditioner in agriculture:

- i. The guidelines prepared by CPCB for disposal of flyash for reclamation of low lying areas and in stowing/backfilling of abandoned mines/quarries shall be followed during disposal of ash in abandoned or working mines, as annexed.
- ii. There should at least be clearance of 500 m of safe distance be maintained from River and water body in case of ash disposal in abandoned mines to prevent embankment failures and flyash flowing into the nearby water body.
- iii. The top layer of the flyash disposal area in the abandoned mines shall be kept moist during disposal.
- iv. Top layer of the disposed area should have 70 cm overburden or gravels/stones and then 30 cm sweet soil cover. Subsequently, the vegetation shall be raised on the soil cover.
- v. Bioaccumulation and bio-magnification tests shall be conducted on surrounding flora and fauna (tree leaves, vegetation, crop yields and cattle population) during pre-monsoon and post monsoon to find out any trace metals escaped through groundwater or runoff.
- vi. Surface runoff and supernatant water, in any case shall not be let into the surrounding areas. It shall be collected by providing adequate drains around the mine. The supernatant water along with surface runoff shall be treated and re-used for mixing ash and plant operations.
- vii. To the extent possible, only decanted water from mine, make up water from treated effluents such as cooling tower blow down and treated sewage water shall be used for making ash slurry.

- viii. Flyash to be used as soil conditioner in agriculture needs and to be applied in controlled manner to limit excessive application so as to prevent soil degradation. The optimize proportion of ash to be applied which is to be certified by the State Agricultural Universities/Colleges based on the soil testing.
 - ix. Approval from DGMS shall be obtained before disposing the ash in the mine voids.
 - x. Technology for conversion of fly ash into coarse granules for stowing in the underground mines to be explored.
 - xi. All the power plants should install different silos for dry collection of flyash.
 - xii. Records pertaining to details of month-wise quantity of flyash disposed and water consumption along with nature/source of water shall be maintained and submitted to Ministry/Regional Office annually.
 - xiii. Before starting the disposal of ash into mine voids, the NOC/Permission from the mine owner is to be obtained incase the mine closure activities are not completed or State Government incase the mine has been handed over to the State Govt. after its closure. A copy of such NOC/Permission is to be submitted to the Ministry and its Regional Offices.
8. This issues with the approval of the Competent Authority.

(Dr. S. Kerketta)
Director, IA Division

To

1. The Chairman, Central Pollution Control Board (CPCB)
2. The Chairman/Member Secretaries all the Expert Appraisal Committees
3. The Chairman /Member Secretaries of all the SEIAAs/SEACs
4. The Chairman/Member Secretaries of all SPCBs/UTPCCs
5. All the Power Plant Operators/ Coal Mining Operators who were accorded Environmental Clearance.
6. All the ROs of MoEF&CC.
7. All the Officers of I.A. Division

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS (EF&CC)
3. PPS to Secretary(EF&CC)
4. PPS to SS(AKJ) / AS (RSP)
5. Sr.PPS to JS (GM)/ JS(NK)
6. Website of MoEF&CC.
7. Guard file.

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



**Central Pollution Control Board
March, 2019**

I N D E X

Sr No.	Chapter
1.0	Introduction
2.0	Status of flyash utilisation
3.0	Need of guidelines
4.0	Loading/unloading and transportation of flyash
4.1	Current Practice for Handling & Disposal of Flyash & Bottom ash (within the power plant)
4.2	Guidelines for loading, unloading, storage, transportation of flyash
4.2.1	Maximise dry collection of fly ash and bottom ash
4.2.1	Loading, unloading and storage
4.2.3	Transportation
4.2.4	Code of Practices for general maintenance of roads, vehicles and conditioning of flyash
5.0	Reclamation of Low Lying area using Ash
6.0	Disposal of flyash in voids of abandoned mines
6.1	Study requirements
6.2	Mode of ash transportation to mine void area
6.3	Monitoring
6.4	Reclamation of land post-filling
7.0	Precaution
8.0	Regulatory Procedure for Processing the Application
Appendix	Guidelines for disposal of flyash in open cast mines along with Over Burden (OB)
References	1.Guidelines for Reclamation of Low Lying Areas and Abandoned Quarries with Ash , August 2017, Odisha Pollution control board

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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 of 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 flyash 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.

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 flyash 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

BA

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 Bulklers/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

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- 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 (bulkiers/trucks) before deployed for fly ash transportation.
- 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 bulkiers 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 tankiers/ railway wagons/bulkiers 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.

- 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.

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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.

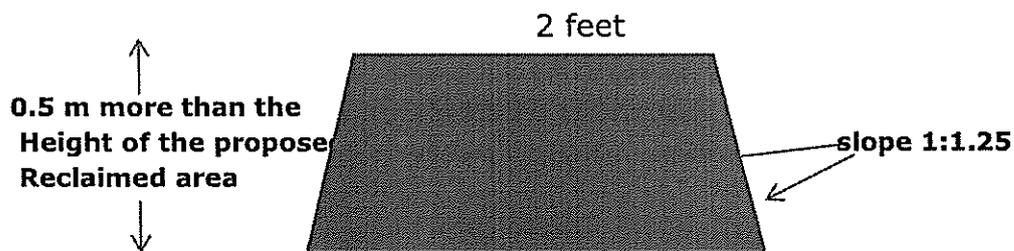
5.2 Preparation of filling area

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 allowing 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 compacted 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

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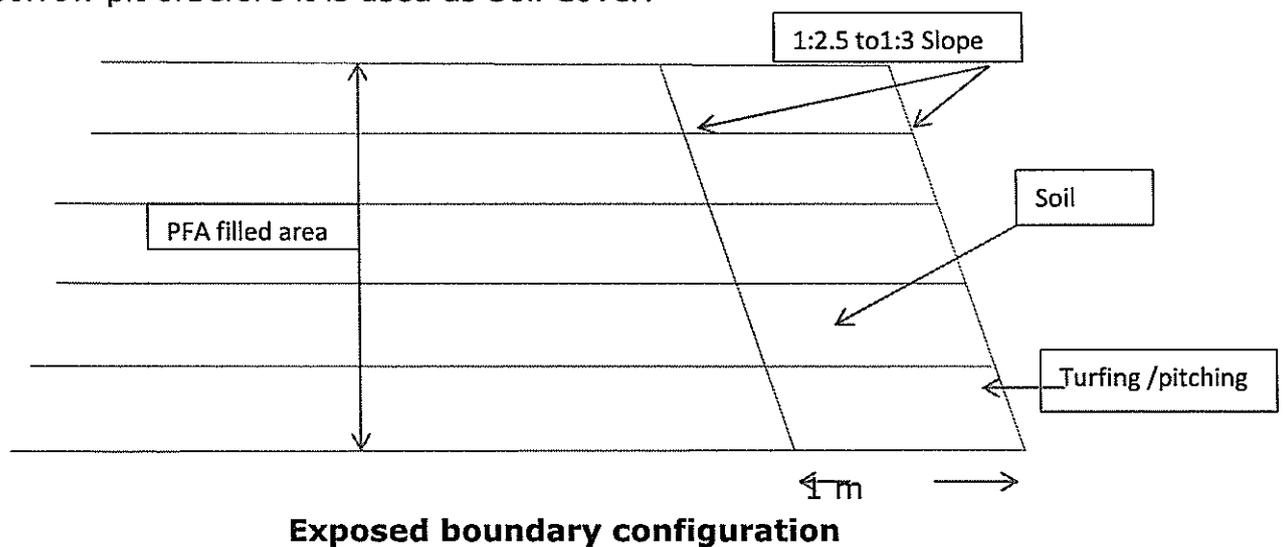
before rolling. The moisture content shall be at most uniform throughout the layer of material and ploughing or other methods of mixing to obtain uniform distribution. If the moisture content is more or less than the range of the required moisture content, or if it is not uniformly distributed throughout 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 or before it is used as Soil Cover.



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 ₂ O ₃ , Fe ₂ O ₃ , K ₂ O, TiO ₂ , CaO, MgO, Na ₂ O, P ₂ O 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	<ul style="list-style-type: none"> • 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
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Table 1.2: Proposed Monitoring Programme After Reclamation of Mine void

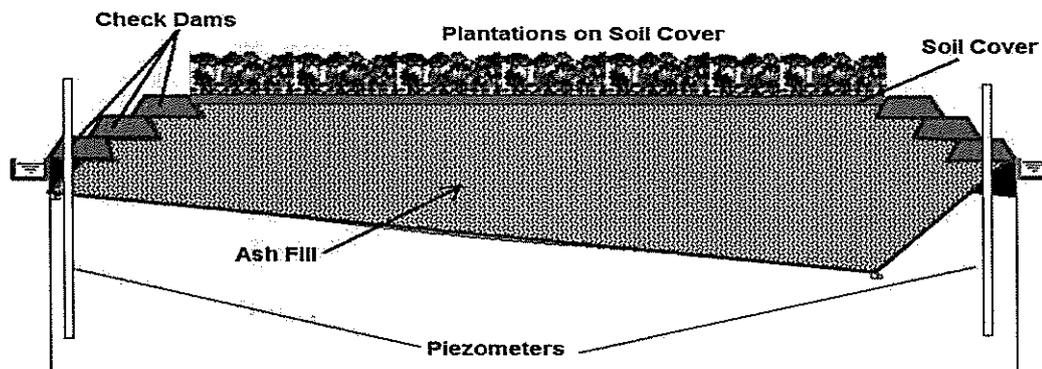
Samples	Parameters to be Analysed	Frequency
Piezometer Water Samples	Chemical Parameters (mg/l, except, pH and EC): pH, EC, TDS, Total Alkalinity, Ca, Mg, Na, K, Cl, SO ₄ , NO ₃ , PO ₄ , Trace Elements (mg/l): As, Ba, Cd, Co, Cr, Cu, F, Fe, Hg, Mn, Ni, Pb, Zn	Twice a year - Pre-monsoon and Post-monsoon
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	<ul style="list-style-type: none"> • 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)/Fiyash/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/overburden 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 conducting 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

1.8.1 The surface and ground water measurement (Chemical Parameters (mg/l): pH, EC, TDS, Total Alkalinity, Ca, Mg, Na, K, Cl, SO₄, NO₃, PO₄, 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 filling and at the end of filling).

1.10.2 The 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, conducting different studies and shall maintain all records as prescribed.

1.10.4 Record 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.

1.10.5 Risk 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

1.10.6 In 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.



Item Nos. 02 to 04

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No.117/2014
WITH

Original Application No. 499/2014
WITH

Original Application No. 102/2014
(M.A. No. 168/2019, M.A. No. 12/2020 & M.A. No. 13/2020)

(With report dated 10.01.2020)

Shantanu Sharma

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

WITH

Anupam Raghav & Anr.

Applicant(s)

Versus

U. O. I. & Ors.

Respondent(s)

WITH

Sandplast (India) Ltd. & Ors.

Applicant(s)

Versus

MoEF & Ors.

Respondent(s)

Date of hearing: 27.01.2020

Date of uploading on the website: 12.02.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

ORDER

1. This order may be read in continuation of order dated 20.11.2018 on the subject of management of fly ash generated by the Thermal Power

Plants (TPPs). This Tribunal considered impact of non-utilization and proper disposal of fly ash by the TPPs on air quality, surface water, ground water, health and environment. After considering the notifications issued by the Ministry of Environment and Forest & Climate Change (MoEF&CC) requiring 100% utilization of fly ash by 31.12.2017 and applicable norms for utilization of fly ash, this Tribunal directed preparation of action plans to achieve 100% utilization of fly ash and for its scientific disposal. The Committee comprising MoEF&CC, CPCB and IIT Roorkee was to determine the liability of the TPPs for damages on 'Polluter Pays' principle.

2. We may note only the case set out by the applicant in O.A. No. 117/2014 as the grievance in other connected matters is identical. It is submitted that non-utilization and improper disposal of fly ash leads to increase in air pollution and causes severe health problems. It also affects horticulture and agricultural crops. As at present, there is an increase in ash pond areas and increased height of ash dykes. Apart from air pollution, there is pollution of surface water and ground water. Major pollutants in fly ash are Arsenic and Mercury. Both the said pollutants are injurious for the land and the water bodies. Thus, there is need for 100% utilization of fly ash by all possible means such as conversion to ash based products, preventing its washing away or flying in the air.
3. In substance, case of the applicant is that air pollution and water pollution is continuing against mandate of law for which no remedial action was being taken. MoEF&CC has failed to ensure proper monitoring and compliance mechanism inspite of issuing notification

on the subject. This is also resulting in failure to enforce the mandate of law under Air Act, 1981; Water Act, 1974 and Environment (Protection) Act, 1986 (EP Act), apart from damage caused to the environment and public health. This is also infringement of 'Sustainable Development' and 'Precautionary' principles. As a consequence of continuing air and water pollution, 'Polluter Pays' principle also needs to be invoked.

4. Notification dated 14.09.1999 was issued by the MoEF&CC which required use of atleast 25% of the ash for clay bricks or tiles or blocks for use in construction activities. The Delhi High Court vide judgment dated 05.08.2004 in Writ Petition (C) No. 2145/1999 directed the Government to make use of fly ash mandatory in roads apart from using it in bricks for construction. Land, electricity and water is required to be made available for promoting ash based production units. Vide amendment dated 03.11.2009, provision was made for its use in manufacturing of building material and in construction activity to preserve top soil. Since quantum of fly ash has increased, the extent of fly ash required to be used in terms of above notification was also increased.
5. In view of the rising concern on account of failure of efficacy of the measures already taken, a Working Group was constituted by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Govt. of India. In its report submitted in the year 2011, the said group *inter-alia* observed that increase in generation of fly ash has led to increase in requirement of land and thus target has to be of 100% utilization as against 60%. The disposal process lacked

transparency and it was necessary that each thermal power plant displays complete information in terms of compliance to environmental norms. Other measures adopted include policy of financial institutions to require compliance of fly ash as a condition for grant of loan and incentives in terms of excise duty. The applicant has also referred to the report jointly published by the World Bank and the Department of Economic Affairs, Govt. of India pointing out the deficiencies in pro-active government policies on the subject.

6. We may now refer to the Notifications on the subject. We have already mentioned that vide Notification dated 14.09.1999, the MoEF&CC issued directions requiring manufacturers of clay bricks or tiles or blocks or construction activities to mix atleast 25% of ash which is to be ensured by the Pollution Control Boards/Committees by canceling the consent order for brick kilns or mining leases. Every thermal power plant was required to make available such ash and phase out dumping and disposal in three years to the extent of 30%, and the remaining in six years. This applied to plants permissions being issued subject to Environmental Clearance prescribing such conditions. The remaining are required to be phased-out in 15 years compliance regarding which made necessary to be furnished to the Central Pollution Control Board and the concerned State Pollution Control Boards/Committees. The Electricity Boards, NTPC and the management of the power plants are to facilitate making available land, electricity and water for manufacturing activities and also to provide access to the ash lifting area and furnish annual implementation report. Manufacturers of ash based products such as cement, blocks, brick panels were to operate as per the guidelines

laid down by the Bureau of Indian Standards, Indian Bureau of Mines, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, New Delhi, Building Materials and Technology Promotion Council, New Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government agencies. The said authorities are to prescribe the use of ash and ash based products in schedules of specifications. Local authorities are to specify such requirement in building bye-laws.

7. Vide Notification dated 27.08.2003, certain amendments were made particularly to the effect that construction agencies were required to use the fly ash to the extent of 100% in a phased manner upto 31.08.2007.
8. Next Notification is dated 03.11.2009, revising the timelines and the period for implementation. The revised timelines apply to the construction agencies as well as thermal power plants as per details mentioned in the said Notification. The said Notification also provided for shifting of the fly ash by filling empty mined voids by stowing.
9. In its reply, the MoEF&CC has referred to the Notifications issued from time to time to deal with the problem. In respect of thermal power stations in its operation before 03.11.2009, extent of requirement of fly ash utilizations is as per following table:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of this notification.

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2.	At least generation 60% of fly ash	Two years from the date of issue of this notification.
3.	At least generation 75% of fly ash	Three years from the date of issue of this notification
4.	At least generation 90% of fly ash	Four years from the date of issue of this notification
5.	At least generation 100% of fly ash	Five years from the date of issue of this notification

10. For those commissioned after 03.11.2009, the extent of requirement of fly ash utilization is as follows:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of commissioning.
2.	At least generation 70% of fly ash	Two years from the date of issue of commissioning.
3.	At least generation 90% of fly ash	Three years from the date of issue of commissioning.
4.	At least generation 100% of fly ash	Four years from the date of issue of commissioning.

11. Conditions prescribed for utilization of fly ash are as follows:

“(a) the pond ash should be made available free of cost on “as is where is basis” to manufacturers of bricks, blocks or tiles including clay fly ash product manufacturing unit(s), farmers, the Central and the State road construction agencies, Public Works Department, and to agencies engaged in backfilling or stowing of mines.

(b) at least 20% of dry ESP fly ash shall be made available free of cost to units manufacturing fly ash or clay-fly ash bricks, blocks and tiles on a priority basis over other users and if the demand from such agencies falls short of 20% of quantity, the balance quantity can be sold or disposed of by the power station as may be possible;

Provided that the fly ash obtained from the thermal power station should be utilized only for the purpose for which it was obtained from the thermal power station or plant

failing which no fly ash shall be made available to the defaulting users."

12. Under the above notification, a Monitoring Committee is to be constituted in every State/Union Territory under the Chairmanship of the Secretary, Department of Environment with representatives from Department of Power, Department of Mining, Road and Building Construction Department and State Pollution Control Board. The Committee is required to deal with any unresolved issue by Dispute Settlement Committee in addition to the monitoring and facilitating the implementation of the notification. Monitoring Committee constituted by the MoEF&CC is to have members from Ministry of Coal, Ministry of Power, Central Pollution Control Board, Central Electricity Authority, Head, Fly Ash Unit of the Department of Science and Technology and Building Material Technology Promotion Council.
13. It is further stated in the affidavit of the MoEF&CC that as per the information received from Central Electricity Authority (CEA), during a meeting, the fly ash generation from 138 thermal power plants is reported to be 163.56 million tons during the year 2012-13. The overall utilization of fly ash was 100.73 million ton, which is about 61.37% of the total fly ash generated. During the year 2012-13, out of 138 (one hundred thirty-eight) thermal power stations for which data was received, 66 (sixty-six) power stations have achieved the targets of fly ash utilization as stipulated in the notification dated 03.11.2009. The remaining 33 (thirty-three) plants have achieved the level of fly ash utilization up to 75%. The 19 (nineteen) plants have achieved the level of fly ash utilization up to 60%.

14. CPCB has given a chart showing progress of fly ash generation and utilization from 1996 to 2012. Some of the State Pollution Control Boards/Committees have filed their affidavits indicating the extents to which utilization of fly ash has taken place.
15. Vide Notification dated 27.01.2016, further amendment was made to the Notification dated 14.09.1999 mainly to the effect that the area within which the fly ash is to be utilized has been increased to 300 kms. The time period to comply with the requirements of 100% utilization of fly ash was extended to 31.12.2017.
16. The matter has been considered on several dates in the last five and a half years. Reference may be made to some of the orders passed.
17. Vide order of this Tribunal dated 06.01.2016, the MoEF&CC, the State Governments/Union Territories were required to furnish the details of the Monitoring Committees and if such Committees were not constituted as per the mandate of the Notification, the same were directed to be constituted. On 03.01.2018, the States/Union Territories were directed to furnish their action plans for utilization of fly ash produced and generated by thermal power plants in accordance with the Notification. On 16.02.2018, it was noted that only eight States have submitted their action plans. MoEF&CC was directed to expedite the collection of action plans from the concerned States. On 20.03.2018, the Chief Secretaries of the States, who had failed to submit action plans, were again required to do so. On 12.07.2018, it was stated that 20 States have submitted their action plans out of which 13 were not complete or satisfactory. The

MoEF&CC was directed to monitor the compliance of the earlier orders referred to above and submit a status report.

18. The matter was thereafter reviewed on 20.11.2018 in the light of the status report filed by MoEF&CC on 07.09.2018. The Tribunal observed as follows:-

"1to25 xxx xxx xxx

26. Accordingly, status report has been filed before this Tribunal on 07.09.2018 by the MoEF&CC stating that no fly ash is generated in 15 States/UTs namely Goa, Himachal Pradesh, Jammu & Kashmir, Kerala, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Andaman and Nicobar, Chandigarh, Daman & Diu, Dadra & Nagar Haveli, Lakshadweep and Pondicherry. Accordingly, the said States and Union Territories and their authorities be deleted from the array of parties.

27. Twenty States have given their action plans. Only State of Arunachal Pradesh has not furnished any action plan. Since there is nothing to show that there is any fly ash generation in the said State, the said State or its authorities are also deleted from array of parties. We do not understand why deletion of unnecessary parties was never sought.

28. The position of each of the remaining twenty States has been mentioned. It may be noted that though the last date for achieving 100% utilization was 31.12.2017 and the said date has not been extended, the States have sought extension of time by 2 to 5 years upto the year 2023 which is wholly uncalled for. This Tribunal has no jurisdiction to grant any extension of time in conflict with the mandate of notification under the Environment (Protection) Act, 1986, particularly when such extension will enable harm to environment, in violation of statutory scheme. It is also stated by some of the States that action plans to achieve 100% utilization of fly ash has not even been furnished by some of the Thermal Power Plants.

29. We may also note that the NITI Aayog, vide order dated 12.06.2018, constituted a Committee headed by Joint Secretary, MoEF&CC, Govt. of India, to develop a focused strategy for best utilization of fly ash to manufacture end products. Issues to be gone into by the Committee are:- revisiting existing notifications / guidelines, transportation of fly ash, better utilization in MSME Sector, cement and allied industries, use of mobile app in data base, guidelines for ash parks, regulation of red bricks, incentives for 100% utilization,

incentives to TPPs for new innovations. Draft report was circulated by MoEF&CC on 16.10.2018. The Committee noted that the existing notification needed review and the same were not being fully implemented.

30. In view of the above, only question for consideration is the directions to be issued on account of failure of 100% utilization of fly ash which has admitted adverse impact on public health and to give effect to the 'Precautionary Principle' and the 'Polluter Pays' Principle to be applied under Section 20 the National Green Tribunal Act, 2010.

31. Since non-utilization of 100% fly ash, especially after 31.12.2017, the date fixed in the Notification of the MoEF&CC dated 25.01.2016, invites penal consequences under the provisions of the Environment Protection Act, 1986, liability in this regard is not only of the persons responsible for non-utilization but also for generators of the fly ash. The generator cannot avoid responsibility for due disposal of any residue pollutants on account of its activity. The principle of 'extended producer's liability' is well recognized as part of 'Sustainable Development'. Applying the 'Precautionary Principle', the permission to dump fly ash in the mined voids has to be subject to all precautionary measures necessary for environment protection. Area of utilization of fly ash has been extended to 300 kms, which may call for more stringent conditions to avoid damage to the environment.

32. The adverse effect of fly ash mismanagement is well acknowledged in decision of Courts¹ as well as by public authorities².

19. After above-consideration, the Tribunal constituted a joint Committee to finalise action plan to achieve 100% utilization of fly ash and to determine the amount of damages to be paid for the violation by the TPPs and also directed interim compensation for the TPPs who are failed to dispose of 100% fly ash upto 31.12.2017. The operative part of the order is:-

¹Occupational Health and Safety Association v. Union of India &Ors. (2004) 3 SCC 547 ¶12-15

²<http://pib.nic.in/PressReleaseDetail.aspx?PRID=1520080>,
<https://economictimes.indiatimes.com/news/politics-and-nation/pmo-asks-agencies-to-increase-usage-of-fly-ash-by-10-times/articleshow/65814656.cms>,
<https://energy.economictimes.indiatimes.com/news/power/from-coal-production-to-renewable-power-obligations-niti-aavog-lays-down-its-3-year-agenda-for-indias-energy-sector/58486230>,
<http://pib.nic.in/newsite/PrintRelease.aspx?relid=179785>

“1 to 32 xxx

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33. We are of the view that a Joint Committee of the representatives of the Ministry of Environment, Forest and Climate Change, Central Pollution Control Board and IIT Roorkee and any other member considered necessary by MoEF&CC needs to be forthwith constituted to finalize action plan covering all aspects so as to not only achieve 100% utilization of fly ash but also to ensure its scientific and environmentally sound disposal. The Committee will also be required to determine the amount of damages to be paid for the violation of requirement of utilization of fly ash. Needless to say that statutory authorities under the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages on 'Polluter Pay's Principle' in exercise of incidental powers to protect environment. The Committee may determine any other allied or incidental issue.

34. Accordingly, we direct constitution of such a Committee by the MoEF&CC forthwith. The Committee may give its report within two months from the date of its assuming charge to the MoEF&CC.

35. The report of the Committee may be complied with by all concerned, subject to any challenge to such report, in accordance with law.

36. Pending submissions of such report, we direct all Thermal Power Stations who have failed to dispose of 100% fly ash up to 31.12.2017, to deposit damages for environment restoration as follows:

Sl. No.	Capacity of the Thermal Power Plant	Cost of damages
1.	Thermal Power Plants upto the capacity of 500 MW	Rs. 1 Crore
2.	Thermal Power Plants upto the capacity of 1000 MW	Rs. 3 Crores
3.	Thermal Power Plants beyond the capacity of 1000 MW	Rs. 5 Crores

37. The above amount may be deposited with the CPCB within one month from today, failing which interest @ 12% p.a. will be payable for the delayed period. The amount may be spent on restoration and restitution of the environment.

38. No damages will be payable by the Thermal Power Plants which have utilized 100% of the ash generated by it in accordance with law up to 31.12.2017 and disposing it in scientific manner. In case, any such claim is found to be false by the Committee, the amount of penalty payable may be up to five times.

39. *The MoEF&CC may furnish an action taken report to this Tribunal on or before 31.03.2019 by e-mail at ngt.filing@gmail.com. All the applications are disposed of.*

20. We may note that vide order dated 13.12.2018 in Diary No. 46100/2018, *Association of Power Producers v. Sandplast (India) Ltd. & Ors.*, the Hon'ble Supreme Court gave liberty to the Association of Power Producers to move this Tribunal. This led to filing of M.A. No. 1798/2018 etc. for recall of order dated 20.11.2018 on the ground that some of the TPPs had not completed period of five years which was permissible for disposal of the fly ash. This plea was rejected in the light of the Notification dated 27.01.2016 fixing 31.12.2017 as outer limit for disposal of the fly ash, irrespective of date of commissioning of power plant. The applications were accordingly disposed of on 03.01.2019. M.A. No. 08/2019 etc. were disposed of on 22.01.2019 giving liberty to the TPPs in question to move the Committee for being heard on the quantum of compensation. M.A. No. 50/2019 and other applications were disposed of on 12.03.2019 giving liberty to the TPPs to move the Committee constituted by this Tribunal. Similar further order was passed on 02.05.2019 in M.A. Nos. 108/2019 to 119/2019.

21. Pursuant to order dated 20.11.2018, the joint Committee has filed its report on 20.12.2019 on the subject of action plan to achieve 100% fly ash utilization by the TPPs and liability of the TPPs to pay compensation. The report mentions the meetings held for the purpose and consideration of the enhanced utilization of fly ash by way of Ash based building construction material such bricks/blocks/tiles; road, flyover embankment construction, Development of low- laying areas,

Reclamation of abandoned mine voids, Ash utilization as soil conditioners of agriculture. As per CPCB, about 77% of total fly ash generated per annum is utilized. This indicates a gap in terms of 23% which needs immediate action. In terms of legacy waste, the total quantum is 1647 million tonnes as on 31.03.2019.

22. The Committee recommended one year time to achieve 100% utilization of fly ash where the utilization currently was more than 85% and two years for the remaining. The action plans of 118 individual units have been annexed. The compliance status is to be reviewed quarterly and on annual basis. On the subject of environmental compensation, it is recommended that compensation should be imposed only on non-pit head TPPs.

It has been recommended by the Committee that raising of ash dyke of ash pond may be considered as fly ash utilization during initial five years. Thereafter, TPPs can use fly ash for strengthening of ash dyke as per engineering requirement but can claim only 5-7% of fly ash generation as utilization.

With regard to breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area, the Committee has recommended that MP Pollution Control Board to ensure effective restoration/remediation of affected sites urgently.

With regard to utilization of unutilized accumulated fly ash (pond ash), the recommendation is to permit three years for non-pit head TPPs and four years for pit head TPPs apart from current utilization w.e.f. April 2021. The recommendations pertaining to

Ministry of Power; Ministry of Coal; NTPC; CPCB; Central Electricity Authority; NHAI; MoEF&CC; Ministry of Housing and Urban Affairs; Ministry of Human Resource Development; Bureau of Indian Standards (BIS); Department of Consumer Affairs and IRC have been separately given. The Ministry of Power has also given its recommendations.

23. The Committee has given a mechanism for assessment of environmental compensation for non-compliance of targeted fly ash utilization by thermal power plant vide Annexure A-II of the said report and has proposed the scenarios viz. EC for plants commissioned before 03.11.2009 and EC for plants commissioned after 03.11.2009. The formula suggested by the joint Committee is as follows:-

3. Determination of Environmental Compensation (EC)

3.1 CPCB on the direction of the Hon'ble National Green Tribunal (NGT), Principal Bench in the matter of OA No. 593/2017 (WP (CIVIL) No. 375/2012, Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors. has formulated following formula for levying the environmental compensation penalty due to non-compliance of the environmental standards/ violation of any directions by industries;

$$EC = PI \times R \times N \times F \times LF$$

$$= ₹ 30000 \text{ per day } (80 \times 250 \times 1.5) \times N \times LF$$

EC = Environmental compensation/penalty (₹);

PI = Pollution Index of industrial sector (80 for red category of industries)

R = Rs in per day (₹ 250)

N = Number of days of violations.

F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5

LF = Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise

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3.2 In light of the above environmental compensation (₹ 30000 per day×330 days per year = ₹ 9900000, say 1 crore per year), it is proposed that, EC may be imposed based on annual basis for compliance of flyash notification after December 31st, 2017 as below:

3.2.1 EC for plants commissioned before 3.11.2009

A: EC for year 2018 and 2019

$$EC = ₹ 1 \text{ crore/ year} \times C \times P \times LF$$

C : Capacity factor 1 for 500 MW and MW/500 for other capacity

P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF = Location factor, 1.5, if industry is located in critically polluted area/ urban area/ecologically sensitive area; otherwise 1

B: Annual EC for year 2020 onwards

$$EC = ₹ 1 \text{ crore/year} C \times P' \times LF$$

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity.

LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

3.2.2 EC for plants commissioned after 3.11.2009

A : EC for year 2018

$$EC = ₹ 1 \text{ crore/year} C \times P \times LF$$

C : Capacity factor 1 for 500 MW and MW/500 for other capacity

P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

B: Annual EC for year 2019 onwards

$$EC = ₹ 1 \text{ crore/year} C \times P' \times LF$$

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity.

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LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

3.3 Temporary storage upto 90 days of generation of fly ash shall be allowed and no environmental compensation will be imposed for accumulated quantity.

24. We may now consider the above report and further course of action.

In the first instance, the mechanism for assessment of Environmental Compensation has over looked certain scientific aspects and hence cannot be agreed to in totality. Location factor should be taken to 1.5 for all situations as the principal contributor to the environment degradation in the area is the TPP. Further, the Capacity Factor has been taken 1 for 350 MW and MW/350 for other capacity, instead of taking 500 MW as a base. Thus, the formula needs to be revised as follows:-

$$EC = PI \times R \times N \times F \times LF$$

$$= ₹ 30000 \text{ per day } (80 \times 250 \times 1.5) \times N \times LF$$

EC = Environmental compensation/penalty (₹)

PI = Pollution Index of industrial sector (80 for red category of industries)

R = Rs in per day (₹ 250)

N = Number of days of violations.

F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5

LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

Therefore, for 330 days per year, the said figure would come to ₹ 9900000 or say ₹ 1 crore per annum. In addition to above, the EC may be imposed on the basis of compliance of Fly Ash Notification after 31.12.2017 as below:

EC for 2018 & 2019:

$$EC = ₹ 1 \text{ crore/ year} \times C \times P \times LF$$

C : Capacity factor 1 for 350 MW and MW/350 for other capacity instead of taking 500 MW as a base.

P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

EC for 2020:

EC = ₹ 1 crore/year × C × P' × LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated fly ash at the end of year divided by annual fly ash generation at full capacity

LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

Note: Temporary storage upto 90 days of generation of fly ash shall be allowed and no environmental compensation will be imposed for accumulated quantity.

25. Secondly, since as per applicable binding regime in terms of notification dated 27.01.2016 mentioned above, 100% fly ash utilization has to be ensured by 31.12.2017, there cannot be any time limit in conflict with the statutory notification. Further, there cannot be unlimited time for disposal of accumulated fly ash (legacy fly ash). Provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 certainly attracted, apart from concepts of Sustainable Development, Precautionary and Polluter Pays principles, which are to be enforced under Section 20 of the National Green Tribunal Act, 2010 (NGT Act) but also are part of right to clean environment and, thus, right to life. While compensation has to be recovered for the damage caused, there cannot be any right to continue to damage the environment. Activity causing damage to the environment has to be prohibited, apart from action for prosecution for the violators of law,

including the Chief Executive Officers of the TPPs in question for continued violations.

26. Thirdly, we may also note that this Tribunal has noticed repeated and continuous defaults by the TPPs resulting in damage to the environment and public health for which compensation has been assessed by the experts under orders of the Tribunal.

In O.A. No. 453/2019, vide order dated 11.10.2019, this Tribunal considered reports of the MPPCB and UPPCB in respect of pollution by the TPPs in districts Singrauli and Sonebhadra respectively. It was found that damage was being caused to the water bodies including Rihand reservoir, surface and ground water and rivers like Son, Renu, Bijul, Kanhar, Gopad, Pankagan, Kathauta Kachan, etc. and streams/nalas like Ballia Nala, Chatka Nala, Kahuwa Nala, Tippa Jharia, Dongia Nala, etc. water was contaminated by toxic effluents discharged and was not fit for consumption.

MPPCB furnished its report dated 21.08.2019 recording a finding that pollution was taking place and recommending compensation as follows:-

“Details of imposed Environmental compensation

*As per the Environmental Compensation guidelines framed by CPCB in compliance of order 31.08.2018 in O.A. 593/2017 the maximum environmental compensation is Rs. 30,000/- per day of non-compliance. The total amount of **56,08,50,000/- (Fifty Six Crore Eight Lac Fifty thousand rupees)** may be imposed upon the 03 TPP & 08 NCL mining project against the non-compliance of the major notification, direction & recommendations issued since 2014.*

Summary of the days of non-compliance & Environmental compensation therefore is as tabulated below:

S. No.	Thermal power plant & Northern Coalfield Mine	Days of Non-compliance	Environmental Compensation in Rupees @ 30000/day
1.	M/s Essar Power MP Limited, Singrauli, MP	01	30,000/-
2.	M/s Sasan Power Limited, Singrauli, MP	1247	3,74,10,000/-
3.	M/s NTPC, Vindhyachal, Singrauli, MP	1389	4,16,70,000/-
4.	NCL, Nigahi, Singrauli	1825	5,47,50,000/-
5.	NCL, Gorbi Block-B, Singrauli	1843	5,52,90,000/-
6.	NCL, Khadia Project,	1825	5,47,50,000/-
7.	NCL, Amlohri area, Singrauli	2185	6,55,50,000/-
8.	NCL, Bina project	1825	5,47,50,000/-
9.	NCL, Dudhichua area	1825	5,47,50,000/-
10.	NCL, Jayant Project	2455	7,36,50,000/-
11.	NCL, Jhingurda area	2275	6,82,50,000/-

Likewise, UPPCB also found pollution by the TPPs in its report dated 28.08.2019 and compensation was recommended as follows:-

“Abridged Status of Environmental Compensation (EC)

S.No.	Name of industry (M/s)	EC in Rs.
1.	NTPC Thermal Power Plant, at Shaktinagar, Sonbhadra (U.P)	27,00,000
2.	Northern Coal Fields Limited (NCL) Project Dudhichua, Sonbhadra (U.P.)	1,30,20,000
3.	Northern Coal Fields Limited (NCL) Project Khadia, Sonbhadra (U.P.)	1,24,80,000
4.	Northern Coal Fields Limited (NCL) Project Krishnashila, Sonbhadra (U.P.)	6,11,40,000
5.	Northern Coal Fields Limited (NCL) Project Bina, Sonbhadra (U.P.)	64,50,000

6.	Northern Coal Fields Limited (NCL) Project Kakri, Sonbhadra (U.P.)	64,50,000
	NTPC Thermal Power Plant at Rihandnagar, Sonbhadra (U.P.)	45,90,000
7.	U.P. Power Corporation Ltd, Thermal Power Plant, Obra, Sonbhadra (U.P.)	6,11,40,000
8.	U.P. Power Corporation Ltd, Thermal Power Plant, Anpara, Sonbhadra (U.P.)	6,11,40,000
10.	LANCO Anpara Power Ltd, Thermal Power Plant, Anpara, Sonbhadra (U.P.)	23,70,000

Apart from recommendation for compensation, the UPPCB also recommended remediation measures and study of carrying capacity as follows:-

"11. Recommendations

In order to suitably address the critical issues of potential concerns to environment in the Singrauli Area, the Committee proposes following Recommendations subject to approval of Hon'ble NGT:

- a. *In keeping with the strict compliance of this referenced Order of Hon'ble NGT, the Statutory Authorities may take note of the findings of this report and ensure appropriate action for recovery of Environmental Compensation due to damage caused to environment.*
- b. *Considering complexity of study components and required expertise in related field / discipline, estimation of environmental damage and cost of remediation be worked out by a consortium of reputed institutions namely National Institute of Hydrology (NIH), Roorkee, National Geophysical Research Institute (NGRI), Hyderabad; National Institute of Occupational Health (NIOH), Ahmedabad; National Botanical Research Institute (NBRI), Lucknow and Indian Institute of Toxicology Research (IITR), Lucknow or such other institutions*

of repute. U.P. Pollution Control Board and M.P. Pollution Control Board may be nodal agencies for execution of the above activities in their respective jurisdiction.

- c. Irrigation Department in U.P. State is required to come out with status of silting in the reservoir impacting adversely on the water holding capacity of the reservoir and possible threat (if any) on the structure of the Rihand dam as the latter was designed to hold water column and is expected to practically holding a significant column of silt due to discharge of industrial effluents.
- d. Environmental carrying capacity in Singrauli area must be worked out to take a decision on new / expansion projects and also to devise an environment friendly strategy on pollution control by the industries in the area.”

27. In O.A. No. 164/2019, with reference to breach of fly ash dyke of ESSAR Thermal Power Plant and NTPC, Vindhya Nagar at Singrauli, M.P., the Committee appointed by this Tribunal headed by Justice Rajes Kumar, former Judge of Allahabad High Court, in its report dated 03.11.2019 observed:-

“(2) By persuasion and monitoring, the Fly Ash disposal by the Thermal Power Plants has been increased but 100% disposal could not be achieved. Disposal of stocked Fly Ash has not yet been started. An exclusive meeting of the Thermal Power Plants has been held on 22nd October, 2019. The meeting was very successful. Some positive suggestions have come out to deal with the Fly Ash. Copy of the Minutes has already been sent by email. It is stated that the Fly Ash is the main cause of the air pollution in the Singrauli-Sonbhadra area. Since the installation of the Thermal Power Plant(s) from the year 1981 onwards, no sincere effort was made by the Thermal Power Plants for the disposal of Fly Ash. It is only because of the sincere effort made by the Committee and regular monitoring, the Thermal Power Plants have started taking steps for disposal of Fly Ash.

(3) Construction of the Fly Ash Dyke and its maintenance was not found technically sound and proper. Recently, two Fly Ash Dykes – one of ESSAR Thermal Power Plant and another of NTPC, Vindhyanagar were

breached, causing heavy environmental damages. The Committee has taken serious note about this happening and has given direction to all Thermal Power Plants to get the certificate of the third party expert about the construction and stability of the Fly Ash Dyke. The Committee is seriously monitoring.

(4) Since long, the industrial effluents have been drained in the Rihand Reservoir. The Fly the Fly Ash has also been drained by some of the Thermal Power Plants, Ash travelled to the Rihand Reservoir, polluting the water of the Rihand Reservoir, which is only source of water. The committee has taken a very serious note of this issue and directed the U.P. Pollution Control Board to prepare a DPR for de-silting of sludge in order to purify the water and to increase the capacity of the Rihand Reservoir which has been substantially reduced due to drainage of affluents and fly ash.

(8) Shri Ashwani Kumar Dubey has filed one Application seeking the various reliefs on account of the environmental damages being cause by the breach of Fly Ash Dyke of ESSAR Thermal Power Plant. The enquiry in pursuance thereof is going on. Shri Ashwani Kumar Dubey has also filed a second Application seeking various reliefs on account of the breach of the Fly Ash Dyke of NTPC Vindhyanagar causing environmental damages. The enquiry in this regard is going on and is pending.”

28. While the above report is yet to be considered, the matter was examine on 05.11.2019 with reference to an earlier report as follows:-

“Generation and storage of Fly-ash in Thermal Power Plants is becoming a great cause of concern affecting the environment. Due to the regular storage of Fly-ash in Fly-ash Dykes since long, affecting air pollution, has led the Ministry of Environment, Forest and Climate Change, Government of India to declare the Sonbhadra and Singrauli area as a most critically polluted area. No proper roadmap has been presented for its proper disposal by the Thermal Power Plants.

It has been noticed that in recent times there had been breach of Ash Dykes of two Thermal Power Plants in Singrauli district of Madhya Pradesh, which has resulted in discharge of Ash slurry to the river as well as to Rihand Reservoir adversely affecting their water quality. These Ash Dyke pertains to Thermal Power Plants (TPPs) namely Mjs Essar Power Ltd and NTPC,Vindhya Nagar. These incidence are of serious concern and indicates improper and non scientific design of Ash Dykes. The Oversight Committee constituted by Hon'ble NGT has taken this matter very seriously and also discussed in the previous meeting. In this regard a meeting of the Committee is convened on October 22, 2019 at 11:00 AM in Circuit House at

Prayagraj to discuss various issues related to handling of Ash and their disposal. The agenda of the meeting is as below: -

All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.

1. To discuss with all the Thermal Power Plants about structural details of their Ash Dykes and their adequacy for handling of Fly Ash generated. Whether submitted the details of ash dykes to SPCBs and taken permissions from SPCBs.
2. All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.

Submission of affidavit by TPPs in compliance of decisions taken in the last meeting of Committee regarding adequacy of Fly Ash Dyke. The status will also be shared about the action taken by TPPs for third party assessment of Ash Dyke of their plants through expert institutions like NEERVIITs.

3. Thermal Power Plants may submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash.
4. What effort has been made to fill up the Fly-Ash in the abandoned Coal Mines and Stone Mines? Whether any letter has been written to the Mine-owners or to the concerned Authority in this regard, seeking permission in light of the discussion in the earlier meeting(s)?
5. To provide opinion about option of developing mounts of Ash Dyke as done by NTPC Thermal Power Plant, Dadri, where green cover has been developed by covering it with the top soil.
6. Submission of status by NTPC Vindhya Nagar about necessary clearance from Madhya Pradesh Pollution Control Board about Gorbi mines and disposal of Fly Ash.
7. Preparation of DPR for project of desilting the Rihand Reservoir and bearing of such expenditure by Thermal Power Plants of the area on polluter pay principle.

All the Thermal Power Plants situated in the State of U.P. and M.P., Members of the Committee, District Magistrate of concerned districts may be informed to attend the meeting with relevant information as per Agenda."

"8. The deliberations of the Committee have been summed up as under:

"Thermal Power Plants — Ash Utilization:

NTPC-Vindhyanagar: Shri V.K. Maurya, Deputy General Manager (Civil Design) NTPC, New Delhi along with Shri Debashis Sen, Executive Director (Vindhyanagar) states that they could not comply the direction given by the Committee in the earlier meeting and could not submit the affidavit till today. They could not file any reply to the points raised in the Agenda of notice. However, Shri V.K. Maurya tried to explain that their Fly Ash Dyke was constructed in accordance to the norms and time to time, when the height of the Dyke was raised, the technical advices were also taken from the experts. However, no evidence in this regard has been produced before us. Despite asking from us that whether they have brought any reply to the points detailed in the agenda, Mr. Jain another officer states that they have everything. The periodical inspection has been made by the various internal department officers but he admitted that no assessment or report by third party agency has been obtained with regard to Fly Ash Dyke. **Prima facie, the Committee is of the view that the officers of the NTPC are still not serious. They have not complied with the direction given by the Committee in the earlier meeting. The affidavit has not been filed. Recently, we came to know that there was a breach of Fly Ash Dyke on 06.10.2019 due to which huge quantity of fly ash slurry travelled alongwith the ground causing damage to crops and the fly ash travelled up to the Rihand Reservoir. If as per the version of Mr. Jain and Mr. Maurya everything was perfectly all right and time to time dykes have been checked why this incident happened. The incident itself shows that there was some deficiency in the construction of Fly Ash Dyke. The whole purpose for asking the affidavit in the earlier meeting was to get their dykes checked properly from the third party experts inasmuch as these dykes were originally constructed much earlier, in the present case in the year 1981. Plant is not able to produce any roadmap for the disposal of the stocked Fly Ash and the currently generated Fly Ash. A continuous process of stocking the Fly Ash is going on, which is causing environmental effect every day. In this view of the matter, the Committee is of the view that the Plant is liable for the compensation/penalty for causing environmental damage every day.**

Later on, at the end, they have provided an affidavit. **The averments made in the affidavit are vague and casual. The paragraphs are sworn on the 'personal knowledge' and not on the basis of documents. We**

are not satisfied with the averments made in the affidavit. Sri Jain submitted that some time may be allowed to get the Fly Ash Dyke inspected by the third party agencies. He prays and is allowed one month time to get the Fly Ash Dyke inspected by the third party agencies like IIT or any other agencies, who are experts on the subject. He further submitted that he may be allowed a week's time thereafter to give the reply of each and every point of the agenda of the meeting.

NTPC Shaktinagar: Shri Debashish Chattopadhyay, Chief General Manager submitted an affidavit in respect of the Fly Ash Dyke. From perusal of the affidavit it appears that the averments are vague and general in nature. The averments are sworn on the basis of personal knowledge and not on the basis of the documents. The Committee is not satisfied with the affidavit. Let the Plant may file a fresh affidavit after getting the report from the third party technical agency. He further submitted that due to the breach of the Fly Ash Dyke of NTPC Vindhyanagar and on account of the heavy pressure, their recycled water pipeline has been damaged resulting overflow of the water from the Dyke. **He fairly admitted that some quantity of the over-flown water is going to Rihand Reservoir.** He, however, assured that within a week the recycled water pipeline will be repaired and they may also get the technical structural stability report about their Fly Ash Dyke from third party agencies namely IIT etc. He submitted that he will submit the Affidavit within a period of one month giving reply of each and every point raised in the agenda.

NTPC Rihand: Shri Ranjan Kumar, G.M. NTPC Rihand submitted an affidavit. The averments made in the affidavit are vague and casual. The paragraphs are sworn on the 'personal knowledge' and not on the basis of documents. **We are not satisfied with the averments made in the affidavit.** He states that their Plant has already engaged IIT, Kanpur for the inspection and report in respect of the Fly Ash Dykes. The report may likely be obtained within one month. **The Committee is of the view that let one opportunity may be given to the Plant to file a better affidavit along with the documents to demonstrate the action taken by the Plant in this regard and also the report of the third party agency in regard to the structural stability of the Fly Ash Dykes.**

Lanco Anpara & U.P. State Power Corporation Ltd.: An affidavit has been submitted by the Anpara Thermal Project, a Unit of U.P. State Power Corporation Ltd. The affidavit is vague and general in nature. In support of the averments in the affidavit, no document has been annexed. There is no report of the third party technical

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agency. They are directed to give a better and detailed affidavit. It is stated that they have only one Fly Ash Dyke in which their fly ash as well as the fly ash of Lanco are being drained. The maintenance of the said Fly Ash Dyke is the responsibility of the Anpara Thermal Project, U.P. State Power Corporation Ltd. In this way, so far as the construction, stability and maintenance of the Fly Ash Dyke is concerned, Lanco is not responsible. The entire responsibility is upon U.P. State Power Corporation Ltd. The officer of U.P. State Power Corporation Ltd. submitted a report of 2018 wherein the structural stability of the Fly Ash Dyke has been examined. In the said report, it is approved that their Fly Ash Dyke is suitable for further raising of height up to 5 meters. The copy of the said report has been submitted before us. The Committee is of the view that after raising the height, the Plant may get a further report in respect of structural stability in order to overrule any possibility of technical flaw. Shri A.K. Rai, Executive Engineer states that in the Fly Ash Dyke the rainy water of the catchment area also flows and in such a situation during the rainy season when the Fly Ash Dyke is full of water due to heavy rainfall etc. **Sometimes the fly ash along with the water also flows to Rihand Reservoir. The Management of the Plant is very serious about this issue and has asked the District Administration to divert the Nala of the catchment area to somewhere to avoid any flow of fly ash in the Rihand Reservoir.** The District Magistrate, Sonbhadra states that the Administration is very serious and taking all possible steps to get the Nala diverted. The work is likely to be completed within two months. Both Lanco and U.P. State Power Corporation Ltd. are directed to furnish their reply by filing a fresh affidavit in regard to each and every point of the agenda of the meeting.

Essar Power: The officers of the Company submitted the affidavit regarding their Fly Ash Dykes. They submitted that 80% of the fly ash which had flown due to the breach of the Fly Ash Dyke have been removed and 20% fly ash lying on the earth shall be removed within a period of one month. They submitted that for the assessment of the environmental damage they have engaged NEERI, Nagpur. The document relating to their engagement has been produced before the Committee. They stated that NEERI has asked for six months time to assess the environmental damage. They further submitted that for the structural stability of the Dyke and making it technically sound they have taken the advices from two professors of the IIT Roorkee, namely, Prof. K.S. Hariprasad and Prof. Narendra K. Samadhia. They have visited the spot. They are likely to give their report within a period of fifteen days. On the basis of their report, they may proceed to reconstruct their Fly Ash Dyke. It has also

been informed to the Committee that there was a joint inspection done by the officers of the Central Pollution Control Board and the officers of the M.P. Pollution Control Board and on the inspection the report has been submitted wherein they found that the Plant has removed 80% fly ash and they are in the process of removing the remaining 20% of the fly ash. **The Committee directs the Plant to submit the report of the IIT within fifteen days and thereafter also submit the progress report, of the steps being taken to reconstruct the Dyke. On the report being received from NEERI, the environmental compensation shall be assessed. Let the Company may give detailed reply of each and every point of the agenda of the meeting by filing an affidavit within one month.**

Shasan Power Ltd.: The representative of the Plant submitted the affidavit. However, the report of the third party agency certifying the structural stability of the Fly Ash Dykes has not been submitted. They have also not submitted the reply of each and every point raised in the agenda. The representative states that they will get the report about the structural stability of the Fly Ash Dykes and give the reply of each and every point raised in the agenda within one month.

Hindalco Industries — Mahan Aluminum Project: The Company is engaged in the manufacturing of Aluminum from Alumina and has a Power Plant of 900 MW capacity. It is submitted that they have 02 Fly Ash Dykes, one dyke has been completely filled to the capacity and the other is being used now. For the purposes of raising height of the Fly Ash Dykes they have engaged the BHU for technical advice and on the basis of the advice they will proceed further in the matter. **The Committee is of the view that they may also get the report from the third party agency about the initial structural stability of the two Fly Ash Dykes. The Company has submitted an affidavit. The averments in the affidavit are general in nature. They are also directed to file a fresh affidavit giving reply of each and every point raised in the agenda within one month.**

Bajaj Energy: The representative of the Plant stated that they have received copy of the agenda very late. Therefore, they could not collect the necessary documents. They sought time to furnish the details. **Let the Plant may submit an affidavit relating to the structural stability of the Fly Ash Dykes and also give the reply of each and every point raised in the agenda, supported by the certificate from third party agency in this regard. They are directed to give the reply of each**

and every point of the agenda within a period of one month.

M.P. Power Generating Co. Ltd.: There are 04 (four) Units of this Company, namely:-

- (1) ATPS, Chachai, District Anuppur, established in 2007.
- (2) SGTPS, Birsinghpur, District Umariya, established in 2015.
- (3) STPS, Sarni, District Betul — two Plants established in 2013 and 2017.
- (4) SSTPP, Dongalia, District Khandwa, established in 2018.

A consolidated Paper Book has been submitted in respect of all the Units. However, they have not submitted any Affidavit with regard to the Fly Ash Dykes and also the Certificate of the third party agency who are the Technical expert. The officers of the Company pray for one month time to submit the affidavit and the certificate. They have also submitted a roadmap for the disposal of the Fly Ash. A perusal of the roadmap reveals that in comparison to the other Power Plants, their Unit-wise disposal are quite satisfactory.

However, they admit that even after more than 90% disposal, the stock of Fly Ash still remains and they are making efforts to dispose it by negotiating with the Cement Plants and approaching the Government for permission to fill the Fly Ash in the abandoned Mines. It is submitted that they are hopeful to achieve the target shortly. Let the Company may file the affidavit and the certificate in respect of the structural stability of the Fly Ash Dykes within one month.

MB Power (Madhya Pradesh) Ltd.: The Company has submitted a presentation in the form of small paper book. However, they have not submitted any Affidavit with regard to the Fly Ash Dykes and also the Certificate of the third party agency who are Technical expert. The officers of the Company pray for one month time to submit the affidavit and the certificate. The representative of the Company states that their disposal of Fly Ash is at present more than 100% and there is very little stock of Fly Ash lying in the Plant. For the further disposal of Fly Ash, they have approached the Southern Coalfields Ltd., Bilaspur to provide abandoned Mines for the purposes of filling of the Fly Ash. He stated that they are continuously approaching the Southern Coalfields Ltd., Bilaspur but they are not giving any reply. A copy of the letter has also been given to the Ministry of Coal, Govt. of India and also

to the Madhya Pradesh Pollution Control Board. Sri Hemant Sharma, Director, MPPCL states that he will look into the matter and do the needful. The Committee further directs the Southern Coalfields Ltd., Bilaspur to look into the request of the Plant and if it is feasible and there is no impediment, they may allow the filling of their Fly Ash in the abandoned Mines. Let the Company may file the affidavit and the certificate in respect of the structural stability of the Fly Ash Dykes within one month.

Obra Thermal Power Plant, Obra: The representative of the Plant submitted an affidavit in pursuance of the direction given by the Committee in the earlier meeting. We have perused the affidavit. The manner in which the affidavit has been submitted is not acceptable. It is, in fact, not an affidavit and nothing has been stated properly, supported by any document, as required by the Committee. Let the Company may file a fresh affidavit stating that their Fly Ash Dykes are structurally stable and there is no possibility of any breach, and also annexing the certificate in respect of the structural stability of the Fly Ash Dykes from a third party technical agency. The representative submitted that the Plant is raising the height of the Fly Ash Dykes after taking the advice from the IIT Roorkee. Committee directs that after the completion of the work, they will further get their Dykes inspected by the third party technical agency, namely, NEERI to get the certificate that the Dyke is fully structurally stable and there is no possibility of any breach. He submitted that although, at present, the Fly Ash Dykes is not operational but the Plant has negotiated with the NHAI and also got allotment of abandoned mines from the concerned Authorities. After getting the N.O.C. from the Department, they will fill the Fly Ash in the abandoned mines. In this way, they will be able to dispose off sufficient quantity of the Fly Ash. Let the Company may file a fresh affidavit, supported by documents, stating their Fly Ash Dykes are structurally stable and technically sound and also submit reply of the issues raised in the agenda within one month.

Prayagraj Thermal Power Plant: The representative states that although they have two Fly Ash Dykes but since their disposal of Fly Ash is at present 100%, there is no occasion to store the Fly Ash. The Plant is not facing any problem with regard to the Fly Ash Dyke. The Plant is, however, not operating in full capacity due to lack of coal in adequate quantity. Since their disposal of Fly Ash is to the nearby Industries, there may not be much problem of storage of fly ash in the Dykes.

Jaypee Bina Thermal Power Plant: The representative of the Company filed an affidavit. We have perused the affidavit. Let the Company may file a fresh affidavit

within one month enclosing the certificate from the third party technical agency that their Fly Ash Dykes are structurally stable and there is no possibility of any breach. They may also submit the reply to each and every point of the agenda in the said affidavit.

Jaupee Nigrie Thermal Power Plant: The representative of the Company states that there is 100% disposal of the Fly Ash. There is no stock of Fly ash in the Dykes. Only bottom ash is filled in the Fly Ash Dykes. At present, there may be about 3.9 Lac MT bottom ash in the dykes. He stated that they have sought permission from the concerned Authority to fill up the old lying Ash for filling up in 04 abandoned Stone mines, which are also leased out to them for the quarry of stone. The total capacity of the mines is about 15 lac MT. On the permission being granted, they will be able to consume the entire stock of the bottom fly ash stored in the Fly Ash Dykes. Let the Company may file a fresh affidavit within one month enclosing the certificate from the third party technical agency that their Fly Ash Dykes are structurally stable and there is no possibility of any breach. They may also submit the reply to each and every point of the agenda in the said affidavit.

NTPC Meja : The representative of the Plant stated that their Plant has been commissioned in the year 2019. After commissioning of the Plant, the production of the Plant has not been properly carried on initially, for the shortage of the coal and at present due to technical fault. The production may likely to start very soon. Therefore, they are not facing any problem relating to the Fly Ash.

NTPC Dadri : The representative of the Plant states that there is no Fly Ash Dyke in their Plant. In the Plant premises, they have developed a huge Fly Ash Mount wherein they are directly sending dried fly ash from the Plant to the Fly Ash Mount through the pipeline. The permissible height of the Fly Ash Mount is 55 Meters. The Fly Ash Mount is full of trees which works as a binding of fly ash and avoids any damage during the rainy season. The creation of the Fly Ash Mount is a continuous process. There is no effect of Fly Ash effluents and affecting any air pollution and environment. On the contrary, due to heavy growth of plantation, which is about 2,00,000, over the Fly Ash Mount, the entire area is full of greenery and creates a better environment."

"9. In view of above, the Committee observed that the fly ash could be managed by developing a fly ash mount. The Committee has made following recommendations:

- (1) All the Thermal Power Plants are directed to get their Fly Ash Dykes inspected by the third party agencies who are Technical expert to certify that their Fly Ash Dykes are technically sound and structurally sustainable and file an affidavit in this regard along with the certificate of the third party agencies.
- (2) All the Thermal Power Plants may make a serious effort for 100% disposal of the currently generated Fly Ash and also for the disposal of the stocked Fly Ash.
- (3) All the Thermal Power Plants may approach the District Administration with the request to allot abandoned mines (stone and coal) to them for the permission to fill the Fly Ash.
- (4) Generation of Fly ash is a continuous process in all the Thermal Power Plants which is causing pollution of every day - Why the environment compensation on per day basis or month-to-month basis may not be imposed and recovered for the continuous pollution of air and water?
- (5) There are number of Acts relating to air pollution and water pollution. The concerned authorities are directed to initiate the civil and criminal proceedings against these Thermal Power Plants who are causing air pollution and water pollution every day.
- (6) U.P. Pollution Control Board under whose jurisdiction the Rihand Reservoir comes is directed to prepare a D.P.R. for de-silting of Rihand Reservoir for its restoration to its original form.
- (7) All the Thermal Power Plants are being cautioned to take the necessary steps, as directed above, failing which they will be subject to the penalty/environment compensation."
10. We are of the view that the recommendations on the subject of development of fly ash mounds and filling up of abandoned mines are issues which need to be examined by experts with regard to the safeguards necessary in the process, after studying the impact of environment. It is only after such a study that the development of mounds and filling up of abandoned mines can be undertaken. If there are pre-existing guidelines of MoEF&CC/CPCB on the subject, the same may be followed.
11. As regards desilting of Rihand reservoir, the same needs to be undertaken on scientific basis and cost recovered in the manner apportioned by CPCB. Apart from desilting, structural improvement of the dykes needs to be simultaneously taken up. CPCB may ensure

that an action plan is prepared by the power plants whose dykes have breached. The issue of developing fly ash mounts and filling up of abandoned mines may also be got examined by the CPCB from its Expert Committee.

12. *The CPCB has given report dated 26.09.2019 in response to order dated 19.07.2019. The CPCB has recommended payment of compensation of Rs. 155,42,85,300/- (One hundred fifty five crore forty lac eighty five thousand three hundred). Since it is pointed out that vide order dated 04.11.2019 the Hon'ble Supreme Court has directed deferment of the proceedings, we defer the proceedings till the matter is decided by the Hon'ble Supreme Court."*

In view of above, while the matter has to be taken seriously and directions are necessary to be issued, the present order will be subject to any proceedings pending before the Hon'ble Supreme Court and where there is stay in operation, this order will not operate till such stay continues and thereafter abide by orders of Hon'ble Supreme Court.

29. This Tribunal has to enforce the mandate Section 20 of the NGT Act and require compliance of principle of Sustainable Development, Precautionary and Polluter Pays principles.
30. We have considered the written submissions filed by the individual TPPs. In view of earlier orders dealing with the contentions of the TPPs, there is no merit in the stand that the said plants are not liable for 100% fly ash disposal. Difficulties pointed out are of no relevance as the same are to be resolved by the administration and not by the victims of pollution whose rights are being affected. Environment cannot be violated against statutory norms. Violation of statutory notifications needs to be visited sternly in terms of enforcing the same, recovering compensation and prosecuting the violators.

Whatever be the individual circumstances, it cannot be a ground to disobey law and to commit criminal offence under the Water Act, Air Act and EP Act. There is no discretion available with this Tribunal to dispense with the mandate of law. Statutory provisions are binding on every TPP without any exception. It is, thus, not necessary to go into the justification or otherwise of such impermissible defence of the TPPs.

31. In view of above, all TPPs must take prompt measures for disposal of both current and accumulated fly ash. In respect of non-compliant TPPs, Polluter Pays principle has to be applied from the cut-off date of 31.12.2017, apart from other statutory consequences for continued violations.

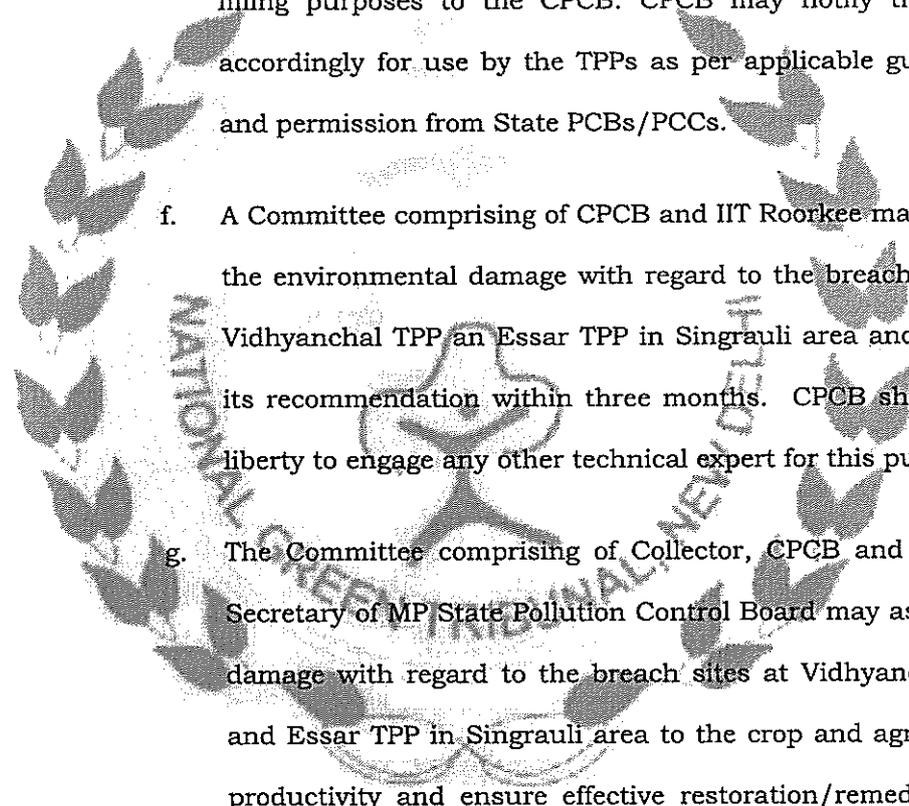
32. Thus, our directions are as follows:-

- a. The TPPs may take prompt steps for scientific disposal of fly ash in accordance with the statutory notification issued by the MoEF&CC under the provisions of EP Act requiring 100% utilization and disposal of fly ash.
- b. For the non-compliant TPPs, environmental compensation needs to be determined w.e.f. the cut-off date of 31.12.2017 as stipulated in the Notification dated 27.01.2016.
- c. CPCB may accordingly compute and levy Environmental Compensation in accordance with the formula referred to above w.r.t. individual TPPs in accordance with law and

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submit compliance report to this Tribunal before the next date.

- d. CPCB Guidelines of May 2019 for Utilization/Disposal of Fly ash for Reclamation of Low Lying Areas and in Stowing/Back filling of Abandoned Mines/Quarries may be complied.
- e. Task Force of Ministry of Power and Ministry of Coal may recommend list of abandoned mines/quarries for mine back filling purposes to the CPCB. CPCB may notify the same accordingly for use by the TPPs as per applicable guidelines and permission from State PCBs/PCCs.
- f. A Committee comprising of CPCB and IIT Roorkee may assess the environmental damage with regard to the breach sites at Vidhyanchal TPP an Essar TPP in Singrauli area and submit its recommendation within three months. CPCB shall be at liberty to engage any other technical expert for this purpose.
- g. The Committee comprising of Collector, CPCB and Member Secretary of MP State Pollution Control Board may assess the damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area to the crop and agricultural productivity and ensure effective restoration/remediation of affective sites within three months.
- h. CPCB may ensure implementation of action plans approved by it in accordance with timeline as provided in the statute.



- i. A joint Committee comprising of MoEF&CC, CPCB, IIT Roorkee and any other member considered necessary may submit quarterly progress report on recommendations of Expert Committee of Niti Aayog for enhanced utilization of fly ash in various sectors: mines, roads, cement, industries and bricks etc., along with its implementation status.
- j. The present order is subject to proceedings pending before the Hon'ble Supreme Court and where stay is operative, this order will not operate till stay continues and thereafter abide by orders of Hon'ble Supreme Court.

Copy of this order may be conveyed to MoEF&CC, Ministry of Power, Ministry of Coal, CPCB, IIT Roorkee and MP State Pollution Control Board. CPCB may put the order on its website and communicate the same to all concerned TPPs.

List for further consideration on 08.07.2020.

Adarsh Kumar Goel, CP

S.P Wangdi, JM

Dr. Nagin Nanda, EM

February 12, 2020
O.A. No. 117/2014 & other connected matters
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