BEFORE THE NATIONAL GREEN TRIBUNAL

(PRINCIPAL BENCH), NEW DELHI

ORIGINAL APPLICATION NO. 164 OF 2018

BETWEEN

ASHWANI KUMAR DUBEY …APPLICANT

VERSUS

UNION OF INDIA & ORS. …RESPONDENTS

MASTER INDEX
VOLUME -I

21.	**ANNEXURE–16**:- A copy of the Application (without annexures) filed before the Hon'ble NCLT.	7346 – 7376
22.	**ANNEXURE–17**:- A copy of the NCLT order dated 11.01.2022 passed in I.A. No. 83 of 2022 in Company Petition (IB) 863(PB)/2020.	7377
23.	Vakalatnama	7378 – 7379
24.	Proof of service	7380

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PLACE: NEW DELHI
DATED: 12.09.2025

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REPLY AFFIDAVIT ON BEHALF OF 'MAHAN ENERGEN LIMITED' (RESPONDENT NO. 39) - EARLIER KNOWN AS 'ESSAR POWER M.P. LIMITED' (RESPONDENT NO. 14)

I, Mr. Tanmay Vyas, son of Sh. R.K. Vyas, aged about 44 years, having office at Adani Group, National Council of YMCA of India, Bharat Yuvak Bhawan, 1, Jai Singh Road, Gate No. 5, New Delhi-110001, do hereby solemnly affirm and state as under:

1. I am the authorised representative of Mahan Energen Limited ("**Answering Respondent"**) and hence competent to swear the instant affidavit *qua* the Answering Respondent and I have been duly authorised in this regard. Copy of the Board Resolution of the Answering Respondent is annexed as **ANNEXURE – 1**.

2. The Answering Respondent denies each and every claim, allegations and submissions made on behalf of the Applicant in the Original Application (O.A.) to the extent they may pertain to the Answering Respondent. Nothing contained in the O.A. may be deemed to be admitted by the Answering Respondent unless specifically admitted.

3. It is submitted that the Answering Respondent, earlier known as Essar Power M.P. Limited **("EPMPL")**, operates a 1200 M.W. (600

MW x 2) thermal power plant (TPP) located near Singrauli town in Singrauli district, Madhya Pradesh.

4. It is submitted that EPMPL was admitted into Corporate Insolvency Resolution Process ("**CIRP**") pursuant to the order dated 29.09.2020 passed by the Hon'ble National Company Law Tribunal ("**NCLT**"), Principal Bench, New Delhi, under the Insolvency and Bankruptcy Code, 2016 ("**IBC**"). Following completion of the CIRP and approval of the Resolution Plan by the Hon'ble NCLT on 01.11.2021, Adani Power Limited ("**APL**") emerged as the Successful Resolution Applicant and acquired EPMPL in accordance with the provisions of the IBC. After the acquisition, on 16.03.2022, EPMPL (Respondent No. 14) has been renamed as '**Mahan Energen Limited**', which is the Answering Respondent in the present proceedings.

5. It is humbly submitted that the quarterly reports of the Oversight Committee submitted pursuant to the Hon'ble Tribunal's order dated 14.07.2020 pertain to allegations prior to EPMPL entering into CIRP on 29.09.2020 and stand conclusively resolved and extinguished pursuant to the Resolution Plan approved by the Hon'ble NCLT on 01.11.2021. Consequently, all claims, liabilities, or proceedings relating to the period prior to CIRP stand conclusively extinguished and cannot be maintained against EPMPL or the Answering Respondent. Notably, no objections in respect of the approved Resolution Plan were raised by any of the government body (central or state), including MPPCB.

6. It is further pertinent to state that EPMPL has filed I.A. No. 83 of 2022 before the Hon'ble NCLT, New Delhi, challenging demand of

environmental compensation by Madhya Pradesh Pollution Control Board **("MPPCB")**, which stands extinguished under the approved Resolution Plan. It is respectfully submitted that as the said matter (I.A. No. 83 of 2022 before the Hon'ble NCLT) is sub-judice, entertaining similar claims would result in multiplicity of proceedings.

7. That, in any case, Respondent No. 39 has duly undertaken all environmental measures post-acquisition. Hence, there is no occasion for the Respondent No. 39 to be made part of the present proceedings.

8. It is humbly submitted that the present reply is being filed on the above limited preliminary grounds, and the Respondent seeks leave of this Hon'ble Tribunal to file a detailed affidavit should the need so arise. The Answering Respondent also humbly seeks leave of the Hon'ble Tribunal to add, amend, supplement its submissions and averments herein, and to produce any supporting documents as may be required during the proceedings.

FACTUAL BACKGROUND:

9. The brief facts are as under:

A. <u>PRE-CIRP ADMISSION OF RESPONDENT NO. 14 (EPMPL)</u>

a) On 11.09.2013, the Original Applicant herein filed OA No. 276 of 2013, wherein the Applicant raised allegations of certain environmental damages in the Singrauli district, attributing the same to *inter alia* the removal of fly ash and transportation of coal through village areas by trucks.

b) In the said OA No. 276 of 2013, Essar Power M.P. Limited (now renamed as Mahan Energen Limited) was impleaded as Respondent No. 14. through its erstwhile management Essar Power Limited (**Respondent No. 14 herein**").

c) That taking cognizance of the OA, this Hon'ble Tribunal between 2013-2018 constituted various committees / sub-committees from time to time, for detailed studies on various aspects *viz*. impact of pollution on air, water, land, health etc., and also to formulate action plans to deal with the issues, which included transportation of coal, fly ash utilization as well as ash dyke management, and to supervise the implementation of the action plans, following which various reports were submitted from time to time before this Hon'ble Tribunal.

d) *Vide* order dated 06.04.2018, one of the committee reports filed before this Hon'ble Tribunal was treated as Original Application No. 164 of 2018 and the earlier NGT OA No. 276 of 2013 was renumbered accordingly. A copy of the order dated 06.04.2018 passed by this Hon'ble Tribunal in O.A. No. 164 of 2018 is annexed herewith and marked as **ANNEXURE - 2.**

e) That this Hon'ble Tribunal *vide* order dated 28.08.2018 had constituted an Oversight Committee for a time bound action plan to deal with the problem of industrial pollution and to monitor its implementation and also to send reports of the action taken by it. The Committee also had the representatives of CPCB, State Pollution Control Boards (SPCBs) and the

District Magistrates. The District Magistrates were to act as co-ordinators.

f) On 14.07.2020, since the term of the earlier Committee expired, the Hon'ble Tribunal directed that the further oversight work to be undertaken by the Joint Committee of the CPCB with respective State PCB and District Magistrates.

g) In terms of order dated 14.07.2020, NEERI was engaged for the assessment of environment damage due to the alleged ash dyke breach by EPMPL in August 2019 and by other entities.

h) It is important to note that the said period of the alleged spillage of ash due to ash dyke breach to the surrounding soil, water at EPMPL as assessed by NEERI pertained to September 2019 i.e., prior to EPMPL's admission to CIRP under the IBC on 29.09.2020.

i) That as per the 3rd Quarterly Oversight Committee Report submitted before this Hon'ble Tribunal, NEERI determined a penalty in the range of Rs. 54.21 crore to Rs. 91.82 crore against EPMPL for the alleged environmental damage assessed on account of fly ash spillage from breached ash dyke.

j) That 3rd Quarterly Oversight Committee Report was filed before this Hon'ble Tribunal in terms of order dated 14.07.2020 passed by this Hon'ble Tribunal. A copy of the 3rd Quarterly Oversight Committee Report filed before this Hon'ble Tribunal is annexed herewith and marked as **ANNEXURE - 3.**

k) The 4th Quarterly Report of Oversight Committee was submitted for quarter ending 31.07.2021, and the 5th Quarterly Report (for the period August 2021 - October 2021) was also submitted (in compliance with NGT's Order dated 14.07.2020).

l) That on 18.01.2022, this Hon'ble Tribunal accepted the report and the recommendations of the Committee to impose Environmental Compensation on the Respondent No. 14 without affording any opportunity to the Respondent No. 14 to file its response to the recommendations. A copy of the final order and judgment dated 18.01.2022 is annexed herewith and marked as **ANNEXURE - 4.**

m) The said order of this Hon'ble Tribunal was assailed before the Hon'ble Supreme Court of India by way of various Civil Appeals including Civil Appeal No. 3856 of 2022, wherein the Hon'ble Apex Court vide its Order dated 05.07.2023 found that the appellant(s) (Respondents herein) were not given an opportunity to file their objections to the recommendations made by the Committee, and remanded the matter back to this Hon'ble Tribunal for fresh reconsideration. A copy of the final order dated 05.07.2023 passed by the Hon'ble Supreme Court of India in Civil Appeal No. 3856 of 2022 is annexed hereto and marked as **ANNEXURE - 5.**

B. CORPORATE INSOLVENCY RESOLUTION PROCESS (CIRP) OF RESPONDENT NO. 14 (EPMPL) AND ACQUISITION BY ADANI POWER LIMITED

a) That during the pendency of the OA before this Hon'ble Tribunal, EPMPL underwent CIRP under the IBC, which was admitted *vide* Order dated 29.09.2020 passed by the NCLT in Company Petition (IB) 863(PB)/2020**.** A copy of the NCLT order dated 29.09.2020 passed by the Hon'ble National Company Law Tribunal, Principal Bench, New Delhi in Company Petition (IB) 863(PB)/2020 is annexed herewith and marked as **ANNEXURE - 6.**

b) That by virtue of the admission order passed by the Hon'ble NCLT, moratorium was imposed under Section 14 of the IBC on all proceedings against EPMPL.

c) That the Resolution Professional *vide* email dated 02.11.2020 informed Madhya Pradesh Pollution Control Board **("MPPCB")** that NCLT, New Delhi Bench had *vide* its order dated 29.09.2020 initiated the CIRP of EPMPL and that, in light of the NCLT's order and the public announcement pursuant thereto, MPPCB was required to submit its claim with proof, pertaining to the pre-CIRP dues as on the Insolvency Commencement Date (ICD). A copy of Interim Resolution Professional's email dated 02.11.2020 is annexed herewith and marked as **ANNEXURE - 7**.

d) *Vide* letter dated 28.11.2020, MPPCB communicated to the Resolution Professional that the liability of EPMPL with MPPCB at the time was of Rs. 9 crores and submitted its claim for the said liability. A copy of MPPCB's letter dated 28.11.2020 is annexed herewith and marked as **ANNEXURE - 8**.

e) With reference to MPPCB's letter dated 28.11.2020, the Resolution Professional of EPMPL *vide* email dated 11.12.2020 and letter dated 19.12.2020 informed MPPCB that it would be an "Operational Creditor" under the IBC, and accordingly MPPCB was required to submit a claim pertaining to the pre-CIRP dues as on ICD, in the specified format set out under Regulation 7 of the CIRP Regulations. A copy of Interim Resolution Professional's email dated 11.12.2020 and letter dated 19.12.2020 are annexed herewith and marked as **ANNEXURE - 9**, and **ANNEXURE - 10**, respectively.

f) On 22.12.2020, MPPCB furnished its claim as Operational Creditor for an amount of Rs. 9 crores, pending actual assessment of Environmental Damage Compensation (EDC) by NEERI and any other amount.

g) That during the pendency of the CIRP proceedings of EPMPL before the Hon'ble NCLT, on 23.01.2021, MPPCB issued directions under Section 33 of the Water Act, claiming that NEERI, Nagpur *vide* its letter dated 25.12.2020, had estimated the total (maximum) environmental damage of Rs. 91.82 crore and MPPCB accordingly revised its claim (in Form B) from its earlier claim of Rs. 9 crores to Rs. 90.82 crores. A copy of MPPCB's letter dated 23.01.2021 along with the revised Form-B claim is annexed herewith and marked as **ANNEXURE - 11**.

h) Pursuant to the revised claim of MPPCB, the Resolution Professional admitted MPPCB claim as operational debt in

the CIRP proceedings of EPMPL. Hence, the claim of MPPCB was treated as operational debt, thereby making MPPCB an operational creditor. A copy of the list of creditors published on the website by the Resolution Professional of EPMPL is annexed hereto and marked as **ANNEXURE – 12**.

C. APPROVAL OF ADANI POWER LIMITED RESOLUTION PLAN FOR REVIVAL OF EPMPL UNDER SECTION 31 OF THE IBC

a) That Adani Power Limited ("**Successful Resolution Applicant**") submitted its Resolution Plan for the revival of EPMPL to the Committee of Creditors ("**CoC**") of EPMPL.

b) Adani Power Limited has implemented the Approved Resolution Plan and acquired 100% of paid-up share capital and management control of EPMPL on 16.03.2022.

c) The Resolution Plan submitted by the Successful Resolution Applicant was approved by the CoC with 100% votes in its meeting held on 21.05.2021.

d) The relevant extract of the Approved Resolution Plan of the Answering Respondent is as under:

"*1.2.1 Government and Statutory Authorities*

In the Resolution Applicant's assessment, the Liquidation Value is insufficient to even satisfy the claims of the Secured Financial Creditors in full and therefore, the amounts payable to Government and Statutory Authorities in compliance Section 30(2)(b) of the Code would be NIL.

…

Without prejudice to anything contained above, any other debt of Government and Statutory Authority appearing in the books of account of the Corporate Debtor, whether or not a claim has been filed in relation thereto, whether admitted or not, under verification, contingent or otherwise asserted or unasserted, secured or unsecured shall be converted into equity shares of the Corporate Debtor and subsequently will be subject to Capital Reduction as specified in Section 3 (Acquisition as a Going Concern) of the Resolution Plan.

…..

2.2.9 Treatment of Dues to Government and Statutory Authorities

(i) As per the Information Memorandum and information available in the Virtual Data Room, Government and Statutory Authorities have submitted Claims for an amount aggregating to INR 42,494,439,721 out of which claims aggregating to INR 5,446,721,303 have been verified and admitted by the Resolution Professional ("Admitted Government and Statutory Authority Debt") and INR 36,403,311,332 has been admitted as contingent claims.

(ii) In the Resolution Applicant's assessment, the Liquidation Value is insufficient to even satisfy the claims of the Secured Financial Creditors in full and therefore, the amounts payable to Government and Statutory Authorities in compliance Section 30(2)(b) of the Code would be NIL.

…..

(iv) Accordingly, the Resolution Applicant proposes to make NIL payment to Government and Statutory Authority in compliance Section

30(2)(b) of the Code read with Regulation 38 of the CIRP Regulations (i.e., the Government and Statutory Authority Payments).

(v) Without prejudice to anything contained above, any other debt of Government and Statutory Authority appearing in the books of account of the Corporate Debtor, whether or not a claim has been filed in relation thereto, whether admitted or not, under verification, contingent or otherwise, asserted or unasserted, secured or unsecured shall be converted into equity shares of the Corporate Debtor and subsequently will be subject to Capital Reduction as specified in Section 3 (Acquisition as a Going Concern) of this Resolution Plan."

…..

(x) For abundant clarity, any and all dues payable to Government and Statutory Authorities shall be treated as follows:

(a) all Claims or demands made by, or liabilities or obligations owed or payable to or assessed by, any Government and Statutory Authority, in relation to any dues, direct Taxes (including for any previous or current assessment year(s)), indirect Taxes, duties (including stamp duties), penalties, fees, interest, fines, levies, cesses, assessments or additions or any other charges or payments whatsoever on the Corporate Debtor or in relation to the Corporate Debtor, whether or not such Claims or demands are admitted, due or contingent, asserted or unasserted, crystallised or uncrystallised, assessed or unassessed, known or unknown, secured or unsecured, disputed or undisputed,

(b) any liabilities in relation to any consent, permission, privilege, entitlement, exemption, benefit, license or approval granted to the Corporate Debtor, or in relation to the Corporate Debtor, whether or not such consent, permission, privilege, entitlement, exemption, benefit, license or approval is subsisting, lapsed or expired,

(c) all financial liabilities and prosecution that may be inflicted on Corporate Debtor due to acts and deed of its erstwhile Promoter, Director or personnel (including without limitation, for any penalty, interest, fines or fees) and other liabilities and obligations which may have a financial impact on the Corporate Debtor, in relation to (i) any investigation, inquiry, show-cause, notices, causes of action, suits, claims, disputes, litigation, arbitration or other judicial or regulatory or administrative proceedings whether civil or criminal against, or in relation to, or in connection with the Corporate Debtor or the affairs of the Corporate Debtor, pending or threatened, including any proceedings that may be initiated under the provisions of the Code ("Proceedings"); (ii) any noncompliance of provisions of any laws, rules, regulations, directions, notifications, circulars, guidelines, policies, approvals, consents or permissions under the Applicable Law (including any tax liability arising for payment of tax as a result of any transaction characterized as an impermissible avoidance arrangement under the provisions of the Income-tax Act, 1961 entered by Corporate Debtor prior to the Effective Date); (iii) cross subsidies availed by the Corporate Debtor; and (iv) any and all actual or potential rights and entitlements of the

Central Government, the State Government, any regulatory or local authority or body or any agency or instrumentality thereof or any other party or entity (under any agreement, lease, license, approval, consent, permission or privilege) which may have a financial impact on the Corporate Debtor; and (v) any payment of any dues, charges, fees, fines, commissions, penalties and such other payment to any Person including any Government and Statutory Authority for the ownership and continued use of the underlying lands and such other properties used by the Corporate Debtor for the conduct of its business, whether admitted or not, due or contingent, asserted or unasserted, crystallised or uncrystallised, known or unknown, secured or unsecured, disputed or undisputed, present or future,

whether or not such Claim, demand, liability is set out in the Information Memorandum, Virtual Data Room, the balance sheets or the profit and loss account statements of the Corporate Debtor, in relation to any period up till the Effective Date shall be reduced to Nil and shall be, and be deemed to be, permanently extinguished by virtue of the order of the NCLT approving this Resolution Plan and the Resolution Applicant or the Corporate Debtor shall at no point of time be, directly or indirectly, held responsible or liable in relation thereto."

…..

2.5 Treatment of Security Interest and on-going Litigation

2.5.1 Under this Resolution Plan, all financial liabilities arising out of:

(i) *all adverse inquiries, investigations, notices, causes of action, suits, claims, disputes, litigation, arbitration or other judicial, regulatory or administrative proceedings against, the Corporate Debtor or the affairs of the Corporate Debtor, in relation to any matter whatsoever including economic matters, whether pending or threatened, (including without limitation, any investigation by any Government and Statutory Authority) that have been initiated or are threatened to be initiated against the Corporate Debtor (including those proceedings that relate to the Corporate Debtor) ("Dispute") at any time till the Effective Date; shall stand automatically revoked, released, cancelled, withdrawn, dismissed and deemed null and void (as the case may be) and all financial obligations in relation to such Non-Financial Creditor Security or Dispute shall be permanently extinguished on the Effective Date on and with effect from the NCLT Approval Date, after payments being made to any such Creditors if mandatorily required in accordance with the provisions of the Code. Further, any claim arising from any Dispute or Non-Financial Creditor Security, whether set out herein or not, whether admitted or not, due or contingent, asserted or unasserted, crystallised or uncrystallised, known or unknown, secured or unsecured, disputed or undisputed, whether or not set out in the Information Memorandum, the Virtual Data Room, the balance sheets of the Corporate Debtor or the profit and loss account statements of the Corporate Debtor, till the Effective Date or arising on account of this Resolution Plan, shall be reduced to Nil and shall be, and be deemed to be, permanently extinguished by*

virtue of the order of the NCLT approving this Resolution Plan and the Corporate Debtor or the Resolution Applicant shall at no point of time be, directly or indirectly, held responsible or liable in relation thereto. All title deeds and other documents held by any such Creditor (not being a Financial Creditor) or third party (as trustee or otherwise) in relation to such Non-Financial Creditor Security shall be immediately released in fit and proper condition to the Corporate Debtor.

….

2.16 Binding Effect of the Resolution Plan

Without prejudice to the generality of the foregoing, on and from the NCLT Approval Date, the Resolution Plan shall be binding on all Stakeholders of the Corporate Debtor and shall have the following binding legal effect with effect from the Effective Date:

(i) The Resolution Plan shall be binding on all stakeholders and on and from the Effective Date, the Corporate Debtor shall start running the business and operations on a "fresh- slate" without any risk of payments or liabilities for past acts and omissions of the Corporate Debtor.

(ii) Following the Effective Date, no liability would lie on the Resolution Applicant, any of its Affiliates, directors, employees and executives of the Resolution Applicant and/or its Affiliates, the directors and/or employees and/or executives of the Corporate Debtor appointed and/or continuing on and from the Effective Date. Without prejudice to the foregoing, following the Effective Date, no Creditor, shareholder and/or member of the erstwhile Promoter Group would be entitled to initiate or

continue any Proceeding, including those under criminal law against the Corporate Debtor and/or any of the persons noted above.

(iii) Subject to the provisions of the Applicable Law, all Non-Compliances of the Corporate Debtor for the period prior to the Effective Date (including but not limited to those relating to Tax), shall be deemed to be waived by all the Government and Statutory Authorities. In relation to any Non-Compliance arising under any foreign exchange regulations, Tax and duty benefit / subsidy scheme, the relevant Government Authority shall subject to the Applicable Law be deemed to have waived all such non-compliances by the Corporate Debtor without levying any fee, penalty or additional duty or impacting the benefits/subsidies available.

…….

6.1….. (ix) The Resolution Applicant and the Corporate shall be deemed to have received a waiver from all actions, Proceedings or penalties under any applicable Law for any Non-Compliance, including in connection with any prior transfer of assets, contracts or business by the Corporate Debtor."

……

9.2 Binding Effect

…. The Resolution Plan, once approved by the COC and the NCLT, shall be binding on the Central Government, any State Government or any local authority to whom a debt in respect of the payment of dues arising under any law for the time being in force, such authorities to whom statutory dues are owed. Any such debt shall be deemed to be was provided for in the Resolution Plan."

A copy of the relevant extracts of the Approved Resolution Plan of the Successful Resolution Applicant is annexed hereto

and marked as **ANNEXURE - 13**. The Answering Respondent craves leave to refer to the Approved Resolution Plan if so desired by this Hon'ble Tribunal.

e) That on bare perusal of the Resolution Plan of the Answering Respondent, extracted herein above, it is clear that all the claims of the operational creditors, including Government and Statutory Body dues, whose claim has been admitted by the Resolution Professional of EPMPL, will be treated by Successful Resolution Applicant as **NIL** as the liquidation value is insufficient to even satisfy the claims of Secured Financial Creditors in full, which is in compliance of Section 30(2)(b) of the IBC.

f) That as per the approved Resolution Plan, no claim or liabilities are permitted to be fastened on the Answering Respondent after the approval of the Resolution Plan by the Hon'ble NCLT, and that all such claims including those not filed or verified or admitted by the Resolution Professional or uncrystallised or contingent shall stand extinguished.

g) As mentioned above, the MPPCB had submitted its claim for Rs. 90.82 crores to the Resolution Professional of EPMPL by way of filing revised FORM-B as operational creditor on 23.01.2021. The said claim of Rs. 90.82 crores of MPPCB was admitted by the Resolution Professional and treated as operational debt of EPMPL. That the claim of Rs. 90.82 crores of MPPCB arose out of the damage assessed by NEERI pursuant to the present proceedings pending before this Hon'ble Tribunal. Therefore, it is submitted that the MPPCB's

claim of Rs. 90.82 crores stood extinguished by virtue of approval of Resolution Plan in the CIRP of EPMPL.

D. <u>NCLT APPROVES ADANI POWER LTD. RESOLUTION PLAN UNDER SECTION-31 OF THE INSOLVENCY AND BANKRUPTCY CODE, 2016</u>

a) On 01.11.2021, the Principal Bench of NCLT, New Delhi, approved the aforesaid Resolution Plan submitted by the Successful Resolution Applicant in Company Petition (IB) 863(PB)/2020 for the acquisition of EPMPL. The said order was passed by the Hon'ble NCLT under Section 31(1) of the IBC. Copy of the NCLT Plan Approval Order dated 01.11.2021 is annexed herewith as **<u>ANNEXURE - 14.</u>**

b) That pursuant to the approval of the Resolution Plan of the APL by the Hon'ble NCLT, New Delhi, APL took control of the Answering Respondent on 16.03.2022.

c) Pursuant to the acquisition of 100% of paid-up share capital and management control of the erstwhile EPMPL, APL changed the name of '*Essar Power M P Limited*' to '***Mahan Energen Limited***' with effect from 25.03.2022. Copy of the Certificate of Incorporation pursuant to change of name issued by the Registrar of Companies is annexed hereto and marked as **<u>ANNEXURE - 15</u>**.

d) To the shock of the Answering Respondent, MPPCB passed a fresh order dated 08.12.2021 refusing to renew the CTO in respect of EPMPL. That one of the reasons cited by MPPCB

for refusal was the non-deposit of Rs. 90.82 crores as assessed by NEERI towards environmental damage compensation.

e) It is submitted that the continuous demands of MPPCB for a sum of Rs. 90.82 crores do not survive and is in the teeth of the Approved Resolution Plan. It is submitted that as per Section 31 of the IBC, the Resolution Plan becomes binding on all stakeholders including central government or any other statutory body. This is the principle of law laid down by the Hon'ble Supreme Court of India in the case of *Ghanashyam Misra and Sons Private Limited Vs. Edelweiss Asset Reconstruction Company Ltd. & Ors*.

f) It is additionally submitted that MPPCB did not approach the Hon'ble NCLT or the Hon'ble National Company Law Appellate Tribunal **("NCLAT")** challenging the Resolution Plan, whereby the claims of MPPCB in respect of environmental damage stood permanently extinguished. Therefore, the Resolution Plan for EPMPL, providing for the permanent extinguishment of the liabilities or claims qua the violations, damage caused to the environment prior to the takeover by the Successful Resolution Applicant has attained finality.

g) In view of the persistent illegal demands of MPPCB stated earlier, the Answering Respondent filed an Application for Directions being I.A. No. 83 of 2022 in Company Petition (IB) 863(PB)/2020 before the Hon'ble NCLT, Principal Bench, New Delhi seeking declaration to the effect that MPPCB is not entitled to demand an amount of Rs. 90.82

crores since its claims stood extinguished in the approved Resolution Plan. Further, the Answering Respondent sought, stay of MPPCB order dated 08.12.2021 raising fresh demand of Rs. 90.82 crores amount from Respondent No. 14 herein. A copy of the Application (without annexures) filed before the Hon'ble NCLT is annexed hereto and marked as **ANNEXURE - 16**.

h) Hon'ble NCLT vide order dated 11.01.2022, while considering the IA of the Answering Respondent, has been pleased to direct MPPCB not to take any coercive steps against EPMPL. A copy of the NCLT order dated 11.01.2022 passed in I.A. No. 83 of 2022 in Company Petition (IB) 863(PB)/2020 is annexed herewith and marked as **ANNEXURE 17.**

i) Further, in light of the above facts and circumstances and after learning of the pending proceedings before this Hon'ble Tribunal (pursuant to the Hon'ble Supreme Court remand order), the Answering Respondent seeks to make the following submissions:

SUBMISSIONS:

10. **THE APPROVED RESOLUTION PLAN OF THE SUCCESSFUL RESOLUTION APPLICANT DOES NOT COVER PAST LIABILITIES OF RESPONDENT NO. 14 i.e. ESSAR POWER M.P. LIMITED (NOW TAKEN OVER BY THE SUCCESSFUL RESOLUTION APPLICANT)**

a) It is submitted that no past or uncrystallised liability or crystallised liability can be imposed on the Successful Resolution Applicant or the Answering Respondent herein after the approval of the plan by the Committee of Creditors (CoC) and subsequently approved by the Hon'ble National Company Law Tribunal, Principal Bench, New Delhi under Section 31 of the IBC.

b) That the Hon'ble Court in *Ghanashyam Mishra* & *Sons (P) Ltd. v. Edelweiss Asset Reconstruction Co. Ltd., [(2021) 9 SCC 657]* at para 93, has held as under:

> ***93.****..... The legislative intent behind this is to freeze all the claims so that the resolution applicant starts on a clean slate and is not flung with any surprise claims. If that is permitted, the very calculations on the basis of which the resolution applicant submits its plans would go haywire and the plan would be unworkable.*

The aforesaid decision of the Hon'ble Supreme Court has been reaffirmed in Ruchi Soya Industries v. Union of India, ***(2022) 6 SCC 343.***

c) It is trite law that no further liability can now be imposed upon the Successful Resolution Applicant/ Answering Respondent herein once the Resolution Plan has been approved by the CoC and accepted by the Hon'ble NCLT. Same has been enumerated under Section 31(1) of the IBC, 2016 which is binding in law.

11. **PAST LIABILITIES CANNOT BE IMPOSED ON THE ANSWERING RESPONDENT/ SUCCESSFUL RESOLUTION**

APPLICANT ACCORDING TO THE CLEAN SLATE THEORY

a) The Respondent herein submits that as per the legislative mandate of Sections 31(1) and 32A *(as per the Insolvency and Bankruptcy Code (Amendment) Act, 2020, w.e.f. 28.12.2019)*, once the Resolution Plan has been approved, it is binding on all stakeholders. It ensures that a Successful Resolution Applicant gets a Clean Slate and provides for the extinguishment from all such past claims, liabilities and penalties in relation to any period prior to the Acquisition. The relevant extracts of Section 31(1) and Section 32A of the IBC reads as under :

> ***"31. Approval of resolution plan.—(****1) If the Adjudicating Authority is satisfied that the resolution plan as approved by the committee of creditors under sub-section (4) of Section 30 meets the requirements as referred to in sub-section (2) of Section 30, it shall by order approve the resolution plan which shall be binding on the corporate debtor and its employees, members, creditors, including the Central Government, any State Government or any local authority to whom a debt in respect of the payment of dues arising under any law for the time being in force, such as authorities to whom statutory dues are owed, guarantors and other stakeholders involved in the resolution plan: [...]"*
>
> ***32A. Liability for prior offences, etc.- (1)*** *"…the liability of a corporate debtor for an offence committed prior to the commencement of the corporate insolvency resolution process shall cease, and the corporate debtor shall not be prosecuted for such an offence from the date the resolution plan has been approved…"* provided it *"…results in the change in the management or control of the corporate debtor…"*.

b) The aforesaid Clean Slate theory is settled law which has been time and again been affirmed by the Hon'ble Supreme Court of India in catena of judgments. Some of which have been reproduced below for ready reference of the Hon'ble Court:

In the case of ***Committee of Creditors of Essar Steel v. Satish Kumar Gupta, reported as (2020) 8 SCC 531***, wherein it was held that:

> *"107.… A successful resolution applicant cannot suddenly be faced with 'undecided' claims after the resolution plan submitted by him has been accepted as this would amount to a hydra head popping up which would throw into uncertainty amounts payable by a prospective resolution applicant who would successfully take over the business of the corporate debtor. All claims must be submitted to and decided by the resolution professional so that a prospective resolution applicant knows exactly what has to be paid in order that it may then take over and run the business of the corporate debtor...."*

c) In view of the law laid down by the Hon'ble Apex Court, it is pertinent to mention that the approved Resolution Plan of Adani Power Limited (pursuant to which EPMPL was taken over) expressly provided that all financial liabilities, including claims being contingent, uncrystallized, crystallised, disputed and rejected claims, will be permanently extinguished from the effective date of the approved Resolution Plan insofar as the liability of Respondent No. 14 (EPMPL) is concerned.

d) In the instant case, the Resolution Plan of the Successful Resolution Applicant has been sanctioned/approved by the Hon'ble NCLT vide its order 01.11.2021. Therefore, the claim of the MPPCB stands permanently extinguished.

e) From a plain reading of the Approved Resolution Plan, it is evident that any debt, liability, or obligation not expressly included in it, shall be deemed irrevocably waived, permanently extinguished, and written off in full.

12. **I.A. BEFORE THE COMPETENT COURT SEEKING DECLARATION OF EXTINGUISHMENT OF MPPCB'S CLAIM IS SUB-JUDICE**

a) Notwithstanding the above and without prejudice, it is respectfully submitted that the Answering Respondent filed an Interlocutory Application being I.A. No. 83 of 2022 in Company Petition (IB) 863(PB)/2020 before the Hon'ble NCLT, Principal Bench, New Delhi. This application seeks, *inter alia*, a declaration that the MPPCB is not entitled to demand an amount of Rs. 90.82 crores, as the said claim stood extinguished under the Resolution Plan approved by the NCLT on 01.11.2021.

b) The application also seeks a stay on the operation of MPPCB's order dated 08.12.2021, which sought to revive the demand of Rs. 90.82 crores despite the claim having been admitted and dealt with as Operational Debt during the CIRP. It is respectfully submitted that the matter is currently pending adjudication before the Ld. NCLT and is sub-judice.

c) It is a settled principle of law that when a matter is sub-judice before a competent forum, parallel proceedings on the same subject matter are impermissible. As the aforesaid IA before the Hon'ble NCLT is pending, entertaining similar claims in

the present proceedings would lead to multiplicity of proceedings and ought to be avoided.

d) It is submitted that the Hon'ble NCLT is already seized of the issue and the matters concerning the Oversight Committee's reports in respect of the damage assessed by NEERI in the present O.A. substantively and substantially touch upon the issues pending in I.A. No. 83 of 2022, the same ought not be entertained in the instant O.A. As stated hereinabove, after hearing the submissions of the Parties, *vide* Order dated 11.01.2022, interim stay in favour of EPMPL was granted by the Hon'ble NCLT, directing that MPPCB (Respondent No. 1 therein) not take any coercive steps against EPMPL in the Resolution Plan. Therefore, since the said I.A. remains sub-judice before the Hon'ble NCLT, the same submissions and claims ought not to be entertained in the present proceedings.

e) The Hon'ble Supreme Court in a catena of decisions has emphasized the need to respect the jurisdictional boundaries of specialized tribunals and to avoid parallel adjudication on the same cause of action.

f) In view of the pendency of I.A. No. 83 of 2022 before the Hon'ble NCLT, the present O.A. concerning MPPCB's claim (based on contentions in the NEERI's report) is barred by the principle of sub-judice. The issues raised are already under judicial consideration before the competent forum. Accordingly, the O.A. in respect of the Answering Respondent is liable to be rejected on this independent and additional ground.

13. It is humbly submitted that there are no violations or non-compliance attributable to the Answering Respondent.

14. The Answering Respondent respectfully craves liberty of this Hon'ble Tribunal to file any further affidavit or raise additional grounds as may be deemed necessary during the course of the hearing.

15. In light of the above submissions, it is most respectfully prayed that this Hon'ble Tribunal may be pleased to discharge Respondent No. 14 and Respondent No. 39 from the present proceedings.

FILED BY

MAHESH AGARWAL
ADVOCATE FOR THE RESPONDENT NO.39
AGARWAL LAW ASSOCIATES
19, BABAR ROAD, BENGALI MAKRET
NEW DELHI - 110 001
(M) 9910483627
EMAIL: mail@aglaw.in, geetika.sharma@aglaw.in,
arshit.anand@aglaw.in

PLACE: NEW DELHI
DATED: 12.09.2025

BEFORE THE NATIONAL GREEN TRIBUNAL (PRINCIPAL BENCH), NEW DELHI

ORIGINAL APPLICATION NO. 164 OF 2018

BETWEEN

Ashwani Kumar Dubey ...Appellant

VERSUS

Union of India & Ors. ...Respondents

AFFIDAVIT

I, Tanmay Vyas, S/o Shri R.K. Vyas, aged about 44 years, having office at Adani Group, National Council of YMCA of India, Bharat, Yuvak Bhawan-1, Jai Singh Road, Gate No.5, New Delhi- 110 001, do hereby solemnly affirm and say as follows:-

1. I am the Authorised representative of Respondent No. 39 in the aforesaid appeal, and fully conversant with the facts and circumstances of the present case and competent to swear this affidavit.

2. I state that I have read the contents of the accompanying reply and state that the contents of the same are true and correct to my knowledge based on the record and nothing material has been concealed therefrom. The legal submissions made therein are based on the advice of the Counsel and believed by me to be true.

3. That I say that the annexures annexed to the Reply are true copies of their respective originals.

IDENTIFIED BY
Name of Advocate
Enrl. No.

Mahan Energen Limited

DEPONENT

VERIFICATION

Verified at New Delhi on this _____ September, 2025 that the contents of the above affidavit are true and correct to my knowledge and no material facts has been concealed.

Mahan Energen Limited

DEPONENT

12 SEP 2025 NOTARY RAJINDER KUMAR Advocate Reg. No. 46021/2025 Exp. 07/03/2030 GOVT. OF INDIA

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA

adani
Power

ANNEXURE-1

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED BY THE BOARD OF DIRECTORS OF MAHAN ENERGEN LIMITED IN ITS MEETING HELD ON FRIDAY, 4TH OCTOBER, 2024 AT 11:00 A.M. AT 3RD FLOOR, NORTH WING, ADANI CORPORATE HOUSE, SHANTIGRAM, NEAR VAISHNO DEVI CIRCLE, S. G. HIGHWAY, KHODIYAR, AHMEDABAD-382421.

RESOLVED THAT Mr. M.R. Krishna Rao or Mr. Avinash Anurag or Mr. Hitesh Modi or Mr. Dilip Kumar Moolchandani or Mr. Chintan Mankad or Mr. Tanmay Vyas or Mr. Praveen Tamak or Mr. Narendra Kumar Ojha or Mr. Robin Geevarghese or Mr. Kumar Gaurav or Mr. Amit Kumar Singh or Mr. Himanshu Umrajwala or Mr. Vyom Shah or Mr. Sachinbhai Dabhi (hereinafter collectively referred to as the "Authorized Persons of the Company") be and are hereby severally authorised, for and on behalf of the Company, to perform all steps required to be taken by the Company to sign and filing of petition(s), appeal/memo(s), reply(s), vakalatnama(s), affidavit(s), application(s), caveat(s), plaint(s), suit(s), written statement(s), rejoinder(s) and any other relevant information/documents in the matter of suit/complaint filed/to be filed by or against the Company before any court of law or authority, consumer forum or consumer state commission, or national consumer commission, and for the said purpose be and are hereby also authorized to engage, appoint or remove any pleaders/ or advocates and sign vakalatnama(s), power of attorney for such engagement or appointment and to file appeal and defend the interest of the Company and to do everything necessary for the said purpose and any action done or taken by any of the Authorized Persons of the Company pursuant to this authority shall be deemed to have been ratified by the Company.

RESOLVED FURTHER THAT the Authorized Persons of the Company be and are hereby severally authorized to represent the Company before the MPPMCL/GoMP/SLDC/WRLDC/NLDC and submit undertaking(s), indemnity(ies), affidavit(s) and all other relevant documents as may be required to be submitted to MPPMCL/GoMP/SLDC/WRLDC/NLDC in respect of the PPA dated 26.03.2012 for supply of 5% power to MPPMCL and subsequent amendments thereto.

RESOLVED FURTHER THAT any one of the Directors of the Company or Company Secretary of the Company are hereby severally authorized to issue the certified copy of this resolution.

// Certified True Copy //

For Mahan Energen Limited

Purvee Roy
Company Secretary
(Mem. No. F8978)

Mahan Energen Limited

Mahan Energen Limited
(Formerly Known as Essar Power M P Limited)
"Adani Corporate House"
Shantigram, Near Vaishno Devi Circle,
S. G. Highway, Khodiyar,
Gandhinagar -382421, Gujarat India
CIN : U40100GJ2005PLC147590

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ANNEXURE -2

BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI

Original Application No. 164 of 2018
(Earlier O.A. No. 276 /2013)

Ashwani Kumar Dubey Vs. Union of India & Ors.

CORAM : HON'BLE DR. JUSTICE JAWAD RAHIM, ACTING CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: **Applicant :**
Respondents: **Ms. Deep Shikha Bharti, Adv.**
Mr. V.K. Shukla, Adv.
Mr. Mukul Singh, Adv. for MoEF
Mr. Pradeep Misra and Mr. Daleep Kr. Dhyani, Advs.
Mr. Rajkumar, Adv. and Mr. Bhupendra Kumar, LA

	Date and Remarks	**Orders of the Tribunal**
	Item No. 13 **April 06, 2018** **A**	The report filed is registered as Original Application No. 164 of 2018 in terms of the directions passed in Original Application No. 276 of 2013 and M.A. No. 49 of 2014 in Original Application No. 21 of 2014. Let Notice be issued to the applicant, industry in question and all respondents. Notice returnable by 11th May, 2018. .....,ACP (Dr. Jawad Rahim) .....,JM (S.P. Wangdi) .....,EM (Dr. Nagin Nanda) 06.04.2018

ANNEXURE -3

III[rd] QUARTERLY REPORT OF THE OVERSIGHT COMMITTEE

IN COMPLIANCE WITH THE HON'BLE NATIONAL GREEN TRIBUNAL ORDER DATED 14-07-2020

IN O.A. 164 / 2018 (ASHWANI KUMAR DUBEY VS. UNION OF INDIA & ORS.)

III[rd] QUARTERLY REPORT OF THE OVERSIGHT COMMITTEE IN COMPLIANCE WITH THE ORDER DATED 14.07.2020 OF NGT IN OA 164/2018 (ASHWANI KUMAR DUBEY VS. UNION OF INDIA AND ORS.)

INDEX

THIRD QUARTERLY REPORT OF THE OVERSIGHT COMMITTEE IN COMPLIANCE WITH THE ORDER DATED 14.07.2020 OF NGT IN OA 164/2018 (ASHWANI KUMAR DUBEY VS. UNION OF INDIA AND ORS.)

1. Hon'ble NGT vide its order dated 14-07-2020 in OA 164 of 2018 (Ashwani Kumar Dubey vs. Union of India & ors. earlier OA 276 of 2013) was please to order that:

   "11. Since the term of the Committee has expired, further oversight work may be undertaken by a joint Committee of the CPCB with respective State PCB and the District Magistrates. The State PCBs will be the nodal agency for the respective States.
   12. The newly constituted OC may furnish its reports quarterly by email at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. First such report may be furnished giving status as on 31.10.2020 by 15.11.2020 with copies to concerned stake holders for their response if any by 30.11.2020."

2. In compliance to the above order of Hon'ble NGT and findings / recommendations of the various earlier Committees, the new Oversight Committee in its first report had chalked out the various recommendations and gathered the status of compliance / ATR form the various stack holders, mainly Thermal Power Plants, Coal Mines and Railway authorities of the Singrauli region. The first report was submitted before the Hon'ble NGT on 27-11-2020.

3. The compliance status of the recommendations placed in the first report were evaluated in the second report of the oversight committee. Based on the compliances in the first quarterly report, various recommendations were made by the new oversight committee for further compliance by the various stakeholders. It was found that the compliances of the recommendations as initially outlined by the committee in its first report were not found to be fully complied / satisfactorily complied. Hence no new recommendations were made in the second report since site visits could not be under taken due to the COVID 19 situation. In the second report, the point-wise status reported by the stake holders and observations of the Oversight committee as listed in Column 3* of the Annexure 1 and shortcomings listed there, were taken as new recommendations, for the review / verification by the Oversight Committee in the quarter ending 30-04-2021.

---

*Column 3 was inadvertently mentioned as column 4 in the second report, which shall be read as column 3.

4. The second report of the committee was submitted on 28-3-2021 before the Hon'ble NGT. For the sake of obtaining precise compliance and reporting from each of the stakeholders, the expectations of the Oversight committee from each stakeholder was separately communicated to them on 18-04-2021. A copy of the communication and the expectations of the Supervisory committee are placed herewith as Annexure 1 /III.

5. Communication was also made with National Environmental Engineering Institute (NEERI) for providing the progress of the Environmental Damage Assessment that NEERI has been conducting for M/s NTPC- Vindhyachal Thermal Power Station and Sasan Power Ltd. A copy of the letter dated 12-04-2021 on behalf of Oversight Committee is placed herewith as Annexure 2 /III.

6. Communication was also made with West Central Railways, Jabalpur as well as East Central Railways, Dhanbad who are operating coal loading sidings in and around Singrauli for submitting compliance as far as dust control is concerned at the sidings. Copies of the letter dated 12-04-2021 on behalf of Oversight Committee written to Divisional Railway Manager, West Central Railways, Jabalpur and Divisional Railway Manager, East Central Railways, Dhanbad respectively are placed herewith as Annexure 3 A /III and Annexure 3 B /III respectively.

7. For the IIIrd quarter ending 30-04-2021, compliance reports have been submitted by most of the stake holders. Due to severe Covid 19 second wave which has engulfed the whole country, the pre envisaged site verification of the reported compliance cannot be undertaken. The compliance reported by various stake holders is summerized as under:

A. Thermal Power Plants:-

- Compliances has been reported by M/s Vindhyachal Super Thermal Power Station of NTPC, M/s Hindalco Industries Ltd Mahan Aluminum Project, Jaypee Nigrie Super Thermal Power Plant & Essar Power MP Ltd. Compliance from M/s Sasan Power Ltd was not received. The reports received from the these TPPs is attached herewith as **Annexure 4 A /III to Annexure 4 D /III** respectively.
- The 100% utilization of fly ash is only being achieved by M/s Jaypee Nigrie Super Thermal Power Plant which has got a cement clinker grinding unit of its own. Other thermal power stations are however far from achieving 100 % utilization of fly ash.
- However the utilization percentage of the fly ash by the TPPs of the Singrauli MP has increased as compared with the last years' fly ash utilization.

- In compliance to the new emission norms regarding the installation of FGD as well as SCR / SNCR etc by the TPPs, the MoEF&CC vide its recent notification dated 31-03-2021 (**Annexure 5/III**) has deferred the timelines for the achievement of the new emission norms. However the TPPs have reported their ongoing progress regarding the installation of FGD etc.
- All the TPPs have reported that their ash dykes are safe and institutes like IITs or private consultants have certified the designs.
- However it is recommended that agencies like Central Electricity Authority or the Ministry of Power should be entrusted with the responsibility of approving the design and strength of the ash dykes during their construction as well as during the height raising of the ash dykes by the TPPs. Such agencies should also ascertain the physical strength and safety of the dykes during its construction, operation as well as height raising through physical inspections, design verification, quality assurance etc and advice the TPPs for the upkeep of their ash dykes from time to time.
- NTPC- Vindhyachal has reported that spilled out ash has been lifted from land and from Rihand Reservoir. However it has not been clarified that how much ash has been removed from the Rihand reservoir, and whether there is any more fly ash still remains in the reservoir.
- NTPC- Vindhyachal has also reported that they have given work order to IIT Roorkee to study the construction of RCC wall around the ash dyke.

B. Coal Mines:-

- M/s Northern Coafields Ltd. (NCL) has submitted its compliance, which is placed as **Annexure 6/III.** NCL has reported that 10 road sweeping machines are already deployed and procurement of additional 4 machines is delayed due to Covid 19, and will be completed by July 2021.
- The shoulders of the roads under the control of NCL have been already paved. The other public roads are under the control of district administration / PWD, and according to their instructions they will comply.
- It has been reported that the two railway sidings being operated by NCL are following the CPCB guidelines. Details of pollution control arrangements and photographs have been provided.
- It has been reported that the railway connectivity / laying of railway track has been completed in March 2021 and now they are awaiting permission from DRM for rake loading.
- However the mine management has again reiterated its difficulties in mixing fly ash in the external over burden of the active mines. They have

also submitted that a study " Scientific Study of fly ash utilization / dumping/ mixing in OB of the running / active mines of NCL along with its viability and safety aspect of man and machinery" is being awarded to IIT BHU which is likely to be completed by October 2021 and thereafter NCL wil submit its application before DGMS for utilization of fly ash in mines.

- It has also being reported that health checkup of villagers and calibration of CAAQMS is being done regularly.

C. Railway sidings / Railway Administration:

- The 5 railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity and have not taken proper measures for the control of coal dust as per CPCB guidelines titled "Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015" .
- Letters were written to WCR and ECR for reporting the compliance (Ann. 3A/III & 3B/III) and response have been received from both the organizations which is placed as **Annexure 7A/III & Annexure 7B/III.**
- Neither WCR nor ECR has carried out the works of dust control at their sidings as per the CPCB guidelines. The photographs that have been submitted reveal that the works are still going on and the completion will take much more time, although the sidings are being operated for so many years.
- As far as use of fly ash in the earthwork / embankment related activities of rai way track laying are concerned, ECR have informed that RDSO, which is the technical department of Indian Railways, has issued no such guidelines.
- Hon'ble NGT can issue suitable directions to RDSO to undertake scientific / engineering studies in this regard to undertake use of fly ash in track laying, which if successful may come a long way in utilization of fly ash for beneficial purposes.
- Also during the establishing and operation of railway sidings, the railways shall abide by the CPCB Guidelines and for that the department of railways should issue clear guidelines / directions to its DRMs.

D. National Environmental Engineering Research Institute (NEERI):

- NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of

M/s Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd

- NEER. has so far submitted the final EDC report for M/s Essar Power (MP) Ltd amounting to Rs 91.82 Crores. However the EDC study report for M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. has not been submitted even after a lapse of long time.
- NEERI was communicated vide letter dated 12-04-2021 regarding the progress it has made in the EDC reports pertaining to these two CPPs (Annexure 2 /III).
- NEERI has submitted its response that so far as the EDC report of M/s NTPC-Vindhyachal is concerned, the NEERI team has completed the sample collection and analysis work and they intend to submit the draft EDC report to the project proponent within 2-3 weeks. Regarding Sasan Power Ltd, NEERI has informed that samples have been collected and analysis of heavy metals is going on. If required another round of sampling will be done based on the results. It has been informed that due to Covid 19 the matter is being delayed. The response received from NEERI is placed herewith as **Annexure 8/III.**
- NEERI can be further requested to speed up the finalization of the EDC report

8. **For compliance monitoring of the next quarter ending 31-07-2021, it is contemplated to make site visits which so far could not be under taken due to the grim COVID 19 situation. Meanwhile the stakeholders are expected to make further speedy progress on the pending issues that have already been communicated to them by the Oversight Committee.**

Enclosure : As above

Sunil Kumar Meena Scientist D, CPCB Regional Directorate, Bhopal	(H.K. Sharma) Director Environment MPPCB, Bhopal	(Rajiv Ranjan Meena) District Magistrate Singrauli (MP)

सही प्रति
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ANNEXURE 1 / III

Gmail

hemant Sharma <hsharma1091@gmail.com>

Action Points for the Compliance and expected actions from various stakeholders for the III report of Oversight Committee

1 message

hemant Sharma <hsharma1091@gmail.com> Sun, Apr 18, 2021 at 2:11 PM
To: dmsingrauli@mp.gov.in, Munish Kumar Jain <mkjain@ntpc.co.in>, Munish Jauhari <munishjauhari@ntpc.co.in>, gm@ecr.railnet.gov.in, "General,, Manager(Environment/IMS)" <gmenv.ncl@coalindia.in>, gm@wcr.railnet.gov.in, CMDSecretariat Ncl <cmdsectncl@gmail.com>, cmd.ncl.cil@coalindia.in, cmd.ncl@coalindia.in, "Saran, Jay Shanker-EPMPL-HSE&F- Mahan" <Jay.Saran@essarpower.co.in>, "Jain, Sandeep- EPMPL- Mahan" <Sandeep.Jain@essarpower.co.in>, sachin.mohapatra@relianceada.com, "AK.Singh@relianceada.com" <AK.Singh@relianceada.com>, amitosh verma <amitosh.verma@relianceada.com>, Y.khare@jalindia.co.in, vinod1.sharma@jalindia.co.in, hindalco@adityabirla.com, Utpal Sarkar <utpal.sarkar@adityabirla.com>, girija.panda@adityabirla.com, "Regional Directorate, Bhopal" <cpcb.bhopal@gmail.com>, Sunil Kumar Meena <biosunil2006@gmail.com>, drmdhnecr@gmail.com, drm@jbp.railnet.gov.in, "romppcb.sgrl@gmail.com" <romppcb.sgrl@gmail.com>

Dear Sir,

The third compliance report as on 30-04-2021 is scheduled to be submitted before the Hon. NGT latest by 15th May 2021 in compliance of its order dated 14-07-2020 in OA 164 /2018 (Ashwani Kumar Dubey vs. Union of India & ors.). The action points were set in the first report, which was communicated to all stakeholders vide e-mail dated 27-11-2020. and the action points for the IInd report were also communicated separately on 28-01-2021 to all the stakeholders for reporting compliance. Based on the compliance submitted by the stakeholders, the IInd report was prepared and submitted before the Hon. NGT on 28-03-2021 under intimation to all the stakeholders. Since the compliance reported by the stakeholders for the II report were not found to be complete / up to the mark, no new / additional agenda / action points for the IIIrd report have been formulated . The action points will be the same, as reported to all on 27-11-2020 & 28-01-2021; which are again **attached** herewith for reference & compliance. **Remarks / Expected compliance** form the stakeholders has been incorporated in the last column of the attachment and stakeholders are required to submit the compliance objectively, so that compliance / progress can be reported as precisely as possible.

All stakeholders are therefore requested that the compliance **as on 30-0402021** be reported accordingly latest by **07-05-2021**, so that the IIIrd report can be submitted before Hon. NGT by **15th, May, 2021**

With Best Regards,
H. K Sharma,
Director Environment,
MP Pollution Control Board,
Bhopal

Proposed Agenda for III Oversight Committee as on 30-04-2021.docx
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Action Points for the Compliance and Expected Actions from various stakeholders as on 30-04-2021

1. THERMAL POWER PLANTS	Oversight Committee Recommendations in its first quarterly report	Remarks / Expected Compliance
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Plans have been submitted by TPPs for 100% fly ash utilization but barring one TPP (JP Nigrie), others are unable to utilize 100% of fly ash. Hence compliance to be reported on additional steps / efforts undertaken by TPPs as well as the annual report for the FY 20-21 shall be submitted.
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	1. The efforts so far under taken by the TPPs are unsatisfactory. TPPs like JP Nigrie and Hindalco have already crossed the stipulated time lines and other TPPs also seem to be delaying the stipulated time lines. No one so far has been able to obtain revised timelines from CPCB / MoEF. Hence actions taken for compliance with the stipulated time lines need to be reported. 2. MoEF&CC vide its notification dated 31-03-2021 has introduced amendments in the timelines for compliance, TPPs are expected to report compliance in light of the new notification also.
C.	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	TPPs have reported that the dyke strength testing has been carried out through outside testing agencies. But no SOPs have been provided as to the frequency of dyke strength checking, safety measures implementation, actions taken to implement the advice / recommendations of the testing agencies etc which shall be reported. Specifically for M/s Sasan TPP, its regular ash dyke is creating water logging situations in the fields, however no action has been proposed for the control of it.
D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	Verifiable / Quantifiable measures undertaken to control the air borne fly ash for the ash ponds in the ensuing summer season shall be reported along with photographs as on 30-04-2021.

E.	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorbi mines, and shall complete the related studies at the earliest.	Ash haul back study shall be completed at the earliest and permanent proposal for the conveyance of the fly ash from TPP site to Gorbi mines should be finalized at the earliest. MPPCB is soon granting its permissions, permission from DGMS also need to be obtained.
F.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	TPPS may conduct other routine check ups like eye camps etc as ususal but health check up of villagers through mobile medical van for the detection of the occupational diseases like silicosis, fluorosis etc, shall be specifically conducted and reported to the district health authorities. TPPs like Sasan Power have reported in a cursory way.
G.	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd. shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC- Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	Recommendations stand good for Sasan Power Ltd as well as Essar Power Ltd, however NEERI has already submitted its report in its case amounting to a compensation of Rs. 91.82 Cr., which needs to be deposited. Similarly Sasan Power should deposit Rs 8.0 Cr as interim environmental compensation.
H.	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months time.	The work is still not complete as reported by NTPC, which shall be completed in any case before the onset of monsoon. Progress to be reported as on 30-04-2021.
I.	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash	Compliance status and progress to be reported as on 30-04-2021.

	dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.	
J.	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	Reports as to calibration frequency and results to be reported by all, specifically by Sasan Power Ltd.
2. COAL MINES	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected compliance**
A.	Road sweeping machines in sufficient numbers shall be procured and regular sweeping of the coal transport roads shall be undertaken to keep them dust free.	Status of procurement of additional 4 road sweeping machines as on 30-04-2021 to be reported.
B.	Paving of the road side shoulders along the coal transport roads shall be undertaken within 3 months under the guidance and supervision of the district administration.	Paving of shoulders of such all other city roads, where the coal truck movement takes place shall be chalked out in consultation with district administration and RO MPPCB and time bound action plan for the same be submitted.
C.	Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment*	Verifiable details of the Compliance as per the CPCB guidelines for Spur I and Spur II as on 30-4-2021 along with photographs and drone camera videography shall be submitted.

	Management- March 2015".	
D.	Utilization of fly ash in over burden (OB) of working mines and conducting pilot studies for the same as per Fly ash notification and CPCB guidelines shall be undertaken and 25% use fly ash in the OB dumps shall be done as per Fly Ash Notification, 1999.	The actions taken so far by NCL are questionable. The status of the CMPDI study which was promised atleast three years before the core committee shall be provided and action taken to abide by CPCB guidelines and fly ash notification be given.
E.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	Reply given by NCL is not satisfactory. Other routine check ups like eye camps etc may be carried out as usual but health check up of villagers through mobile medical van for the detection of the occupational diseases like silicosis, fluorosis etc, shall be specifically conducted and reported to the district health authorities.
F.	The railway connectivity of the Block B Gorbi mine shall be completed within 3-6 months time to stop the road transportation of the coal. Consequently the operation of the coal loading railway siding of the Block B Gorbi mine shall be terminated thereafter.	The progress reported is very slow. It seems that the issues pertaining to land acquisition and disputes with villagers are not being settled and NCL is not seeking due help and intervention form the district administration, which shall be given due importance and persuasion. Compliance of the progress shall include the efforts made by NCL.
G.	The railway sidings operated by NCL should be operated in accordance with the CPCB guidelines.	Recommendation as at 'C' mentioned above
H.	All the coal mines shall calibrate all the	The information provided by NCL does not seem to be reliable. All the

	CAAQMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	calibration records as on 30-4-2021 shall be submitted.
3. Railway Sidings / Railway administration	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**
A.	The railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity and have not taken proper measures for the control of coal dust as per CPCB guidelines It is recommended that General Managers of ECR and WCR should be operated in accordance with the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015"* and all necessary dust control devices should be installed within 3-6 months time.	1. The compliance / reply submitted by **ECR Dhanbad** is very vague and unsatisfactory. No time lines have been provided and no control is exercised at the railway sidings, which are being run at the mercy and will of the contractors. Coal crushers are installed without statutory permission, which add to the already poor dust conditions at the sidings. 2. No dedicated staff has been appointed for pollution control and no responsible officer remains available to check the activites of the contractors / coal loaders. 3. Verifiable / Quantifiasble details of the Compliance as per the CPCB guidelines for Mehadaiya and Morba sidings as on 30-4-2021 along with photographs and drone camera video graphy shall be submitted and also action taken as mentioned at point no 1 & 2. 4. **WCR Jabalpur** has willfully failed to submit any reply / compliance. Issues raised at point no 1-3 are as relevant for them also. Compliance as on 30-4-21 shall be submitted for each siding separately.
B.	Indian Railways has been taking large scale track doubling works in the Singrauli region as well as throughout the country, and use huge amount of soil for laying railway tracks, constructing embankments. Large amount of flyash can	Neither ECR nor WCR has submitted its reply. Nor they have submitted the action taken by them to bring this observation in knowledge of the Railway Authorities and their decision. Compliance to be submitted accordingly.

	be used in these construction activities of Indian Railways, for which railways need to be instructed for taking positive steps.	
4. NEERI	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**
	NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of M/s Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. Neither of the study report has been submitted even after a lapse of long time. NEERI may be instructed to submit the reports at the earliest.	NEERI should submit the time lines before the committee as to when the EDC report pertaining to M/s VSTPS- NTPC Ltd and Sasan Power Ltd. will be submitted.
5. DISTRICT ADMINISTRATION	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**
A.	The district administration / Municipal Corporation Singrauli should ensure that all the villages, where RO water supply was provided, shall be supplied with piped water supply / tankers.	The Municipal corporation should specifically report that 13 places where RO water was being supplied, are still supplied with RO water or piped water supply has been provided at those places?
B.	The Health department of the district shall ensure that the citizens with manifestation of occupational diseases like silicosis, fluorosis etc shall be diagnosed and treated. Facilities for the	The Health department to report status of patients with occupational health diseases like silicosis, fluorosis etc found / traced / treated by them as on 30-4-2021? Also whether TPPs and Coal Mines are reporting to them regarding the findings of their Mobile Medical Facility's medical camps and findings of occupational diseases?

	same shall be developed in the newly constructed Trauma center of the district hospital.	
C.	The domestic use of coal in the households shall be discouraged and LPG connections under Ujjawala Scheme be provided.	Action taken specifically for stopping the use of coal as domestic fuel in the households? How many coal using areas/ colonies / slums have been made coal fuel free as on 30-4-2021?

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hemant Sharma <hsharma1091@gmail.com>

Action Points for the Compliance and expected actions from various stakeholders for the III report of Oversight Committee

1 message

hemant Sharma <hsharma1091@gmail.com> Sat, May 22, 2021 at 1:20 PM
To: dmsingrauli@mp.gov.in, gm@ecr.railnet.gov.in, "General,, Manager(Environment/IMS)" <gmenv.ncl@coalindia.in>, gm@wcr.railnet.gov.in, CMDSecretariat Ncl <cmdsectncl@gmail.com>, cmd.ncl.cil@coalindia.in, cmd.ncl@coalindia.in, "Saran, Jay Shanker- EPMPL-HSE&F- Mahan" <Jay.Saran@essarpower.co.in>, "Jain, Sandeep- EPMPL- Mahan" <Sandeep.Jain@essarpower.co.in>, sachin.mohapatra@relianceada.com, "AK.Singh@relianceada.com" <AK.Singh@relianceada.com>, amitosh verma <amitosh.verma@relianceada.com>, hindalco@adityabirla.com, Utpal Sarkar <utpal.sarkar@adityabirla.com>, girija.panda@adityabirla.com, "Regional Directorate, Bhopal" <cpcb.bhopal@gmail.com>, Sunil Kumar Meena <biosunil2006@gmail.com>, drmdhnecr@gmail.com, drm@jbp.railnet.gov.in, "romppcb.sgrl@gmail.com" <romppcb.sgrl@gmail.com>

Kindly refer to the earlier email dated 18-04-2021 on the subject aforementioned. Agenda for the proposed III quarterly report was sent to all and compliance report was asked by 7th May. However reports have not been received so far from your end thereby delaying the submission of the final report of the III quarter before the NGT. Kindly submit the compliance report within 3 days so that the quarterly report can be finalized and submitted before Hon. NGT.

With Best Regards,
H. K Sharma,
Director Environment,
MP Pollution Control Board,
Bhopal

Proposed Agenda for III Oversight Committee as on 30-04-2021.docx
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ANNEXURE 2 /III

MADHYA PRADESH POLLUTION CONTROL BOARD

Paryawaran Parisar, E-5, Arera Colony, BHOPAL - 462 016
☎ (0755) 2464428 2466191 Fax (0755) 2463742 e-mail : pshanna1091@gmail.com

D. No. [illegible] / MPPCB/CE II/ 2021 Bhopal, Dated: [illegible]

To,

1. Dr. Rakesh Kumar, Director
CSIR-National Environmental Engineering
Research Institute, Nehru Nagar, Nagpur, 440020
(r_kumar@neeri.res.in)

2. Er. Hemant Bherwani, Scientist
CSIR-National Environmental Engineering
Research Institute, Nehru Nagar,
Nagpur, 440020
(h.bherwani@neeri.res.in)

Subject: Compliance of the recommendations of the Oversight Committee reg.

Reference: Oversight Committee constituted by NGT vide order dated 14-07-2020 in OA 164 of 2018 (Ashwani Kumar Dubey vs. Union of India & ors.)

Dear Sir,

With reference to the above subject, it is submitted that Hon'ble NGT has re-constituted the oversight committee vide its order dated 14-07-2020 for the implementation of pollution control arrangements at Singrauli (MP) and to submit its quarterly reports to Hon. NGT. The Oversight Committee comprising of the District Magistrate, Singrauli and members from CPCB and MPPCB, in its first report had set following point for the compliance of NEERI, which is as follows:

4. *"National Environmental Engineering Research Institute (NEERI):*

NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of M/s Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. Neither of the study report has been submitted even after a lapse of long time. NEERI may be instructed to submit the reports at the earliest "

Since then, NEERI has submitted its final report pertaining to assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach M/s Essar Power MP Ltd. However the final reports pertaining to M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. are still awaited.

Now the III[rd] report of the Oversight Committee regarding the compliance status as on 30-04 2021 has to be submitted before Hon. NGT by 15[th] May, 2021. You are therefore requested that the

compliance / ATR on above issue should be submitted latest by 7th May, 2021 so that Hon. NGT can be appraised about the progress.

(H.K. Sharma)
Director- Environment,
MPPCB, Bhopal

En. No. [illegible] / MPPCB/CE II/ 2017 Bhopal, Dated: [illegible]

1. Collector District Sirgrauli & head Oversight Committe, for information and necessary action please.
2. Shri SK Meena, Scientst D, Regional Directorate, CPCB Bhopal and member Oversight Committe, for information and necessary action please.
3. Regional Officer MP Pollution Control Boad, Sigrauli for information and ensuring necessary compliance.

(H.K. Sharma)
Director- Environment,
MPPCB, Bhopal

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ANNEXURE 3A /III

MADHYA PRADESH POLLUTION CONTROL BOARD

Paryawaran Parisar, E-5, Arera Colony, BHOPAL - 462 016

☎ (0755) 2464428, 2466819; Fax (0755) 2463742 e-mail mpbhopal091@gmail.com

D. No [illegible] / MPPCB/CE II/ 2021 Bhopal, Dated: [illegible]

To,

1. The Divisional Railway Manager
   West Central Railways
   Jabalpur, Madhya Pradesh

2. The Sr. Divisional Commercial Manager
   West Central Railways
   Jabalpur, Madhya Pradesh

Subject: Establishing and Running of loading and unloading sidings at Bargawan, Gajrabehra & Gondvali (Distt. Singrauli) without proper dust control arrangements: Compliance of the recommendations of the Oversight Committee reg.

Reference: 1. Oversight Committee recommendations constituted by NGT vide order dated 14-07-2020 in OA 164 of 2018 (Ashwani Kumar Dubey vs. Union of India & ors.)
2. Agenda for compliance set by the oversight committee and communicated to you vide email dated 28-01-2021
3. Letters written by MPPCB from time to time.

Dear Sir,

With reference to the above subject, you have been made aware from time to time that Hon'ble NGT had re-constituted the oversight committee vide its order dated 14-07-2020 for the implementation of pollution control arrangements at Singrauli and to submit its quarterly report to Hon. NGT. The Oversight Committee in its first report had set following points for the compliance of department of railways operating its railway sidings in the Singrauli region, which are as follows:

4. *"Railway sidings / Railway Administration:*
   C. *The railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity and have not taken proper measures for the control of coal dust as per CPCB guidelines It is recommended that General Managers of ECR and WCR should be operated in accordance with the guidelines published by CPCB titled "Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015" and all necessary dust control devices should be installed within 3-6 months time.*
   D. *Indian Railways has been taking large scale track doubling works in the Singrauli region as well as throughout the country, and use huge amount of soil for laying railway tracks, constructing embankments. Large amount of flyash can be used in these construction activities of Indian*

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Railways. for which railways need to be instructed for taking positive steps."

The above agenda points were communicated to you, along with the copy of the First Report of the Oversight Committee vide e-mail dated 28-01-2021. The compliance was required to be submitted before Hon. NGT in the II[nd] report by the Oversight Committee. However it is being mentioned that WCR has failed to submit the compliance report before the Oversight Committee. Despite for a long period that WCR has been operating railway sidings at Bargawan, Gajrabehra & Gondvali, no proper pollution control facilities still exist at the sidings, indicating towards the negligent attitude of the WCR in controlling the dust & pollution from its activities. Similarly, no reply has been given by WCR regarding the issue of use of fly ash in its construction activities also.

Now the III[rd] report of the Oversight Committee regarding the compliance status as on 30-04 2021 has to be submitted before Hon. NGT by 15[th] May, 2021. You are therefore required that the compliance by the WCR as on 30-04-2021 should be made available by 7[th] May, 2021 addressing following issues:

1. No compliance / reply has been submitted by WCR Jabalpur which is very unsatisfactory. No time lines have been provided for complying with the CPCB guidelines nor any time targeted action plan has been chalked out. No administrative control is exercised at the railway sidings, which are being run at the mercy and will of the loading contractors. Coal crushers are installed without any prior statutory permissions, which further add to the already poor conditions at the sidings and cause of public complaints.

2. No dedicated staff has been appointed for pollution control by the WCR and no responsible officer remains available to check the activities of the contractors / coal loaders and to ensure compliance with the environmental issues.

3. 3. Verifiable details of the dust control arrangements / devices installed at sidings for the compliance as per the CPCB guidelines for Bargawan, Gajrabehra & Gondvali sidings as on 30-4-2021 along with photographs and drone camera video graphy shall be submitted and also replies to the issues as mentioned at point no 1 & 2

4. Action taken by WCR to ensure the compliance of the Fly ash Notification, 1999 and use of fly ash in the track doubling, embankment making etc. Compliance to be submitted accordingly.

You are therefore requested that the compliance / ATR on above issues should be submitted latest by 7[th] May, 2021.

(H.K. Sharma)
Director- Environment,
MPPCB, Bhopal

En. No. [illegible] / MPPCB/CE II/ 2017 Bhopal, Dated: [illegible]

1. **Collector** District Singrauli & head Oversight Committe, for information and necessary action please.
2. **Genreral Manger, West Central Railways, Jabalpur, MP** for information with a request to take note of the matter and kindly take necessary action in the matter.
3. **Shri SK Meena, Scientst D, Regional Directorate, CPCB Bhopal and member** Oversight Committe, for information and necessary action please
4. **Regional Officer** MP Pollution Control Boad, Sigrauli for information and ensuring necessary compliance

(H.K. Sharma)
Director- Environment,
MPPCB, Bhopal

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ANNEXURE 3B/III

MADHYA PRADESH POLLUTION CONTROL BOARD
Paryawaran Parisar, E-5, Arera Colony, BHOPAL - 462 016
☎ (0755) 2464428 2466191 Fax (0755) 2463742 e-mail nsharmaICS1@gmail.com

D No. [illegible] / MPPCB/CE II/ 2021 Bhopal, Dated: [illegible]

To,

1. The Divisional Railway Manager
East Central Railways
Dhanbad, Jharkhand

2. The Sr. Divisional Commercial Manager
East Central Railways
Dhanbad, Jharkhand

Subject: Establishing and Running of loading and unloading sidings at Mehdaiya and Morba(Singrauli) without proper dust control arrangements: Compliance of the recommendations of the Oversight Committee reg.

Reference: 1. Oversight Committee recommendations constituted by NGT vide order dated 14-07-2020 in OA 164 of 2018 (Ashwani Kumar Dubey vs. Union of India & ors.)
2. Agenda for compliance set by the oversight committee and communicated to you vide email dated 28-01-2021
3. Reply received from Sr. Div. Comm. Manager vide letter no. C.710/MPPCB/DHN/21 dated 11.02.2021
4. Letters written by MPPCB from time to time.

Dear Sir,

With reference to the above subject, you have been made aware from time to time that Hon'ble NGT had re-constituted the oversight committee vide its order dated 14-07-2020 for the implementation of pollution control arrangements at Singrauli and to submit its quarterly report to Hon. NGT. The Oversight Committee in its first report had set following points for the compliance of department of railways operating its railway sidings in the Singrauli region, which are as follows:

3. *"Railway sidings / Railway Administration:*
   - A. *The railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity and have not taken proper measures for the control of coal dust as per CPCB guidelines. It is recommended that General Managers of ECR and WCR should be operated in accordance with the guidelines published by CPCB titled "Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015" and all necessary dust control devices should be installed within 3-6 months time.*
   - B. *Indian Railways has been taking large scale track doubling works in the Singrauli region as well as throughout the country, and use huge amount of soil for laying railway tracks, constructing embankments Large*

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amount of flyash can be used in these construction activities of Indian Railways, for which railways need to be instructed for taking positive steps."

The above agenda points were communicated to you, along with the copy of the First Report of the Oversight Committee vide e-mail dated 28-01-2021. The compliance was required to be submitted before Hon. NGT in the II[nd] report by the Oversight Committee. However the compliance which was submitted vide letter dated 11-02-2021 by the Sr. Div. Comm. Manager was found to be very unsatisfactory and cursory. Despite for a long period that ECR has been operating railway sidings at Mahadaiya and Morba (Singrauli), no proper pollution control facilities still exist at the sidings and from the reply it appeared that still more time is needed for the provision of dust control facilities at the sidings, indicating towards the negligent attitude of the ECR in controlling the dust & pollution from its activities. Similarly, no reply has been given by ECR regarding the issue of use of fly ash in its construction activities.

Now the III[rd] report of the Oversight Committee regarding the compliance status as on 30-04 2021 has to be submitted before Hon. NGT by 15[th] May, 2021. You are therefore required that the compliance by the ECR as on 30-04-2021 should be made available by 7[th] May, 2021 addressing following issues:

1. The compliance / reply submitted by **ECR Dhanbad** is very vague and unsatisfactory. No time lines have been provided for complying with the CPCB guidelines nor any time targeted action plan has been chalked out. No administrative control is exercised at the railway sidings, which are being run at the mercy and will of the loading contractors. Coal crushers are installed without any prior statutory permission, which further add to the already poor conditions at the sidings and cause of public complaints.

2. No dedicated staff has been appointed for pollution control by the ECR and no responsible officer remains available to check the activities of the contractors / coal loaders and to ensure compliance with the environmental issues.

3. Verifiable details of the dust control arrangements / devices installed at sidings for the compliance as per the CPCB guidelines for Mehadaiya and Morba sidings as on 30-4-2021 along with photographs and drone camera video graphy shall be submitted and also replies to the issues as mentioned at point no 1 & 2.

4. Action taken by ECR to ensure the compliance of the Fly ash Notification, 1999 and use of fly ash in the track doubling, embankment making etc. Compliance to be submitted accordingly.

You are therefore requested that the compliance / ATR on above issues should be submitted latest by 7[th] May, 2021.

(H.K. Sharma)
Director- Environment,

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MPPCB, Bhopal

En. No. [illegible] / MPPCB/CE II/ 2017 Bhopal, Dated: [illegible]

1. **Collector** District Singrauli & Head Oversight Committe, for information and necessary action please.
2. **Genreral Manger, East Central Railways, Hazipur, Bihar** for information with a request to take note of the matter and kindly take necessary action in the matter
3. **Shri SK Meena, Scientst D, Regional Directorate, CPCB Bhopal and member** Oversight Committe, for information and necessary action please.
4. **Regional Officer** MP Pollution Control Boad, Sigrauli for information and ensuring necessary compliance.

(H.K. Sharma)
Director- Environment,
MPPCB, Bhopal

Action Points for the Compliance and Expected Actions from various stakeholders as on 04-05-2021

THERMAL POWER PLANTS

S.No.	Oversight Committee Recommendations in its first quarterly report	Remarks / Expected Compliance	Status/Action Plan
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Plans have been submitted by TPPs for 100% fly ash utilization but barring one TPP (JP Nigrie), others are unable to utilize 100% of fly ash. Hence compliance to be reported on additional steps / efforts undertaken by TPPs as well as the annual report for the FY 20-21 shall be submitted.	• Action plan to achieve 100 % ash utilization by Mar'24 is attached as Annexure 1 along with the specific actions taken to enhance ash utilization. • Ash utilization for 2020-21 is 37.7 %. Annual Ash Utilisation report is attached as Annexure 2. Efforts are being made to achieve 100 % ash utilization by 2024.
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	1. The efforts so far under taken by the TPPs are unsatisfactory. TPPs like JP Nigrie and Hindalco have already crossed the stipulated time lines and other TPPs also seem to be delaying the stipulated time lines. No one so far has been able to obtain revised timelines from CPCB / MoEF. Hence actions taken for compliance with the stipulated time lines need to be reported. 2. MoEF&CC vide its notification dated 31-03-2021 has introduced amendments in the timelines for compliance, TPPs are expected to report compliance in light of the new notification also.	• Contracts for the works have been awarded as required. • FGD installation work, to achieve flue gas SO2 limits, is in progress in all the Units (1-12). Timeline defined as per the MoEF & CC notification dated 31-03-2021 [Environment (Protection) Amendment Rules, 2021] will be achieved. • Flue gas NOx limit achieved in Unit 10 and Unit 12 with combustion chamber modification. Action plan in place to achieve the limit and work is in progress to achieve the same before the timeline defined as per the MoEF & CC notification dated 31-03-2021 [Environment (Protection) Amendment Rules, 2021].
C.	Fly ash dyke shall be monitored regularly for their strength through some reputed	TPPs have reported that the dyke strength testing has been carried out through outside testing agencies. But	• Dyke stability checking is proposed to be done on annual basis. • IIT – Roorkee had conducted dyke stability

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NTPC-VINDHYACHAL

ANNEXURE 4 A/III

	organizations. The design should be safe and timely maintenance should be regularly ensured.	no SOPs have been provided as to the frequency of dyke strength checking, safety measures implementation, actions taken to implement the advice / recommendations of the testing agencies etc which shall be reported. Specifically for M/s Sasan TPP, its regular ash dyke is creating water logging situations in the fields, however no action has been proposed for the control of it.	analysis of all 4 Shahpur dykes of NTPC Vindhyachal in 2019. As per the report submitted, design and construction of the dykes was reported to be safe and no additional measures to enhance safety and stability of dyke were suggested. However, for V1 dyke, additional water escape structures in the form of spillways were suggested to take care of excessive rainfall conditions and the same have been incorporated in the design of the dyke and construction is completed. • IIT-Delhi conducted separate stability analysis of V2 dyke of NTPC Vindhyachal in 2020, and suggested some berm stabilization through rockfill strengthening of Starter dyke. Work is in progress to implement the same. • IIT-Hyderabad is at present conducting a comprehensive stability analysis of all Ash Dykes of vindhyachal-Singrauli-Rihand and has already done its preliminary drone surveying
D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	Verifiable / Quantifiable measures undertaken to control the air borne fly ash for the ash ponds in the ensuing summer season shall be reported along with photographs as on 30-04-2021.	• Thin water film is maintained on top of all ash dykes that are in service to prevent fugitive dust emission. • Purchase Order for procurement of 4 nos fog cannons for dust suppression is placed, deployment expected by 15.05.21. • Continuous water spray using Swiveling valves and Garden Sprinklers being done in V4A, V4B dykes. • Supplementary manual water spray through Garland header is also being done.
E.	NTPC- VSTPS shall ensure to start disposal of the fly ash in	Ash haul back study shall be completed at the earliest and	• MPPCB clearance given for to start ash filling subject to fulfillment of certain conditions. Work

	the abandoned Gorbi mines, and shall complete the related studies at the earliest.	permanent proposal for the conveyance of the fly ash from TPP site to Gorbi mines should be finalized at the earliest. MPPCB is soon granting its permissions, permission from DGMS also need to be obtained.	is in progress to ensure compliance. The conditions include creation of a peripheral drain around the mine void and approach road development for which Forest clearance is required – NCL requested to provide land details so that a formal application to DFO can be made. • NCL has to obtain DGMS clearance for start of work – inputs from NTPC, as required, submitted. • Distt Administration requested to allow road transport of ash - clearance is awaited. • Contract for ash transportation from VSTPS to GORBI mines is already in place. Unloading system installation works in progress to start the filling as soon as the clearance is granted. • Ash haul back study to establish permanent system is in progress. Draft report expected by 31.05.21.
F.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	TPPs may conduct other routine check ups like eye camps etc as usual but health check up of villagers through mobile medical van for the detection of the occupational diseases like silicosis, fluorosis etc, shall be specifically conducted and reported to the district health authorities. TPPs like Sasan Power have reported in a cursory way.	In the prevailing COVID 19 conditions, regular medical camps are not being held. Health check-ups as per the recommendation will be taken up if and when the situation permits.
G.	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd.	Recommendations stand good for Sasan Power Ltd as well as Essar Power Ltd, however NEERI has already submitted its report in its case	No further hearing in the case has taken place.

	shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC-Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	amounting to a compensation of Rs. 91.82 Cr., which needs to be deposited. Similarly Sasan Power should deposit Rs 8.0 Cr as interim environmental compensation.	
H.	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months time.	The work is still not complete as reported by NTPC, which shall be completed in any case before the onset of monsoon. Progress to be reported as on 30-04-2021.	As per the CPCB MPPCB joint committee report, the approximate quantity of ash breached out was estimated to be 2.25 Lac MT. This quantity of ash is already lifted from land (surface ash) and from Rihand reservoir and its catchment area.
I.	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.	Compliance status and progress to be reported as on 30-04-2021.	• IIT Roorkee has been awarded the contract to study the feasibility of RCC wall construction and suggest its design. First site visit was done on 4th April, 2021, the draft report is awaited and being followed up. • IIT-Delhi has submitted a draft proposal for Ash mound. Under technical review for implementation.

J.	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	Reports as to calibration frequency and results to be reported by all, specifically by Sasan Power Ltd.	Calibration frequency is quarterly. Calibration reports already submitted.

(Munish Jain)

Addl. General Manager,
(Env. Management),
NTPC-Vindhyachal

Annexure 1

100% ASH UTILIZATION PLAN

UOM: LMT

	2021-22	2022-23	2023-24
Expected Ash Gen	80	80	80
Ash Mound	0.50	1	2
Supply to Cement Plants through rail/road transportation	6	10	14
Utilisation in OB mixing* (*Subject to getting requirement from Mine Owner companies*)	2	13	32
Mines Filling	4	6	8
Waste land development	8	10	8
Brick Manu. & other Fly ash based industry	5	5	5
Road Construction	11	11	11
Ash Dyke Raising	9	8	0
Total AU	45.5	64	80
AU%	**55%**	**80%**	**100%**

Ash Utilization in 2020-21: 37.7 %

EXTERNAL SUPPORT REQUIRED

- Implementation of Demand side provisions of MoEF notification on fly ash utilization including mandatory use of fly ash bricks and OB mixing with fly ash.
- Creation of requisite rail/road infrastructure to support ash evacuation from the region to ensure 100 % ash utilization.
- Clearance for ash filling in GORBI mines.
- Early clearance of Waste Land Development proposals.

Initiatives & Measures taken by NTPC Vindhyachal to improve ash utilization

1. Efforts are being made to start GORBI mine filling within a short period of time. Environment clearance from MPPCB has been given. Distt. Administration clearance awaited. NCL requested to obtain DGMS clearance for the work since as per the Mines act, NCL being the mine owner, DGMS clearance will not be given to NTPC directly.
2. Supply of fly ash to Cement Manufacturers started in July'20 under Incentive scheme for making it financially viable for them to lift ash from VSTPS.
3. VSTPS is regularly taking up the work of Waste Land Development of Govt/Publiv/Private land using fly ash at various locations within 100 kms of Plant radius. Total ash utilisation in this avenue was around 12.9 LMT in the financial year 2020-21.
4. VSTPS has been continuously following up with NHAI for getting requirement for ash in road construction. A requirement of about 10 lac MT has been received from NHAI, Varanasi and supply of ash has been started in Aug'20. Around 1.8 Lac MT ash was supplied under this arrangement in 2020-21. A requirement of around 4 Lac MT has been received for supply in SATNA region for which arrangements are being worked out. VSTPS is committed to provide ash to all projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments within 300 kms of the Plant as and when the requirement is received.
5. Efforts underway to maximise Ash Transportation by Rail so that the transportation cost can be reduced. Facility for direct loading of ash into rail wagons commissioned in one Unit. Rail loading facility for 2260 MW (Stg 1 & Stg 4) expected to be completed by Aug'21. Fly ash transportation by rail to Star Cement, Assam was done in Jan'21 on trial basis. NTPC is procuring 3 rakes of BTAP wagons for the purpose at a cost of ~ 60 crores (two rakes already delivered).
6. Ash park has been set up at Rewa where fly ash transported in 50 kg bags from VSTPS is made available to the ash based industries in theregion. Vindhyachal has been the first Plant in the region to start such an initiative. Ash bagging machines have been installed for the purpose in the SILOs at Vindhyachal. Bagging machines for Jumbo bag filling (1-1.5 T) are also planned to be installed.
7. VSTPS is supplying fly ash to the ash based industries within 100 kms from the Plant. Free of cost Door step delivery is being made. Again, Vindhyachal is the first Plant in the region to start such an initiative.
8. VSTPS is supplying fly ash to the ash based industries in 100 – 300 kms radius of the Plant on cost sharing basis as per the provisions of the MoEF notification on fly ash.
9. VSTPS is actively following up with Distt Administration for awarding any abandoned quarries which can be developed using ash. One no. of stone quarry was awarded to VSTPS in Makrohar region where ash filling has been completed.
10. VSTPS has approached IIT-Roorkee, IIT-Delhi and other vendors for construction of Ash Mound as a pilot project. Offer from IIT, Delhi has been received and is being processed.
11. VSTPS is making around 75,000 ash bricks/day for its own use. No red brick is used for any construction activity within Plant or township.
12. Consistent efforts are being made by VSTPS requesting NCL for mixing of fly ash with OB but so far the efforts have not yielded fruit.

सही प्रति
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Fly Ash Notification S.O. 2804 (E), 3rd November, 2009 - Statutory Compliance Report for the period 01.04.2020 to 31.03.2021

S. No.	Item	Reply
1	Name of Thermal Power Station	NTPC Limited,Vindhyachal Super Thermal Power Station
2	Full address including District & Pin code	PO: Vindhyanagar, Dist: Singrauli (MP), Pin - 486 885.
3	E-mail address	mukeshkashyap@ntpc.co.in
4	Name of the Nodal Officer (not below the rank of DGM / Dy. CE / or equivalent) dealing with ash/environment management and designation	Mukesh Kashyap AGM (AUD)
5	Contact No.	9650999621
6	Email:	mukeshkashyap@ntpc.co.in
7	Total capacity of the Thermal Power Station (MW) along with unit-wise capacity break-up	4760 MW

A. Coal Consumption and Ash Generation in year 2020-2021 (in tonnes)

8	Coal /Lignite Consumption	2,50,09,768
9	Average ash content in coal (annual)	34.84
10	Bottom Ash Generation	17,42,736
11	Fly Ash Generation	69,70,944
12	Total Ash Generation (10 + 11)	87,13,679

B. Ash utilization in year 2020-2021 (in tonnes)

S. No.	Purpose for which ash is utilized	From ESP Dry Ash (1)	From Pond Ash (2)	From Bottom Ash (3)	Total (1+2+3)
13	Cement industry	1,46,992	-	-	1,46,992
14	Bricks/blocks/tiles and other ash based products	2,28,398	-	-	2,28,398
15	Road and flyover embankments	-	1,77,709	-	1,77,709
16	Reclamation of low lying area	-	12,87,735	-	12,87,735
17	Back filling of mines	-	-	-	-
18	Concrete/ mortar/ plaster	-	-	-	-
19	Agriculture	-	-	-	-
20	Exports	-	-	-	-
21	Others (please specify all avenues)	-	12,70,781	1,74,273	14,45,054
	Total B (13 to 21)	3,75,390	27,36,225	1,74,273	32,85,888

Sr. Manager (AUD)

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C. Unutilised ash of year 2020-21 and previous years

22	Unutilised ash ofyear 2020-21 (in tonnes)	54,27,791
23	Unutilised ash pertaining to previous years i.e. up to 31.03.2020 (in Million tonnes)	74.7469
24	**Total unutilisedash up to 31.03.2021 (22 + 23)(in Million tonnes)**	80.1746
	a. Quantity of Ash stored in Silos	---
	b. Quantity of Ash stored in Ash Ponds	80.1746
	c. Quantity of Ash stored in any other manner (please specifytype of storage and dry/wet phase)	----

D. Reasons for not achieving 100% ash utilisation

1. NTPC Vindhyachal is remotely located distantly from the Bulk ash consumption belt, having limited scope of ash utilization.
2. NTPC Vindhyachal is located in the cluster of large power plants in Singrauli region due to which ash generation is in abundance, but utilization is limited.
3. As per CPCB guidelines & MoEF notifications, up to 25 % Fly ash is to be utilized in OB mixing on volume to volume basis. Station approached neighbouring NCL, however no positive response given by NCL.
5. Station has offered incentives to Cement companies for Fly Ash Lifting from VSTPS but the take off by Cement companies is lower than the target, due to poor conditions of road in MP region.
6. Station has started Pond Ash supply to NHAI for road construction work near Varanasi but the transportation is lower than target due to traffic congestion at Varanasi.

Signature and Seal of the Plant Head

Name:
Designation:
Date:

Action Points for the Compliance and Expected Actions from various stakeholders as on 30-04-2021

1. THERMAL POWER PLANTS	Oversight Committee Recommendations in its first quarterly report	Remarks / Expected Compliance	Remarks from Hindalco Industries Limited, Mahan Aluminium
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Plans have been submitted by TPPs for 100% fly ash utilization but barring one TPP (JP Nigrie), others are unable to utilize 100% of fly ash. Hence compliance to be reported on additional steps / efforts undertaken by TPPs as well as the annual report for the FY 20-21 shall be submitted.	To achieve 100 % utilization, plan for FY 22 is enclosed as **Annexure – I**. Annual report for 2020-21 has been submitted on 30.04.2021 vide email. Copy is enclosed herewith as **Annexure** – II
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	1. The efforts so far under taken by the TPPs are unsatisfactory. TPPs like JP Nigrie and Hindalco have already crossed the stipulated time lines and other TPPs also seem to be delaying the stipulated time lines. No one so far has been able to obtain revised timelines from CPCB / MoEF. Hence actions taken for compliance with the stipulated time lines need to be reported. 2. MoEF&CC vide its notification dated 31-03-2021 has introduced amendments in the timelines for compliance, TPPs are expected to report compliance in light of the new notification also.	We are in progress for installation of FGD. Construction is in progress. As per MoEFCC latest Notification dated 31.03.2021, commissioning of this unit shall be achieved. Site progress photographs are enclosed as **Annexure – III**

C.	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	TPPs have reported that the dyke strength testing has been carried out through outside testing agencies. But no SOPs have been provided as to the frequency of dyke strength checking, safety measures implementation, actions taken to implement the advice / recommendations of the testing agencies etc which shall be reported. Specifically for M/s Sasan TPP, its regular ash dyke is creating water logging situations in the fields, however no action has been proposed for the control of it.	We are continuous in touch with IIT-BHU for the final comments. Geotechnical Investigation Report has been made for Safety and Stability analysis of our ash dyke. Bore hole and Dynamic Cone Penetration Test conducted at site Ash Dyke 1 &2 from 24 Dec 20 to 05 Jan 21. Due to Covid restriction, IIT-BHU team could not plan for final visit.
D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	Verifiable / Quantifiable measures undertaken to control the air borne fly ash for the ash ponds in the ensuing summer season shall be reported along with photographs as on 30-04-2021.	Vegetation on the surface area of the ash dyke prevent the airborne flyash. Latest Photographs is enclosed as **Annexure – IV** for your ready reference.
E.	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorbi mines, and shall complete the related studies at the earliest.	Ash haul back study shall be completed at the earliest and permanent proposal for the conveyance of the fly ash from TPP site to Gorbi mines should be finalized at the earliest. MPPCB is soon granting its permissions, permission from DGMS also need to be obtained.	NA
F.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under	TPPS may conduct other routine check ups like eye camps etc as ususal but health check up of villagers through mobile medical van for the detection of the occupational diseases like silicosis, fluorosis etc, shall be specifically conducted and reported to the district health authorities. TPPs like Sasan	NA

	CSR activities. Record should be maintained and made available to the district health authorities.	Power have reported in a cursory way.	
G.	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd. shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC-Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	Recommendations stand good for Sasan Power Ltd as well as Essar Power Ltd, however NEERI has already submitted its report in its case amounting to a compensation of Rs. 91.82 Cr., which needs to be deposited. Similarly Sasan Power should deposit Rs 8.0 Cr as interim environmental compensation.	NA
H.	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months time.	The work is still not complete as reported by NTPC, which shall be completed in any case before the onset of monsoon. Progress to be reported as on 30-04-2021.	NA
I.	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT	Compliance status and progress to be reported as on 30-04-2021.	NA

	Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.		
J.	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	Reports as to calibration frequency and results to be reported by all, specifically by Sasan Power Ltd.	Submitted
2. COAL MINES	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**	
A.	Road sweeping machines in sufficient numbers shall be procured and regular sweeping of the coal transport roads shall be undertaken to keep them dust free.	Status of procurement of additional 4 road sweeping machines as on 30-04-2021 to be reported.	NA
B.	Paving of the road side	Paving of shoulders of such all other city roads,	

	shoulders along the coal transport roads shall be undertaken within 3 months under the guidance and supervision of the district administration.	where the coal truck movement takes place shall be chalked out in consultation with district administration and RO MPPCB and time bound action plan for the same be submitted.	
C.	Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment Management-March 2015"*.	Verifiable details of the Compliance as per the CPCB guidelines for Spur I and Spur II as on 30-4-2021 along with photographs and drone camera videography shall be submitted.	NA
D.	Utilization of fly ash in over burden (OB) of working mines and conducting pilot studies for the same as per Fly ash notification and CPCB guidelines shall be undertaken and 25% use fly ash in the OB dumps shall be done as per Fly Ash Notification, 1999.	The actions taken so far by NCL are questionable. The status of the CMPDI study which was promised atleast three years before the core committee shall be provided and action taken to abide by CPCB guidelines and fly ash notification be given.	NA
E.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the	Reply given by NCL is not satisfactory. Other routine check ups like eye camps etc may be carried out as ususal but health check up of villagers through mobile medical van for	NA

	occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	the detection of the occupational diseases like silicosis, fluorosis etc, shall be specifically conducted and reported to the district health authorities.	
F.	The railway connectivity of the Block B Gorbi mine shall be completed within 3-6 months time to stop the road transportation of the coal. Consequently the operation of the coal loading railway siding of the Block B Gorbi mine shall be terminated thereafter.	The progress reported is very slow. It seems that the issues pertaining to land acquisition and disputes with villagers are not being settled and NCL is not seeking due help and intervention form the district administration, which shall be given due importance and persuasion. Compliance of the progress shall include the efforts made by NCL.	NA
G.	The railway sidings operated by NCL should be operated in accordance with the CPCB guidelines.	Recommendation as at 'C' mentioned above	NA
H.	All the coal mines shall calibrate all the CAAQMS installed by them in 3 months (if not done recently) and submit the report to the committee.	The information provided by NCL does not seem to be reliable. All the calibration records as on 30-4-2021 shall be submitted.	NA

	Such reports will be useful in checking the error percentage in the results.		
3. Railway Sidings / Railway administration	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**	
A.	The railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity and have not taken proper measures for the control of coal dust as per CPCB guidelines It is recommended that General Managers of ECR and WCR should be operated in accordance with the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment Management-March 2015"* and all necessary dust control	1. The compliance / reply submitted by **ECR Dhanbad** is very vague and unsatisfactory. No time lines have been provided and no control is exercised at the railway sidings, which are being run at the mercy and will of the contractors. Coal crushers are installed without statutory permission, which add to the already poor dust conditions at the sidings. 2. No dedicated staff has been appointed for pollution control and no responsible officer remains available to check the activites of the contractors / coal loaders. 3. Verifiable / Quantifiasble details of the Compliance as per the CPCB guidelines for Mehadaiya and Morba sidings as on 30-4-2021 along with photographs and drone camera video graphy shall be submitted and also action taken as mentioned at point no 1 & 2. 4. **WCR Jabalpur** has willfully failed to submit any reply / compliance. Issues raised at point no 1-3 are as relevant for them also. Compliance as on 30-4-21 shall be submitted for each siding	NA

38

	devices should be installed within 3-6 months time.	separately.	
B.	Indian Railways has been taking large scale track doubling works in the Singrauli region as well as throughout the country, and use huge amount of soil for laying railway tracks, constructing embankments. Large amount of flyash can be used in these construction activities of Indian Railways, for which railways need to be instructed for taking positive steps.	Neither ECR nor WCR has submitted its reply. Nor they have submitted the action taken by them to bring this observation in knowledge of the Railway Authorities and their decision. Compliance to be submitted accordingly.	NA
4. NEERI	**Oversight Committee Recommendations in its first quarterly report**	**Remarks / Expected Compliance**	
	NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of M/s	NEERI should submit the time lines before the committee as to when the EDC report pertaining to M/s VSTPS- NTPC Ltd and Sasan Power Ltd. will be submitted.	NA

	Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. Neither of the study report has been submitted even after a lapse of long time. NEERI may be instructed to submit the reports at the earliest.		
5. DISTRICT ADMINISTRATION	**Oversight Committee Recommendations in its first quarterly report**	**Expected Compliance**	**Remarks /**
A.	The district administration / Municipal Corporation Singrauli should ensure that all the villages, where RO water supply was provided, shall be supplied with piped water supply / tankers.	The Municipal corporation should specifically report that 13 places where RO water was being supplied, are still supplied with RO water or piped water supply has been provided at those places?	NA
B.	The Health department of the district shall ensure that the citizens with manifestation of occupational diseases like	The Health department to report status of patients with occupational health diseases like silicosis, fluorosis etc found / traced / treated by them as on 30-4-2021? Also whether TPPs and Coal Mines are reporting	NA

	silicosis, fluorosis etc shall be diagnosed and treated. Facilities for the same shall be developed in the newly constructed Trauma center of the district hospital.	to them regarding the findings of their Mobile Medical Facility's medical camps and findings of occupational diseases?	
C.	The domestic use of coal in the households shall be discouraged and LPG connections under Ujjawala Scheme be provided.	Action taken specifically for stopping the use of coal as domestic fuel in the households? How many coal using areas/ colonies / slums have been made coal fuel free as on 30-4-2021?	NA

Annexure- I

ADITYA BIRLA
HINDALCO

HINDALCO INDUSTRIES LTD
MAHAN ALUMINIUM PROJECT (6*150 MW)

ACTION PLAN FOR UTILIZATION OF FLY ASH IN FY 2021-22			
UTILIZATION IN DIFFERENT AREAS	**Proposal for FY 2021-22**		
	(MT)	**(%)**	**Remarks**
A. Ash Generation			
1. Total Fly Ash generation	1144511	90	
2. Total Bottom Ash Generation	127168	10	
Total Ash Generation	**1271679**	100	
B. Ash Utilization			
1. Cement Plants (UltraTech, ACC, Shree Cement, AshTech)	1189230	93.5	w.r.t. total Ash gen.
2. Brick Plant	4800	0.4	w.r.t. total Ash gen.
3. CLSM/Road construction/Pavements/Shouldering beside the roads inside the plant	77649	6.1	w.r.t. total Ash gen.
Total Fly Ash + Bottom Ash utilization planned in FY22	**1271679**		

42

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Annexure- II

INFORMATION REGARDING UTILISATION OF FLY ASH FOR (APRIL 2020– MARCH 2021) (ONE YEAR):
NAME OF THE TPP: HINDALCO INDUSTRIES LIMITED, MAHAN ALUMINIUM (CAPTIVE POWER PLANT)
TOTAL GENRATION CAPACITY: - 750 MW (6 x 150 MW, 1 x 150 STANDBY)

Sr. No.	Coal Consumption during the year (MT)	Fly Ash* Generation during 2020-21		Fly ash utilization during 2020-21**		Total Fly Ash, left unutilized as on 31/03/21 (In MT)
		In MT	% of Ash generation of coal consumption during the year	In MT	% of Ash utilized during the year	
1	3694862	1274175	34.485	987639	77.51	1820231

Ash Utilization details

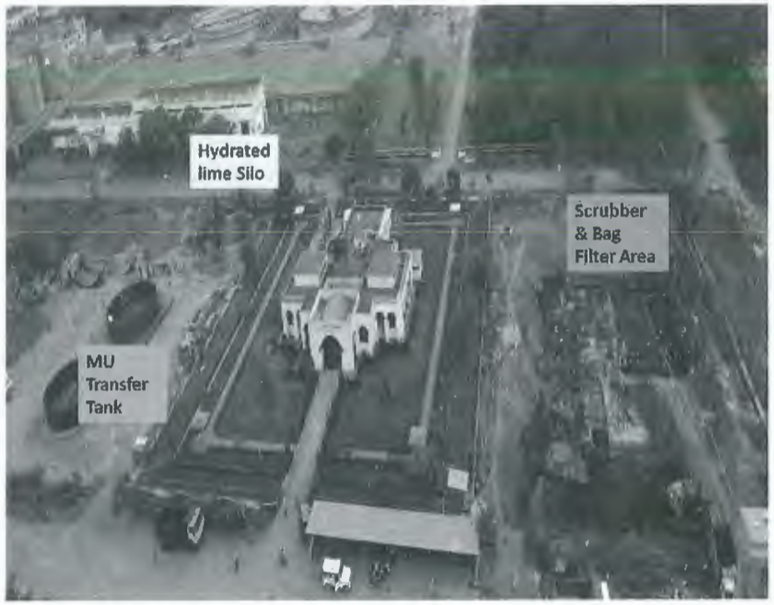
1. Cement Industries - 981171 MT
2. Brick Manufacturing - 1365 MT
3. Construction Activity - 5103 MT
4. To Ash Pond - 290505 MT

Total.... - **1274175 MT**

Note*: The term Fly Ash includes Fly ash, Bottom ash, Pond ash etc..
**: Attach seperate sheet showing details of the utilization of fly ash for different uses
MT: Metric Tonne
MW: Mega watt

Annexure- III

Site Photographs – Mahan FGD Project



Site Photographs – Mahan FGD Project

MCC Building backfilling work up to bottom of plinth beam 75% completed.

MCC BUILDING AREA

Super structure work under progress.

HYDRATED LIME SILO

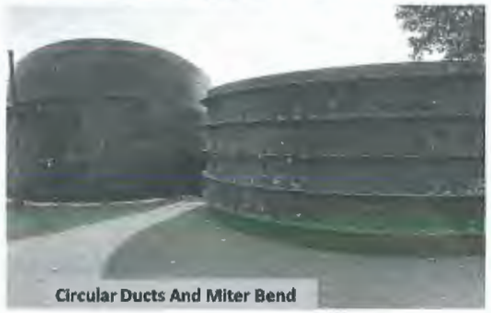
Back filling work under progress.

SCRUBBER AND BAG FILTER AREA

By Product Silo back filling work 90% done. Plinth beam steel binding work under progress.

BY PRODUCT SILO

Site Photographs – Mahan FGD Project


Circular Ducts And Miter Bend

Fabrication work SDFGD Project


SCRUBBER


BED PREPERATION FOR PREASSEMBLY OF STEEL STRUCTURE


Make Up Water Transfer Tank


DPT / Leak Test

Annexure- IV

Vegetation on Ash dyke

ANNEXURE 4C/III

Recommendations of the Oversight Committee in its first quarterly report for Compliance by the Jaypee Nigrie Super Thermal Power Plant

S. No.	Recommendations of the Oversight Committee	Current Status of action as on 30-04-2021 from Jaypee Nigrie Super Thermal Power Plant
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Ash Utilization in 2020 – 21 was 100.04 %. Having long term MoU with End User (Cement Industry). Efforts have been made to utilize/dispatch 100% currently generated fly ash.
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	Action has already been taken to install Wet Lime Stone based FGD on both the Units, so as to control SO_2 Emission in order to meet New Emission Norms of MoEF&CC Notification dated 07.12.2015. FGD Status – NIT issued on 31.12.2019. Since no bids have been received till date (i.e. by 30.01.2021` bids submission date has been extended up to 31st May 2021.
C.	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	Structural Stability Study has been carried out by Competent Third Party Technical Agency on 21.11.2019. SOPs has been prepared and regular checking is being done, recent report with SOPs is attached as **Annexure – I.** Design of Ash Pond has been done by M/s Development Consultants Pvt. Ltd. (DCPL) a renowned designing agency. M/s DCPL drawing has been submitted to MPPCB vide letter no. JPVL/COORD/POLL/2013-14 dated January 21, 2014.The drawing No. is K6A24–DWG-C-595 Rev.4. Ash pond has been constructed as per above approved drawing. The Ash Dyke has been constructed with upstream & downstream slopes (1V:2H). Ash Dyke has been constructed with HDPE lining on inner side and over that PCC (75mm) layer has been provided to protect it and eliminates any possibility of breach of embankment. Ash Pond is built over an area of 21.2 ha and is consisting of two ponds & equipped with 100% Ash Water Recirculation System to prevent any ash mixed water discharge to outside. The Ash Dyke is situated within intact boundary wall of Power Plant.
D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific	The bottom ash which is in slurry form is sent through ash disposal pipes to the bottom ash slurry pond i.e. the Ash Dyke. No Fly Ash is being disposed into the ash dykes in Dry form. Ash Pond

	measure.	Top layer is always covered with water. However, mobile water sprinkling arrangement is in place for using as and when required for controlling air borne fly ash. Photographs of Ash Ponds dated 30th April 2021 attached as **Annexure-II**
E.	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorbi mines, and shall complete the related studies at the earliest.	Not Applicable to us.
F.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	Free Medical Check-up facility & Free Medicines are being Provided to nearby Villagers as required. Providing Mobile Hospital & Ambulance Service to affected villages (Nigrie, Niwas, katai & Hardi & Mahua Ganv and Chamrach and Joba).
G.	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd. shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC-Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	Not Applicable to us.
H.	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months time.	Not Applicable to us.
I.	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.	Not Applicable to us.
J.	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	CAAQMS & CEMS installed in the plant are given Annual Maintenance Contract and are being Calibrated on Quarterly basis by Original Equipment Manufacturers. The last Calibration was done on 10th April 2021, Reports are attached as **Annexure - III**

01/5/2021

JAYPEE NIGRIE SUPER THERMAL POWER PLANT		
		Annexure 1
JAYPEE GROUP	ISSUE NUMBER: 1.0	ISSUE DATE: 20.05.2019
	REVISION NUMBER: 0.0	REVISION DATE:
	DOC NUMBER. 30-IMS-AHP-35-R	DOC: Check Sheet of Ash Pond Inspection

1. Name of the Project: Jaypee Nigrie Super Thermal Power Project (A Division of Jaiprakash Power Ventures Limited)

2. Inspection Date: 10.04.2021

3. Name of the inspection officers: S/Shri V S Pandey, J K Mishra M K Tripathi and S P Singh.

A) ASH POND DETAILS	Ash Pond 1	Ash Pond 2	Inspection Schedule	Remarks
a) Whether any ash surface is exposed above water	No	Yes	Fortnightly	
b) If ash surface is exposed above water level whether ash is flying anywhere.	No	No	Fortnightly	
c) Whether water flow is obstructed by floating plants or any other floating bodies near over flow channel	No	No	Fortnightly	
B) Dyke				
a) Top level of dyke.				
1.Whether there are any signs of settlement on the top of dyke.	No	No	Fortnightly	
b) Whether any sign of settlement / caving -in :				
1. Upstream slope.	No	No	Fortnightly	
2. Downstream slope.	No	No	Fortnightly	
c) Whether any seepage is observed on:				
1. Downstream slope.	No	No	Fortnightly	
d) Whether any wet spots / areas are present on:				
1. Downstream slope.	No	No	Fortnightly	
e) Whether any longitudinal cracks are observed on:				
1. The top of dyke	No	No	Fortnightly	
2 The downstream slope	No	No	Fortnightly	
f) Whether any transverse cracks are observed on:				
1. The top of dyke.	No	No	Fortnightly	
2 The downstream slope	No	No	Fortnightly	
g) If any cracks are observed on the top and the slopes:				
1 Whether the cracks on the top & slopes are continuous	No	No	Fortnightly	
2. Whether the cracks are lengthening with time	No	No	Fortnightly	
3. Whether the cracks are widening with time.	No	No	Fortnightly	
4 If seepage is observed in the slope or near the d/s toe	No	No	Fortnightly	
h) Whether the seepage water is muddy:				
1 If the seeping water is muddy	No	No	Fortnightly	
2. If the seepage water is muddy, the seepage area has been covered with inverted filters.	No	No	Fortnightly	
3. If filters have been placed over the seepage areas Whether the water has become clear indicating reduction in material carry over.	No	No	Fortnightly	
4 Whether the seepage rate is changing with time	No	No	Fortnightly	
5 Whether the filter material is getting displaced due to seepage water flow.	No	No	Fortnightly	

i) Whether any damage is there in the turfing protection on the downstream slope.	No	No	Fortnightly	
j) whether the stone pitching / concrete lining on the slopes are dislodged or caved in at any location on:				
1 The upstream slope (concrete lining)	No	No	Fortnightly	
2. The downstream slope (stone pitching)	No	No	Fortnightly	
k) Whether there is any growth of vegetation / bushes on the:				
1. Downstream slope.	Yes	Yes	Fortnightly	**Regular cutting is being done**
2. Upstream slope.	Yes	Yes	Fortnightly	**Regular cutting is being done**
3 Top of dyke.	Yes	Yes	Fortnightly	**Regular cutting is being done**
l) Whether any rat holes are present on the dyke:				
1 On the downstream slope.	No	No	Fortnightly	
2. On the dyke top.	No	No	Fortnightly	
m) If rat holes are present, whether they are being plugged with earth.	No	No	Fortnightly	
n) If rat holes present, whether there are also signs of cracking, sinking or settlement on the top or downstream slope of the dyke near region where rat holes are found.	No	No	Fortnightly	
o) Whether there are any rain cuts on dyke:				
1 Top of dyke.	No	No	Fortnightly	
2. Downstream slope.	No	No	Fortnightly	
p) Whether the rock toe is maintaining its design shape.	Yes	Yes	Fortnightly	
q) Whether the toe drain is clean with no obstruction for flow of water:	Yes	Yes	Fortnightly	
r) Whether any growth of vegetation inside the toe drain.	Regular cleaning	Regular cleaning	Fortnightly	
s) Whether the lining in the toe drain is in good condition.	Yes	Yes	Fortnightly	
t) Whether there is any flow in the toe drain.	Yes	Yes	Fortnightly	

Discharge of Ash Slurry in:	
Pond 1:	Yes
Pond 2:	No

SIGNATURE OF INSPECTION OFFICERS		
Ash Handling Plant	**Civil**	**Railway Siding**
Sig:	Sig.	Sig:
Name: V. [illegible]	Name: J K MISHRA S.P. SINGH	Name: MANOJ TRIPATHI
Date: 10/04/2021	Date: 10.04.2021 10/04/2021	Date: 10.04.2021

Annexure-II

Photographs of ASH POND –I

Photographs of ASH POND –II (Evacuation of Pond Ash for Filling up of low lying area is in progress)

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CALIBRATION REPORT FOR GAS ANALYZERS S710

JAYPEE NIGRIE	Model: S710	SICK INDIA PVT LTD
Calibration Date: 23.02.2021	Equipment Number : (S.N:715748)	Done by : Salim Gadkari

1. Model No: S710 Multor.
2. Customer Name: Jaypee Nigrie Super Thermal Power Plant, Jaiprakash Power Ventures Ltd, Village Nigrie, Post-Niwas, Tehsil-Sarai, Dist-Singrauli, Madhya Pradesh-486669.
3. Instrument Tag No: Unit#1 CEMS analyser.
4. Calibration Due Date: 22.08.2021

S.N.	Cylinder No	Expiry date of calibration cylinder	Component	Cylinder Value (unit)	Before Calibration Value	After Calibration Value	Remarks
1	CSL-40383 (75827)	22/12/2021	SO2	817 ppm	822 ppm	817 ppm	Calibrated
2	CSL-40383 (75827)	22/12/2021	NO	782 ppm	791 ppm	784 ppm	Calibrated
3	CSL-40383 (75827)	22/12/2021	CO2	34.00 %	34.50%	34.00 %	Calibrated

For Sick India Pvt Ltd

For JPVL

(CS Sharma)
Aman Singh

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CALIBRATION REPORT FOR GAS ANALYZERS S710

JAYPEE NIGRIE	Model: S710	SICK INDIA PVT LTD
Calibration Date: 23.02.2021	Equipment Number : (S.N:715246)	Done by : Salim Gadkari

1. Model No: S710 Multor.
2. Customer Name: Jaypee Nigrie Super Thermal Power Plant, Jaiprakash Power Ventures Ltd, Village-Nigrie, Post-Niwas, Tehsil-Sarai, Dist-Singrauli, Madhya Pradesh-486669.
3. Instrument Tag No: Unit#2 CEMS analyser.
4. Calibration Due Date: 22.08.2021

S.N.	Cylinder No	Expiry date of calibration cylinder	Component	Cylinder Value (unit)	Before Calibration Value	After Calibration Value	Remarks
1	CSL-40383 (75827)	22/12/2021	SO2	817 ppm	809 ppm	818 ppm	Calibrated
2	CSL-40383 (75827)	22/12/2021	NO	782 ppm	789 ppm	783 ppm	Calibrated
3	CSL-40383 (75827)	22/12/2021	CO2	34.00 %	34.20%	34.00 %	Calibrated

For Sick India Pvt Ltd

For JPVL

C.S. Sharma

Aman Singh

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CALIBRATION REPORT-DUST

Customer: JAYPEE NIGRIE SUPER THERMAL POWER PLANT	Model: DHT-50	SICK INDIA PVT LTD
Date: 14.04.2021	Equipment Number : 14028364 Analyser Installed at : Unit #1 Stack.	Calibration done by : Salim Gadkari
Manual Sampling Done by M/s Vardan Envirolab, Jaipur, Rajasthan.	Details of Manual sampling Ref no: DMP/ENV/140421/01 Dated: 14.04.21	

S NO	Manual sampling Results in (mg/Nm3)	Instrument Reading in mg/Nm3
1	48.38	48.68

With reference to the manual sampling results instrument was calibrated

Old Calibration factor 590

New Calibration factor 586.36

S.K. Choudhury
[S.K. CHOUDHURY]

For Sick India Pvt Ltd

For Jaypee Nigrie
(S. Sharma)

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57

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CALIBRATION REPORT-DUST

Customer: [illegible] SUPER THERMAL POWER PLANT	Model: DUST-50	SICK INDIA PVT LTD
Date: 14.04.2021	Equipment Number: 14028363	Calibration done by : Salim Gadkari
Manual Sampling Done by M/s Vardhan Envirolab, Jaipur, Rajasthan.	Analyzer Installed at : Unit #2 Stack.	Details of Manual sampling Ref no: DMP/ENV/140421/02 Dated: 14.04.21
S NO	Manual Sampling Results in (mg/Nm3)	Instrument Reading in mg/Nm3
1	46.28	48.37

With reference to the manual sampling results instrument was calibrated

Old Calibration factor: 89

New Calibration factor: 85.15

For Sick India Pvt Ltd

S. K. Choudhury
(S. K. CHOUDHURY)
For Jaypee Nigrie
(S. Sharma)

DOC ID: SIPL_SER_SR_23
Rev. 0 :Date 10.01.2020

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58

Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

Customer Name : J P NIGRIE
Station Name : AAQMS #1
Station Location : GRINDING UNIT
Analyser Make : Thermofisher Scientific

Date:	10.04.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	1.9	0.00	20.90	21.90	200 PPB	189.00	200.00	0.935	1.009	OK
NO (PPB)	3.4	0.00	44.6	68	151 PPB	130.00	151.00	1.207	1.890	OK
NOX (PPB)	6.8	0.00	54.8	85	200 PPB	190.00	200.00	1.170	1.252	OK
CO (PPM)	-0.04	0.00	0	-0.04	2 PPM	2.30	2.00	0.734	0.546	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	
PM Analysers	Range	Amplification Factor		Remark
		Old Value	New Vlue	
PM 10	1000	7033	7354	OK
PM 2.5	1000	7020	7110	OK

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Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

Customer Name : J P NIGRIE
Station Name : AAQMS #2
Station Location : STP
Analyser Make : Thermofisher Scientific

Date:	10.04.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	2.9	0.00	18.2	31.8	200 PPB	176.00	200.00	0.79	1.30	OK
NO (PPB)	2.5	0.00	3.3	6.4	150PPB	110.00	150.00	1.53	2.00	OK
NOX (PPB)	2.1	0.00	17.6	17.1	200 PPB	159.00	200.00	1.24	1.25	OK
CO (PPM)	-0.068	0.00	0	-0.068	2 PPM	1.890	2.00	1.00	1.05	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	
PM Analysers	Range	Amplification Factor		Remark
		Old Value	New Vlue	
PM 10	1000	7405	7431	OK
PM 2.5	1000	6886	7144	OK

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Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

Customer Name : J P NIGRIE
Station Name : AAQMS #3
Station Location : NDCT
Analyser Make : Thermofisher Scientific

Date:	10.04.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	1.8	0.00	55.9	56.5	200 PPB	194.00	200.00	0.80	0.85	OK
NO (PPB)	-2.1	0.00	29.2	27	153PPB	149.00	153.00	1.32	1.38	OK
NOX (PPB)	-3.1	0.00	40.4	38.5	200PPB	205.00	200.00	1.24	1.20	OK
CO (PPM)	0.01	0.00	0.043	0.053	2 PPM	1.78	2.00	1.45	1.75	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	
PM Analysers	Range	Amplification Factor		Remark
		Old Value	New Vlue	
PM 10	1000	6992	7285	OK
PM 2.5	1000	7017	7272	OK

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Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

Customer Name : J P NIGRIE
Station Name : AAQMS #4
Station Location : FOUPH
Analyser Make : Thermofisher Scientific

Date:	10.04.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	1.9	0.00	12.6	18.4	200 PPB	178.00	200.00	0.60	0.78	OK
NO (PPB)	-1.1	0.00	18.7	13.5	153 PPB	170.00	153.00	1.91	1.71	OK
NOX (PPB)	-6	0.00	23.7	14.6	200 PPB	181.00	200.00	0.94	1.16	OK
CO (PPM)	-0.012	0.00	-0.08	-0.02	2 PPM	2.01	2.00	1.06	1.05	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	
PM Analysers	Range	Amplification Factor		Remark
		Old Value	New Vlue	
PM 10	1000	7326	7334	OK
PM 2.5	1000	7022	7541	OK

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ANNEXURE 4D/III

ESSAR

Ref. No. : EPMPL/LA/6262/10
Dated : 25.05.2021

Essar Power M.P. Limited
Village: Bandhora,
Post Karsualal,
Tehsil Mada,
Dist. : Singrauli,
Madhya Pradesh - 486 886
India

Corporate Identity Number
U40100OL2005PLC201961

+91 89960 02954 - 89569 02955

To,
The Director, Environment
MP Pollution Control Board
Paryawaran Parisar
E-5, Arera Colony (M.P.)
Bhopal 462 016

Subject: Action Points for the Compliance and expected actions from various stakeholders for the III report of Oversight Committee
Reference: For the III report of Oversight Committee

Dear Sir,

With reference to your e mail, dated 22.05.2021 regarding III report of the Oversight Committee for State of MP in compliance with order dated 14-07-2020 in OA 164 /2018.

Essar Power MP Limited (the "**Corporate Debtor**" or "**EPMPL**") was admitted into Corporate Insolvency Resolution Process ("**CIRP**"), in terms of *Section 7 of the Insolvency and Bankruptcy Code, 2016* ("**IBC**"), which has commenced w.e.f. **29 September 2020 ("Order")** and Mr. Ashish Chhawchharia has been appointed as the Interim Resolution Professional ("IRP") of the Corporate Debtor, pursuant to the order passed by the Hon'ble National Company Law Tribunal, Principal Bench, New Delhi ("**Hon'ble NCLT**") vide Order dated 29 September 2020. Subsequently the appointment of IRP was confirmed as Resolution Professional ("**RP**") by the Committee of Creditors ("**CoC**") at its first meeting held on 05 November 2020.

Please find our applicable point wise reply are as under

Recommendations of the Oversight Committee in its first quarterly report for Compliance by the various stakeholders

Thermal Power Plants:

S.No.	Points	Reply
A	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification	As per MoEF notification on fly ash utilization and its amendment dated 25.01.2016, the company is taking concrete efforts. EPMPL has entered in a MoU with M/S ASHTECH for 100% ash utilization. Further the company has made a 10 years agreement with M/s ASHTECH (India) Private Ltd. The parties through this agreement agree that ASHTECH shall be responsible for arranging transportation of fly ash from Plant end to the End users location and will ensure utilization of fly ash in compliance of extant notifications, order circulars etc. from MoEF & CC and Pollution Control Board.

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		Ash utilization agreement with M/S ASHTECH has been already shared with MPPCB EPMPL has also made agreement with M/s PRISM JOHNSON LIMITED wherein EPMPL is providing dry fly ash by Bulker for utilization in cement production
B	For the achievement of new emission norms equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB	As per MoEF&CC notification dated 31-03-2021, our FGD installation dead line is increased up to 31st Dec,2024
C	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured	Essar Power has roped in IIT – Roorkee for monitoring and also done strengthening work of Ash dyke in technically sound manner as per the design of IIT – Roorkee. The design is safe and timely maintenance is being done regularly by EPMPL
D	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure	EPMPL has taken up plantation in abandoned Ash dyke cell. Water is also sprayed regularly in Ash dyke to minimize air borne fly ash.
E	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorb. mines and shall complete the related studies at the earliest	This is not applicable for us
F	Health checkup of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities	Under CSR, EPMPL has been organizing health camp for the villagers where specialized doctor attend the patients and free medicine is provided. Brief of health camp organized is attached as **Annexure-1.**
G	The thermal power plants namely, M/s Essar Power MP Ltd and M/s Sasan Power Ltd shall deposit with MPPCB the remaining amount of environmental compensation of Rs 9 Cr and Rs 8 Cr respectively out of the levied amount of Rs 19 Cr. M/s NTPC- Vindhyachal has however obtained a stay from Hon'ble Supreme Court	Company based on the interim order of MPPCB had deposited INR 1 Crores towards BG in August 2019 which was subsequently encashed by the concerned authority in Jan 2020 towards necessary compensation for environment & health damage subject to final assessment order by the third party mandated nominated to conduct damage assessment. Further on the date of submission of report by NEERI (Nagpur) in Sep 20 and its subsequent re vetting by IIT Roorkee the company was admitted vide NCLT order dated 29th September 20 under IBC 2016 to undertake Corporate Insolvency & Resolution Process as

		a result balance amount of INR 91.82 Crores basec on the damage assessment by NEERI (Nagpur) could not be remitted to the relevant authority order as the payment pertains to Pre CIRP Period and there is explict restriction as per the IBBI regulation and Code on the company from making any Pre CIRP payment , and the only way is to invite claim from the relevant authority and address as per provision of the Code Subsequently the same was informed to the MPPCB, Bhopal, and the said amount was claimed wtn the RP
H	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months' time	This is not applicable for us
I	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability Similarly studies / action should be initiated for the construction of Ash mounds	This is not applicable for us
J	All the TPPs / incustries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results	CEMS last calibration was done in March, 2021 and also all CAAQMS last calibration have been done in March, 2021

We here by submit this letter for your kind information please.

Yours sincerely.

For Essar Power MP Ltd.

Authorized Signatory

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Mega Health Camp' in Karsualal village

Essar Power Mahan recently organized a 'Mega Health Camp' in collaboration with the District Health Department in Karsualal village, Singrauli district, Madhya Pradesh.

A team of five doctors from Northern Coalfields Limited, District Health Department and Essar-supported health center comprising of general physicians, gynecologists and dermatologists led the camp.

Additionally, Essar Power supported with food and logistics. Over 450 patients benefited from the health camp.

ANNEXURE 5 /III

रजिस्ट्री सं. डी.एल.- 33004/99

REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-01042021-226335
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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 192] नई दिल्ली, बृहस्पतिवार, अप्रैल 1, 2021/चैत्र 11, 1943
No. 192] NEW DELHI, THURSDAY, APRIL 1, 2021/CHAITRA 11, 1943

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 31 मार्च, 2021

सा.का.नि. 243(अ).—केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3, धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :-

1. (1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2021 है ।

(2) ये नियम राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे ।

2. पर्यावरण (संरक्षण) नियम, 1986 की अनुसूची-1, के क्रम संख्यांक 25 में, "**टीपीपी (डकाईयां) इस अधिसूचना के प्रकाशन की तारीख से दो वर्ष के भीतर सीमाओं को पूरा करेंगी", अक्षरों, कोष्ठकों और शब्दों के स्थान पर, निम्नलिखित रखा जाएगा, अर्थात् :-

"**(i) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, विद्युत मंत्रालय, केन्द्रीय विद्युत प्राधिकरण (सीईए) और केन्द्रीय प्रदूषण नियंत्रण बोर्ड के प्रतिनिधियों से मिलकर बने कार्य बल का गठन केन्द्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) द्वारा सारणी-1 में यथाविनिर्दिष्ट तीन प्रवर्गों में सारणी-1 के स्तंभ (4) में यथाविनिर्दिष्ट समय सीमा के भीतर उत्सर्जन मानदंडों के अनुरुप होने के लिए उनकी अवस्थिति के आधार पर तापीय विद्युत संयत्रों के प्रवर्गीकरण हेतु किया जाएगा, अर्थात् :-

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सारणी-1

क्र.सं.	प्रवर्ग	अवस्थिति/स्थान	अनुपालन के लिए समय सीमाएं	
			निवृत्त नहीं होने वाली इकाईयां	निवृत्त होने वाली इकाईयां
(1)	(2)	(3)	(4)	(5)
1	प्रवर्ग क	10 लाख से अधिक जनसंख्या वाले राष्ट्रीय राजधानी क्षेत्र या शहरों की 10 किलोमीटर की परिधि के भीतर 1	31 दिसम्बर, 2022 तक	31 दिसम्बर, 2022 तक
2	प्रवर्ग ख	गंभीर रूप से प्रदूषित क्षेत्रों या गैर प्राप्ति शहरों की 10 किलोमीटर की परिधि के भीतर 2	31 दिसम्बर, 2023 तक	31 दिसम्बर, 2025 तक
3	प्रवर्ग ग	प्रवर्ग क और ख में सम्मिलित से भिन्न	31 दिसम्बर, 2024 तक	31 दिसम्बर, 2025 तक

[1] भारत की 2011 की जनगणना के अनुसार ।

[2] सीपीसीबी द्वारा यथापरिभाषित ।

(ii) सारणी-1 के स्तंभ (5) में यथाविनिर्दिष्ट तारीख के पूर्व निवृत्त होने के लिए घोषित तापीय विद्युत संयंत्र से, उस स्थिति में जहां ऐसे संयंत्र उनके निवृत्त होने के आधार पर छूट के लिए सीपीसीबी और सीईए को एक प्रतिज्ञान प्रस्तुत करते हैं, विनिर्दिष्ट मानदंडों को पूर्ण करने की अपेक्षा नहीं की जाएगी:

परन्तु ऐसे संयंत्रों से, उस स्थिति में जहां उनका प्रचालन प्रतिज्ञान में यथाविनिर्दिष्ट तारीख से आगे जारी रहता है, जनित विद्युत के प्रति यूनिट पर 0.20 रुपए की दर से पर्यावरण प्रतिकर उद्ग्रहीत किया जाएगा;

(iii) निवृत्त नहीं होने वाले तापीय विद्युत संयंत्र से, सारणी-1 के स्तंभ (4) में यथाविनिर्दिष्ट तारीख के पश्चात्, सारणी-2 में विनिर्दिष्ट दरों के अनुसार पर्यावरण प्रतिकर उद्ग्रहीत किया जाएगा, अर्थात् :-

सारणी-2

समय-सीमा से आगे गैर अनुपालन प्रचालन	पर्यावरणीय प्रतिकर (रुपए प्रति यूनिट जनित विद्युत)		
	प्रवर्ग क	प्रवर्ग ख	प्रवर्ग ग
0-180 दिवस	0.10	0.07	0.05
181-365 दिवस	0.15	0.10	0.075
366 दिवस और अधिक	0.20	0.15	0.10"

[फा.सं. क्यू-15017/40/2007-सीपीडब्ल्यू]

नरेश पाल गंगवार, संयुक्त सचिव

टिप्पण: मूल नियम, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (i) में अधिसूचना संख्या का.आ. 844(अ), तारीख 19 नवम्बर, 1986 द्वारा प्रकाशित किए गए थे और उनका अंतिम संशोधन अधिसूचना संख्या सा.का.नि. 662(अ), तारीख 19 अक्तूबर, 2020 द्वारा किया गया ।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 31st March, 2021

G.S.R. 243(E).—In exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:—

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2021.

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

2. In the Environment (Protection) Rules, 1986, in Schedule - I, in serial number 25 for letters, brackets and words "*TPPs (units) shall meet the limits within two years from date of publication of this notification", the following shall be substituted, namely: -

"* (i) A task force shall be constituted by Central Pollution Control Board (CPCB) comprising of representative from Ministry of Environment and Forest and Climate Change, Ministry of Power, Central Electricity Authority (CEA) and CPCB to categorise thermal power plants in three categories as specified in the Table-I on the basis of their location to comply with the emission norms within the time limit as specified in column (4) of the Table-I, namely: -

Table-I

Sl. No.	Category	Location/area	Timelines for compliance	
			Non retiring units	Retiring units
(1)	(2)	(3)	(4)	(5)
1	Category A	Within 10 km radius of National Capital Region or cities having million plus population[1].	Upto 31st December 2022	Upto 31st December 2022
2	Category B	Within 10 km radius of Critically Polluted Areas[2] or Non-attainment cities[2]	Upto 31st December 2023	Upto 31st December 2025
3	Category C	Other than those included in category A and B	Upto 31st December 2024	Upto 31st December 2025

[1] As per 2011 census of India.

[2] As defined by CPCB.

(ii) the thermal power plant declared to retire before the date as specified in column (5) of Table-I shall not be required to meet the specified norms in case such plants submit an undertaking to CPCB and CEA for exemption on ground of retirement of such plant:

Provided that such plants shall be levied environment compensation at the rate of rupees 0.20 per unit electricity generated in case their operation is continued beyond the date as specified in the Undertaking;

(iii) there shall be levied environment compensation on the non-retiring thermal power plant, after the date as specified in column (4) of Table-I, as per the rates specified in the Table-II, namely:-

Table-II

Non-Compliant operation beyond the Timeline	Environmental Compensation (Rs. per unit electricity generated)		
	Category A	Category B	Category C
0-180 days	0.10	0.07	0.05
181-365 days	0.15	0.10	0.075
366 days and beyond	0.20	0.15	0.10."

[F. No. Q-15017/40/2007-CPW]

NARESH PAL GANGAWAR, Jt. Secy.

Note: The principle rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) vide number S.O. 844(E), dated the 19th November, 1986 and lastly amended vide notification G.S.R. 662(E), dated the 19th October, 2020.

Uploaded by Dte. of Printing at Government of India Press, Ring Road, Mayapuri, New Delhi-110064
and Published by the Controller of Publications, Delhi-110054.

ANNEXURE 6 /III

Gmail

hemant Sharma <hsharma1091@gmail.com>

NCL - Action Taken Report for IIIrd Quarterly report of the Oversight Committee for State of MP in compliance with Hon'ble NGT's order dated 14-07-2020 in OA 164/2018

1 message

General Manager(Environment/IMS) <gmenv.ncl@coalindia.in> Thu, May 27, 2021 at 1:38 PM
To: hsharma1091@gmail.com, Ro MPPCB <romppcb.sgrl@gmail.com>
Cc: Subrata Shekhar Sinha <dtpp.ncl@coalindia.in>, "GM (Jayant)" <gmjnt.ncl@coalindia.in>, Rajendra Rai <gmjrd.ncl@coalindia.in>, "General Manager, Nigahi" <cgmngh.ncl@coalindia.in>, Laxman P Godse <cgmbin.ncl@coalindia.in>, GM Dudhuchua <gmdch.ncl@coalindia.in>, gmnclbb@gmail.com, Rajiv Kumar <gm.anil.ncl@coalindia.in>, cgm.khd@gmail.com

Dear Sir,

Please find below the Action Taken Report in respect of projects of Northern Coalfields Limited for IIIrd Quarterly report of the Oversight Committee for State of MP in compliance with Hon'ble NGT's order dated 14-07-2020 in OA 164/2018.

Compliance status is prepared based on information provided by projects of NCL -

2. COAL MINES	Oversight Committee Recommendations in its first quarterly report	Remarks / Expected Compliance	Compliance
A.	Road sweeping machines in sufficient numbers shall be procured and regular sweeping of the coal transport roads shall be undertaken to keep them dust free.	Status of procurement of additional 4 road sweeping machines as on 30-04-2021 to be reported.	Presently, there are 10 nos. of Road Sweeping Machines in operation at different projects of NCL. Purchase order has already been placed for 4 more no. of Road Sweeping Machines. The supplying firms could not deliver the machines on account of COVID-19 restrictions and change in the truck chassis with respect to the supply order. The firms have requested for delivery extension and will deliver the machines accordingly. The machines are expected to be delivered by July, 2021.
B.	Paving of the road side shoulders along the coal transport roads shall be undertaken within 3 months under the guidance and supervision of the district administration.	Paving of shoulders of such all other city roads, where the coal truck movement takes place shall be chalked out in consultation with district administration and RO MPPCB and time bound action plan for the same be submitted.	Roads being used for coal transportation are provided with paved shoulders by NCL which are under its administrative control. Other Public roads which are used by coal consumers for coal transportation are under administrative control of PWD Deptt. of State Govt. NCL has no authority on these roads. Matter has been discussed with Regional Office (MPPCB), Singrauli. If any instruction in this matter is received from District Administration. NCL will comply with the same.
C.	Maintenance of railway sidings operated by NCLshallbe undertaken as per the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015".*	Verifiable details of the Compliance as per the CPCB guidelines for Spur I and Spur II as on 30-4-2021 along with photographs and drone camera videography shall be submitted.	Spur I Morwa Railway Siding (used by Jayant Project, NCL) and Spur II Morwa Railway Siding (used by Block-B Project, NCL) are being operated as the guidelines published by CPCB titled "Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015". Following Pollution control measures have been adopted at these Sidings - ▪ Continuous water sprinkling is done by mobile Water sprinklers/Tankers and fixed water sprinklers provided with automatic functioning for dust suppression. ▪ 3 Nos. of Truck mounted dust suppression system with mist gun are under operation from Jayant mine to Spur I Morwa Siding. 1 No. of Truck mounted dust suppression system with mist gun is under operation at Spur II Morwa Siding. ▪ Wind breaking wall/ retaining wall has been constructed at Spur I and Spur II all along the track of sidings for prevention of air borne dust. ▪ RCC road from main road to Spur I siding and Spur II siding have been constructed. ▪ Proper drainage system has been developed at Spur I & Spur II Sidings. ▪ Sufficient amount of green belt is developed with plantation at both sidings. **Relevant photographs are attached as Annexure 1.**
D.	Utilization of fly ash in over burden (OB) of working mines and conducting pilot studies for the same as per Fly ash notification and CPCB guidelines shall be undertaken and 25% use fly ash in the OB dumps shall be done as per Fly Ash Notification, 1999.	The actions taken so far by NCL are questionable. The status of the CMPDI study which was promised at least three years before the core committee shall be provided and action taken to abide by CPCB guidelines and fly ash notification be given.	In April 2018, NCL had approached CMPDIL for conducting study of feasibility of fly ash filling in operating mines of NCL. CMPDIL submitted that use of fly ash in OB dumps has several Technical, Environmental and Safety issues. CMPDI had brought it to the notice of MoEF&CC and NITI Aayog from time to time. In June 2016, as per direction of Ministry of Coal, CMPDIL had submitted report on "Utilization of Fly ash in coal mines (UG/OC)'. In this report CMPDIL had concluded that mixing of fly ash with External OB/with OB as backfilling is fraught with serious Safety and Operational difficulties. In that report CMPDI suggested that dumping of fly ash may be allowed in abandoned OC mines on case to case basis. In January 2021, CMPDIL submitted an updated brief on fly ash utilization in Coal Mining Projects, to Ministry of Coal. In this report, it has been mentioned that use of fly ash in coal mines is a complex issue

			and requires detailed deliberation with various stakeholders to arrive at a consensus. The feasibility of use of fly ash in mines technical, environmental safety and financial issues need to be deliberated upon in details keeping in view the constraints of coal mining and DGMS regulations. In addition, the regulatory mechanism, identification of environmental issues and their addressal, financial burden and accountability of operation etc. need to be resolved with MoEF&CC before taking a decision on use of fly ash in coal mines or otherwise. Till such issues are resolved MoEF&CC may be requested to keep on hold use of fly ash in the operational mines. **Reports attached as Annexure 2 (i) & 2 (ii).** As per request of NCL IIT (BHU), Varanasi has submitted its proposal to carry out 'Scientific Study of fly ash utilization/dumping/Mixing in the OB of the running/active mines of NCL along with its viability and safety aspect of man and machinery'. Work order is expected to be issued to IIT (BHU) in May 2021. Study report is likely to be received in October 2021. Based on the findings of report NCL will approach DGMS for permission/guidance for utilization of fly ash in mines. Meanwhile, in January 2019, one of the pits of abandoned Gorbi mine of NCL was offered to NTPC - Vindhyachal Super Thermal Power Station (VSTPS) for fly ash filling in mine void. MPPCB has granted permission to NTPC-VSTPS in April 2021 for fly ash filling. The work of fly ash filling is yet to commence by NTPC.
E.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the distect health authorities	Reply given by NCL is not satisfactory. Other routine check ups like eye camps etc may be carried out as usual but health check up of villagers through mobile medical van for the detection of the occupational diseases like silicosis, fluorosis etc. shall be specifically conducted and reported to the district health authorities	Under CSR Activities, medical camps are regularly being organized by NCL Projects for health checkup of nearby villagers. Based on medical conditions observed, medicines / medical treatment is provided to the villagers free of cost. During the FY 2020-21, a total of 20 nos. of health camps were organized by NCL projects despite COVID-19 Pandemic situation. Total 3378 no. of nearby villagers have attended these camps. Prevalent diseases observed were fungal infection, fever, cold, cough, malnutrition, seasonal disease etc. No case of Silicosis/ Fluorosis was observed in the beneficiaries who attended the health camps. For any doubtful case of silicosis/ fluorosis etc. patient will be referred to Nehru Shatabdi Chikitsalay (NSC), NCL for free treatment and the same will be reported to district health authorities by projects. 5 Nos of Mobile Medical vans are being hired for health check up in nearby villages.
F.	The railway connectivity of the Block B Gorbi mine shall be completed within 3-6 months time to stop the road transportation of the coal. Consequently the operation of the coal loading railway siding of the Block B Gorbi mine shall be terminated thereafter	The progress reported is very slow. It seems that the issues pertaining to land acquisition and disputes with villagers are not being settled and NCL is not seeking due help and intervention from the district administration which shall be given due importance and persuasion. Compliance of the progress shall include the efforts made by NCL.	The construction work of railway track for transportation of coal by rail from Block-B mine has been completed in March, 2021. Engine rolling work has also been completed. For starting rake loading, request has been made to DRM, Dhanbad. After grant of permission rake loading will be started.
G.	The railway sidings operated by NCL shall be operated in accordance with the CPCB guidelines.	Recommendation as at 'C' mentioned above.	Reply as given in Point (C) above.
H.	All the coal mines shall calibrate all the CAAQMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	The information provided by NCL does not seem to be reliable. All the calibration records as on 30-4-2021 shall be submitted.	There are total 8 nos. of CAAQMS installed in different projects of NCL. The data being generated by CAAQMS is shared online with respective MPPCB and CPCB servers. Calibration of each CAAQMS is being done regularly. The calibration reports of CAAQMS units installed at different projects of NCL have been attached as Annexure 3.

Yours faithfully,

General Manager (Environment)
Northern Coalfields Limited

"Think before you print and save a tree"

5 attachments

NCL Reply - Proposed Agenda for III Oversight Committee as on 30-04-2021.docx
27K

Annexure 2(i) - Brief on Fly Ash Utilisation in Coal Mining Projects-compressed.pdf
7548K

Annexure 1 Photographs - Pollution Control Measures at Railway Siding - NCL.pptx
248 K

Annexure 2(ii) - CMPDIL Report on Utilisation of Fly Ash in Coal Mines.pdf
6545K

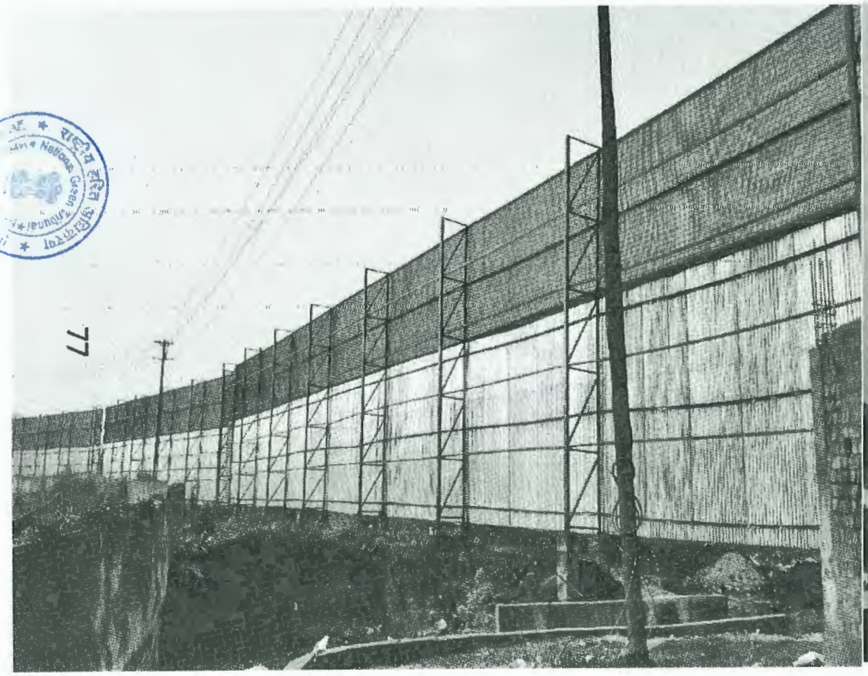
Annexure 3 - CAAQMS Calibration Reports - NCL.pdf
6401K

Wind Breaking Wall at Spur I Morwa Siding

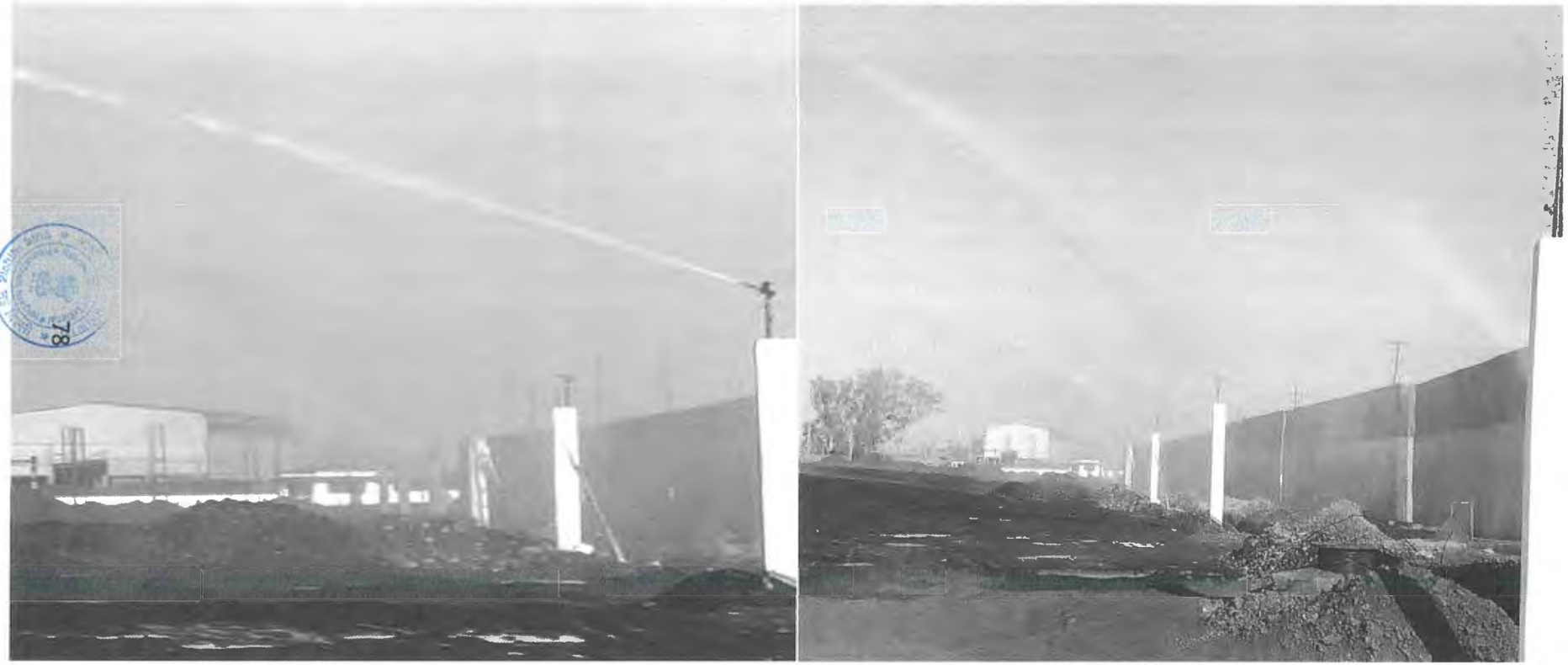
Metallic/ Concrete road upto siding (Spur II Morwa Siding)

Development of siltation Pond at Spur II Morwa Siding

Wind breaking wall at Spur-II Morwa Siding



Fixed water sprinklers (Mist spray) at Spur-II siding"



I/11055/2021-O/o CMD, CMPDI

सेन्ट्रल माईन प्लानिंग एण्ड डिजाईन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोन्डवाना प्लेस, कांके रोड, राँची - 834 031, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 031, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER – U14292JH1975GOI001223

No.:

Dated January 4, 2021

To
The Additional Secretary
Ministry of Coal
Shashtri Bhavan
New Delhi-110 001

Subject: Updated brief on fly ash utilization in Coal Mining Projects

Dear Sir,

In pursuance to telephonic discussion on the above, kindly find attached herewith updated brief, prepared by CMPDI, on fly ash utilization in opencast and underground coal mining projects, for your kind perusal

Yours faithfully,

04/01/2021

(Shekhar Sarin)
Chairman-cum-Managing Director

Encl: As stated

cc.

i. Shri B.P. Pati, Joint Secretary, MoC : For kind information.
ii. Shri Peeyush Kumar, MoC/CIL, Delhi : For information.

फोन नम्बर/Phone No. : 0651-2230001
फैक्स नम्बर/Fax No. : 0651-2230003
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वेब साईट/Website: www.cmpdi.co.in

सही प्रति
True Copy

Utilization of Fly Ash in Coal Mines – Issues Involved

1. Introduction

As per Fly Ash Notification dated 3rd November, 2009, issued by MoEF&CC, Government of India, it is mandated to use fly ash in different sectors with the objective of its gainful utilization. This Notification *interalia* states that:

i. *No person or agency shall within 50 kms (by road) from coal or lignite based thermal power plants, undertake or approve stowing of mines without using at least 25% of fly ash on weight to weight basis, of the total stowing material used and this shall be done under the guidance of the Director General of Mines Safety (DGMS), and*

ii. *No person or agency shall within 50 kms (by road) from coal or lignite based thermal power plants, undertake or approve without using at least 25% of fly ash on volume to volume basis of the total material used for external dump of overburden and the 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).*

2. Issues related to Utilization of Fly Ash in Coal Sector

Utilization of fly ash in coal mines has several technical, environmental, safety and financial issues that need to be looked into prior to taking a decision in this regard. They are:

i. The Fly Ash Notification, 2009 simply states to use fly ash to the extent of 25% as stowing material in UG mines and same percentage (25%) in external and top benches of internal dumps. The Notification is silent about the technicalities involved like transportation of flyash, planning & design of transportation routes and safety aspects, precautions that are required to keep environmental quality parameters within prescribed limits on account of its transportation, methodology and process of use of fly ash in dumps, repercussion on the coal mining industry in handling the additional pollution load generated on account of fly ash disposal, sharing of the cost of implementation of ash disposal systems, requirement of manpower and accountability to ensure safe and environmental sustainable entire operation covering mining operations and fly ash use. There should have been detailed deliberations on this issue including implementation mechanism prior to issuance of the Notification. *The associated issues of fly ash disposal therefore remain unresolved. Moreover, since the fly ash is getting generated from the operations other than CIL, it is against the spirit of "**polluter pays principle**".*

ii. All the operations in coal mines are planned and implemented based on Mines Act, 1952 and guidelines & circulars issued from time to time by Director General of Mines Safety (DGMS). While issuing the Fly Ash Notification, a consensus of various stakeholders including DGMS was required to ensure safe coal mining operations. This has not been done in this case and hence issues related to fly ash utilization in coal mines from safety

point of view remains unresolved. *Since it is now stressed upon by regulatory agencies for utilization of fly ash, this is creating difficulties for CIL leading to* ***non-compliance of the Fly Ash Notification, 2009****.*

iii. Since responsibility of implementation of the Fly Ash Notification, 2009 rests with the concerned State PCBs, in many cases, utilization of fly ash in coal mines is being stressed upon by putting additional conditions in consent to operate by State Pollution Control Boards. *Due to various issues involved, the coal companies are not in a position to implement the provision of the aforesaid Notification leading to non-compliance.*

The compliance of environmental regulations, standards *etc.* are based on "***polluter pays principle***" and possibly this aspect have not been taken into account by MoEF&CC while issuing the Fly Ash Utilization Notification, 2009. Keeping in view the safety, environmental and economic repercussion involved, it is not justified to impose conditions for coal mines for use of solid waste generated (in this case fly ash) from other sector *i.e.* power sector. This is so because *coal companies have to invest on land acquisition, Rehabilitation & Resettlement, transportation, post closure care, safety issues and many more and will be accountable for any environmental and safety issues arising out of fly ash use in coal mines.*

iv. DGMS while granting permission for the UG mines, imposes restrictions on using fly ash as stowing material. In a permission granted by DGMS for depillaring (*i.e.* final extraction of coal) in conjunction with stowing with fly ash, a condition has been imposed for using fly ash having particle size more than 53 microns. In the total fly ash generated, percentage of fly ash particles having size more than 53 microns is only 20% (approximately). *So, even if expensive hydro-cyclone technology is used for concentrating the fly ash, a very small percentage of fly ash will be available for stowing in underground coal mines.* In addition, there is need to establish technology for mixing of fly ash with water, its transportation, pumping arrangement and other issues that need to resolved prior to taking up utilization of fly ash in underground mines. Moreover, prior approval of MoEF&CC will also be required as a separate process is introduced in the UG mining operation. It is therefore difficult to undertake fly ash utilization in underground coal mines.

Various scientific studies for use of fly ash as stowing materials in UG mines conducted at PK 1, GDK 1, GDK 2 and GDK 3 inclines in SCCL indicates that fly ash is not suitable for stowing in UG mines due to safety issues associated with it. DGMS also includes a clause that "no fly ash should be used with the particulate matter size below 53 microns" while granting permission. *It may therefore be concluded that fly ash is not suitable for use as stowing material in UG mines and only bottom ash (53 micron and above size) can be used.*

The above studies were undertaken during the period 2000-2013 and the reports are attached herewith as Annexure-I.

v. In case of abandoned or discontinued mines where final extraction (depillaring or pillar extraction) has not been completed, backfilling may not feasible as coal reserve locked in

pillars may be lost forever. Further, if such underground workings are left abandoned or discontinued for the longer periods, it may also get filled-up with water. *Water locked-up in abandoned underground mines act as reservoirs, which are being used for water supply to surrounding residential colonies and other nearby villages, such ground water may get contaminated due to leaching effect of fly ash.*

vi. Due to increase in stripping ratio in coal mines, the quantum of OB is increasing and its safe disposal has become a matter of concern in the coal sector. With land resource becoming scarce and directive of MoEF&CC for minimizing the external OB dumps, the coal sector is compelled to increase the dumping height. *Further use of fly ash in external/internal dumps will create safety issue in the coal sector requiring elaborate geotechnical investigation of OB material and slope stability analysis of dumps.*

In operating opencast mines, fly ash will be required to be dumped in dry form in separate layers or by mixing with OB while dumping. Both these processes would require elaborate and complex scheduling of various activities/equipment, hampering mine production and creating unsafe conditions owing to high equipment density in limited space of mines. The use of fly ash in OB layers requires transportation of fly ash by trucks that itself it safety hazard as it is prone to accidents due to plying of HEMM for coal transport on the same route. Secondly, there is no technology available on how to mix it with OB or rather utilize it with OB material.

Land is considered to be very precious commodity essentially required not only for mining purpose but also for accommodating mounting generation of overburden. Getting land is becoming difficult day by day. As such, additional 25% mixing of fly ash not only becomes a threat to the stability of the dump but also needs additional land area, which was not conceived at the time of preparing mining plan/project reports. The real issues are therefore constraint of dumping space in most of the running opencast mines, creating challenges for concurrent dumping in addition to operational, environmental and financial issues. *Acquisition and getting possession of additional land will not only be a great concern but also will have a negative impact on financial viability of the project as a whole. This need to be looked into and a decision need to be taken in this regard.*

vii. Public hearing with all stakeholders is a mandatory requirement to be undertaken during the process of obtaining *Environmental Clearances* wherein subsequent change in the process of reclamation by addition of fly ash (which was not accounted for at the time of PH) will lead to litigation, due to the huge impact of airborne dust generation while transporting, mixing of fly ash. *Since there is change in the mining technology/process from the one reported earlier for getting Environmental Clearance, it requires resubmission of application for grant of EC by MoEFCC as per EIA Notification, 2006.* Moreover, the existing provision of EIA/EMP does not delineate the mitigative measures for additional pollutant load. *In case of dumping of fly ash in mines separate EIA and EMP essentially to be prepared and environmental clearance needed to be obtained case to case basis observing the required formalities. This issue needs to be addressed at the MoEF&CC level.*

viii. Fly-ash will make the dump floor slippery in contact with water. It will hamper the stability of internal dump. Vehicles transporting fly ash from power plants and manpower deployed for the purpose shall be subject to the provisions of the Mines Act, 1952 and rules and regulations framed thereunder. *There is no mechanism available to deal with issues arising out of it.* The volume of fly ash available will be huge and require substantial efforts for its use in coal mines. *In many of the cases, MoEF&CC while deliberating on environmental clearance has advised to restore the land profile to original one as far as possible. This again poses difficulty for coal companies to use fly ash in its mines.*

ix. As per provisions of the Notification, MoC had constituted an Expert Committee to guide and advise the backfilling or stowing of mines by utilizing fly ash. The issue had been discussed by the Expert Committee of MoC. The MoC, vide its letter no. 43011/102/2007-CPAM dated 8th February, 2012 has written to MoEFCC that in view of practical difficulties from safety point of view, specifically in operational mines, it is not practically possible for mixing fly ash with external OB dumps and then backfilling of operating mines. Thus, provisions in the notification need a complete review. Till such time, incorporation of these provisions in mining plan may be kept in abeyance. ***The OM No. 43011/(102)/2007-CPAM dated 21st July, 2011 from MoC, and letter No 43011/(102)/2007-CPAM dated 8th February, 2012 from MoC to MoEFCC are attached herewith as Annexure-II and Annexure-III respectively.***

x. Vide letter no. 43011/102/2007-CPAM dated 16th September, 2014, CMPDI was requested by MoC to examine the issue of use of fly ash as stowing material in operating mines and to suggest the way forward for consideration of MoEF&CC within a period of six months. MoC, again vide its letter No. 43011-102-2007-CPAM-Vol-II dated 23rd February, 2016 asked CMPDI to examine the issue of fly ash as stowing material in operating mines and to suggest way forward for consideration of MoEFCC within a period of six months. The final report was submitted by CMPDI in June, 2016 to MoC. *In this report also, practical difficulties was brought out for use of fly ash in operational mines.* The report was submitted to MoEF&CC vide letter No. ***43011/(102)/2007-CPAM dated 19th July, 2016 by MoC. The letter is attached as Annexure-IV.***

xi. The difficulties regarding use of fly ash in coal mines was brought to the notice of MoEF&CC during a meeting in July, 2016 at New Delhi. *It was agreed upon by MoEF&CC to look into the matter and revise the Fly Ash Notification, 2009.* The issue was again raised in the Meeting of NEETI Aayog held on 4.09.2017 at New Delhi. *NEETI Aayog agreed to call a separate meeting of various stakeholders to address the issue of fly ash utilization in coal mines.*

xii. The Expert Committee Meeting of MoEF&CC (constituted by NITI Aayog) was held on 5th September, 2018, and on 1st October, 2018, the issue of environment (water pollution), safety (stability) and land (acquisition) related to 25% fly ash use with overburden dumps in coal mines was raised. In addition, it was also brought out that National Dust Prevention Committee is also averse to fly ash disposal in mines because of its detrimental impact on health. *In the meeting of Expert Committee of MoEF&CC, though stress was laid on*

offering mine voids for fly ash disposal, the issue concerning the operating mines was not deliberated upon.

xiii. *The matter was deliberated upon in the 7th Task Force (*constituted by Ministry of Power to identify, review and recommend the list of Mines for ash back filling) *Meeting, held on 9.10.2020, and it was agreed that* matter will be deliberated in MoEF&CC upon receipt of comments/inputs from MOC/CIL as part of the *inter-ministerial consultations*.

It was further agreed that apart from considering economic viability by coal companies, compliance of ash utilization norms in view of national interest should also be given due importance. *Though it was pointed out in the above Task Force Meeting that fly ash is being used by M/s Jindal in one of their mines, regulatory agencies and other stakeholders are still not comfortable with the adequacy with regard to safety and environmental compatibility of such usage. This issue needs to be thoroughly investigated prior to taking further decision.*

xiv. DGMS, vide its Technical Circular No. 03/2020 dated 16/01/2020, has increased the minimum factor of safety to 1.50 for design of pit, bench and dump slopes and this will be further increased if fly ash is considered for dumping along with OB. This will lead to increase in land requirement posing difficulty for the land acquisition for coal companies and economic viability of the projects.

xv. In the *Draft Fly Ash Notification, dated 11th September, 2020*, the distance for use of fly ash for mines has been increased from 50 to 100 kms. This will further aggravate the problem for coal sector and lead to non-compliance of Notification.

3. Matter to be taken up

From the above, it is evident that use of fly ash in coal mines is a complex issue and requires detailed deliberation with various stakeholders to arrive at a consensus. The feasibility of use of fly ash in mines, technical, environmental, safety and financial issues need to be deliberated upon in details keeping in view the constraints of coal mining and DGMS regulations. In addition, the regulatory mechanism, identification of environmental issues and their addressal, financial burden and accountability of operation *etc.* need to be resolved with MoEF&CC before taking a decision on use of fly ash in coal mines or otherwise. *Till such issues are resolved, MoEF&CC may be requested to keep on hold use of fly ash in the operational mines.*

ADVICE ON SHRINKAGE DURING BOTTOM ASH STOWING AT GDK-1 INCLINE, SCCL USING BOTTOM ASH FROM RSTPS, NTPC.

October, 2013

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH,
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by

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1.0 BACKGROUND

With the anticipated growth in the generation of thermal power, the use of Power Grade coal will increase and consequently the quantum of ash generation has reached a gigantic figure of 220 Mt per year in 2012. The disposal of this huge quantity of ash requires more than 1 lakh acres of valuable land for construction of Ash Pond for its wet disposal which in turn causes deleterious environmental impacts on air, water, soil, land-use pattern and aesthetics.

As of now there are more than 100 coal-fired thermal power plants in India relying mainly on coal and middling, containing as much as 35 – 40% ash, resulting in the generation of around 220 Mt of coal ash per year. Out of these, 26 captive, medium and super thermal power plants generating nearly 30 Mt of ash are situated at the doorsteps of coal mines in different coalfields.

Sand, obtained from rivers flowing in and around Indian Coalfields, has been the traditional material for filling of underground voids in coal mines for the past 85-90 years, though mill tailings are being used for filling underground voids in metalliferous mines. Attempts were being made to use washery rejects for stowing in underground coal mines at Jharia Coalfield. But due to high carbon content in washery rejects there was risk of underground fire thus it was not very successful. Though pilot scale trials have been carried out in one of the mines of Bharat Coking Coal Ltd. on use of crushed overburden rocks and also a pilot scale plant has been set up in one of the mines of Western Coalfields Ltd. for using washed argillaceous overburden rocks but hydraulic stowing with crushed stones is still to be practiced on a large scale in Indian coal mines.

Due to over-exploitation of sand from the river beds for stowing purposes and its low rate of replenishment due to construction of dams and cyclic nature of rainfalls, its availability is becoming scarce day by day. The requirement of the stowing materials in all the underground coal mines of Coal India Ltd. is estimated nearly 25 million cubic metre per annum not taking into account the additional stowing materials required for stabilisation of old workings below town like Raniganj, Barakar, Kenda, Jharia, Kendadih, Karkent,

Handidua etc.). Huge quantity of prime quality coal is blocked up in standing pillars for support due to scarcity of sand for stowing purpose, this has led the mine management to look for alternative filling material. Coal ash replacing sand as a filling material and will lead to "win - win" situation for both Power Producers and Coal Mining Companies as both the problem of ash disposal and dearth of sand as a filling material will be eliminated in one go.

2.0 INTRODUCTION

Ramagundam Super Thermal Power Station a part of National Thermal Power Corporation, was commissioned in the year 1983 and is a 2600 MW Power station situated at Ramagundam, Karimnagar district in the state of Andhra Pradesh, India. Presently it is one of the largest power stations in India. It is the first ISO 14001 certified "Super Thermal Power Station" in India. The whole plant is divided into 3 stages, each stage being planned at one time. STAGE- 1 consists of three units (Unit-1, Unit-2, Unit-3) each with a generation capacity of 200MW. STAGE- 2 again consists of three units (Unit-4, Unit-5, Unit-6) each with a generation capacity of 500MW. STAGE- 3 comprises only one unit (Unit - 7) having a generation capacity of 500MW.

This thermal power plant consumes about 13 Million Tonne of coal for power generation thereby resulting in ash generation in the tune of about 4.2 Million Tonne (coal having ash content of 30 – 35%) of which about 80-82% is fly ash and 18-20% is bottom ash. About 11,500 tonne of ash is transported everyday hydraulically at water to ash ratio of 3-4:1 to ash ponds. The ash pond consists of four Lagoons and occupies a total area of 607.04 hectares. Wet disposal of this huge amount of ash in ponds is not a cost effective method of disposal.

Singareni Collieries Company Limited Ltd (SCCL) has large number of underground and opencast mines in close proximity of NTPC, Ramagundem. Out of which, Godavari Khani No. 1&3 Incline mine is located in Janagaon village, Ramagundam area of SCCL in Karimnagar district of Andhra Pradesh. The nearest Railway station is Ramagundam and is located at a distance of about 12 Kms from the mine. The leasehold area of the mine is 346 Hectares and the mine was opened on 28.2.1959.

Keeping the above facts in mind and to avail the opportunity of bulk utilization of coal ash as a stowing material in underground in close vicinity of the power plant, the management of NTPC and SCCL decided to carry out bottom ash stowing at GDK 1 Incline of SCCL. It was decided to stow about 25000 m³ of bottom ash in the working panel

No.3S/16 of 3 seam were by bord and pillar method of extraction. Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, was entrusted upon the job to carry out the shrinkage studies of stowed bottom ash and to provide guidance during stowing operation.

SCOPE OF WORK:

- Technical advice during ash stowing operations
- Determination of shrinkage characteristics during ash stowing operation of bottom ash

3.0 LABORATORY STUDIES

3.1 PHYSICAL CHARACTERISTICS

The physical characteristics of bottom ash depend on the quality rank of coal used, degree of pulverization, furnace temperature, its chemical composition etc. Storage, transportation, re-handling etc. of bottom ash for stowing in underground mine have been found to be greatly influenced by physical characteristics viz., specific gravity, bulk density, compressibility, granulometric distribution and other geotechnical parameters.

Hence, test results of physical properties of bottom ash samples of RSTPS which were carried out by CIMFR is given below.

(a) **Specific gravity**

i) Bottom Ash - 1.97
ii) River sand 2.5 - 2.65

(b) **Bulk density**

i) Bottom Ash = 0.81 gm/cc
ii) River sand 2.4 - 2.6 gm/cc

(c) **Grain Size Distribution**

Grain size distribution controls the percolation and settlement properties of back fill, it's porosity, compressibility and in case of pozzolan, it's pozzolanic activities. The higher the fines content, lower is the percolation or infiltration rate. Grain size also affects void ratio,

compressibility and ultimately the bearing capacity of the fill. The lower the void ratio. higher is the strength.

Assuming other parameters to be same. different grain sizes during and following backfilling. one can analyze particle sizes to predict how a fill composed of a given material may be expected to behave. A fill with well-graded particles will offer more resistance to displacement and settlement than one with uniformly graded particles.

Table 1: Grain size distribution of RSTPS bottom ash

Sieve size in Microns	% Retained
+1700	11.22
-1700 +850	6.40
-850 +600	8.53
-600 +425	9.01
-425 +300	10.53
-300 +212	28.09
-212 +150	7.96
-150 + 106	9.74
-106 +75	5.37
-75 +53	2.33
- 53	0.82

The result of grain size distribution of bottom ash samples carried out at SCCL indicate that only 0.82% of bottom ash particles are below 53 microns size.

(f) **Drainage behavior**

Percolation rate

Permeability refers to the ability of a porous material to allow a liquid to pass through its pores. Since the pores are connected with each other. the flow of a liquid takes place through the pores if there is difference in head at the two ends of the sample. The ability of the in situ fill to dissipate pore pressure is affected by its permeability characteristics which in turn are affected by the percentage of fine particles in the fill. Rapid percolation of water through the barricades is an important criterion for any stowing material as it allows rapid consolidation of the fill mass for persons to move over it. The rate of percolation of water should be more than 10 cm/hr as determined in a constant head permeameter so as to prevent build up of high hydrostatic pressure at the barricade. 70-75% of water in the slurry should percolate out through the barricade within an hour of placement.

Sand exhibits a rate of percolation of more than 100 cm/hr, but it is comparably less through fly ash due to higher content of fines and however, it increases through bottom ash due to increase in size of the particles.

Predictions of the drainage behaviors of a given fill materials are made on the basis of laboratory tests using a standard constant head permeameter. A constant head permeameter, as shown Fig. 1, consists of a glass tube, open at the top and a hole close to the top on the side. Three fourth of the tube is filled with the fill material in a slurry state and gently tapped over a soft cushion till a constant length "L" (cm) is attained. The tube is vertically clamped and water is allowed to pour through rubber tubing connected to the mains at a slow rate at the top so that a constant head "H" (cm) is maintained over the fill material. The excess water is allowed to overflow from the top through rubber tubing connected to the hole in the tube close to the top. A measuring cylinder is placed in the bottom of the permeameter to collect the percolated water "Q" (cm^3) through the time"t" (hours). The area of percolation "A" (cm^2) is noted by measuring the diameter of the bottom screen. The permeability "K" (cm-hr) is calculated using the well known Darcy's equation;

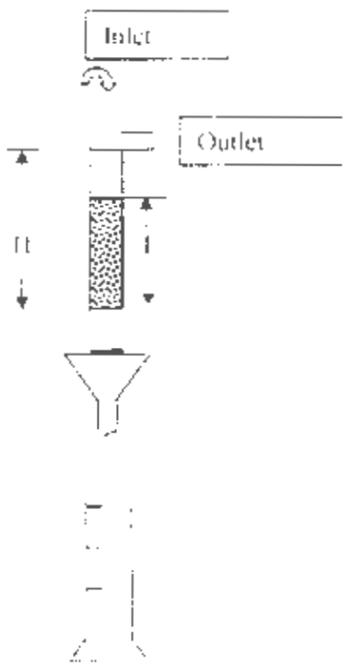

Fig.1: Constant Head Permeameter

$$K = QL/AHt \text{ (cm/hr)} = 22.83 \text{ cm/hr}$$

The percolation rate of Bottom ash of RSTPS was found to be 22.83 cm/hr and it is well above the minimum requirement of 10 cm hr.

Settlement rate

Settlement of solids, after discharge of slurry in the goaf is an important criterion because faster settlement avoids clogging of pores of barricade, therefore, does not cause building up of hydrostatic pressure inside the barricade leading it to rupture. Thus faster settlement rate is desirable for quicker drainage of water. On the other hand if the solids are left in suspension for a long time, there is every likelihood of escape of fines over or through the barricades.

At given slurry concentration, settlement of ash particles mainly depends on specific gravity and grain size. Bottom ash, being finer and lighter than river sand, exhibit lower settlement rate at same concentration. But it is found that settlement rates of solids can be increased by increasing the slurry concentration because hydraulically placed ash slurry in underground voids settles under hindered settling state and by increasing the slurry concentration the medium (i.e. water) in which finer particles floats is reduced.

Bottom ash slurry at 50% concentration by weight was prepared in the laboratory and poured into a measuring cylinder and settlement times of the solids were noted. It was found that bottom ash samples took less than 30 min to settle down completely.

3.2 AUTO OXIDATION CHARACTERISTICS

RSTPS bottom ash was evaluated for its crossing point and ignition point temperatures in the laboratory. The results are shown below:

Crossing point and Ignition point temperatures:

Investigations conducted on RSTPS bottom ash samples have shown that the Crossing Point Temperatures (CPT) and the Ignition Point Temperatures (IPT) are not attained even up to 200°C bath temperature. The above study thus concludes that the chances of auto-oxidation in bottom ash filled masses are remote. Moreover, coal ash possesses pozzolanic property and becomes a consolidated mass. Therefore such a packed mass will not permit any breathing of air. Hence they should be treated as inert and safe for hydraulic backfilling from the auto-oxidation point of view.

3.3 CHEMICAL COMPOSITION

The pollution potential of any ash fill would mainly depend upon its chemical and leaching characteristics. The magnitude of the problem of ash leachate is dependent on its chemical composition. To study the effect, the chemical composition of RSTPS bottom ash was determined and the results are given in the Table below:

Table 2: Chemical composition of RSTPS Bottom Ash

Parameters (%)	RSTPS Bottom ash
Silica ($Si O_2$)	56.22
Allumina ($Al_2 O_3$	13.27
Iron Oxide ($Fe_2 O_3$)	6.86
Lime (Ca O)	6.76
Magnesia (MgO)	2.09
Titania ($Ti O_2$)	1.36
Sulphate (SO_3)	4.70
Alkali Oxides ($Na_2 O$ & K_2O)	8.73

From the results of chemical analysis carried out at SCCL, it is observed that oxides of Si, Al, Fe and Ca constitute the major portion i.e. 83.11% of the total mass. The minor constituents are oxides of S, Na, K, Ti and Mg. The presence of calcium (mainly in oxides form) renders its pozzolanic characteristics. The lightness of ash is mainly attributed to the low iron content.

3.4 COMPRESSIBILITY CHARACTERISTICS

It should have low compressibility with a view to offering high resistance to the overlying strata against sagging and caving. This is an important characteristic for protection of surface features overlying mine workings, especially at shallow depths.

Compressibility refers to reduction in volume of fill mass due to loading or application of external pressure. The results of compressibility test on bottom ash samples of RSTPS and sand is shown in Table 3. The compressibility of bottom ash and sand was found to be 12.68 and 7.05 % respectively at the pressure of 90 Kg/cm^2

Table 3: Compressibility of RSTPS ash sample and River sand

Pressure	Compressibility (%)	
(kg/cm^2)	River sand	Ash
0	0.00	0 00
5	3.38	5.31
10	3.66	6.94
15	3.94	7.43
20	4.23	8.10
25	4.51	8.71
30	5.07	9.12
35	5.35	9.53
40	5.63	9.93
45	6.20	10.41
50	6.48	10.85
55	7.04	11.04
60	7.61	11.21
65	7.89	11.37
70	7.89	11.58
75	8.03	11.82
80	8.17	11.99
85	8.45	12.19
90	8.45	12.28

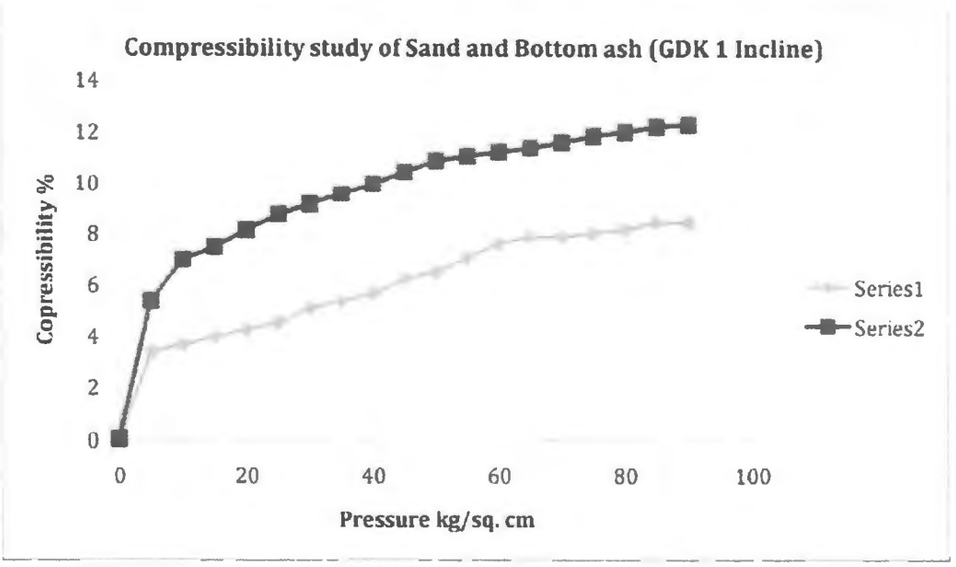

Fig. 2 : Compressibility Characteristics of sand and RSTPS bottom ash (Series1 : sand and Series2 : bottom ash)

4.0 GEO-MINING DETAILS

In this mine area five different coal seams exist. namely seam 1. seam 2. seam 3A. seam 3 and seam 4 in descending order as shown in Fig. 1. The thickness of seam 1 was varying from 5m to 6m and thickness of seam 2 is about 3.8m. The parting between seam1 and seam 2 is about 22m. The thickness of seam 3A is about 1.60m and the parting between seam 2 & seam 3A is about 45m. The thickness of seam 3 was about 6m -8m and the parting between seam 3A & seam 3 is about 23m. The thickness of seam 4 is about 3.74 m and the parting between seam 3 & seam 4 is about 12-14m. All seams are classified as Degree-I gassiness and all dip at an average gradient of 1 in 4.0 and have a dip direction of N62^{O} 17' E. The maximum depth of workings has reached up to 380m.

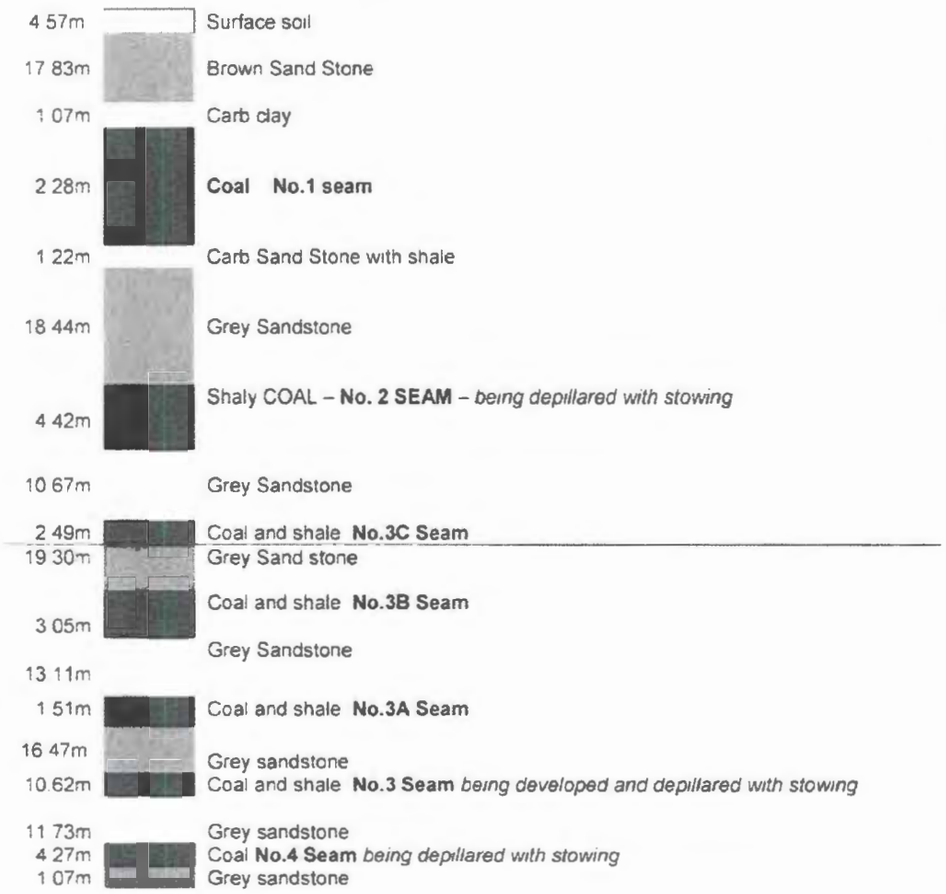

Fig. 3: A section of the borehole (Borehole No. 48) showing the seams

There is one major fault at the north side of the mine workings passing from North West to South East which restricts the mine workings. Beyond this fault only No.2 and No1 seam were developed. The workings beyond fault were isolated. There were number of small faults over the middle property having throw varying from 0.3m to 5.0m. These faults were negotiated without any difficulty during the workings.

The coal seam 3 in panel No.3S-16 is developed by Bord & Pillar method. Coal winning is carried out by blasting off solid with the use of permitted explosives. Panel No.3S 16 where shrinkage study on bottom ash was carried out consists of 25 (twenty five) numbers of pillars. Due to the presence of 2.5m down throw fault on this property, 10 pillars were developed along roof while the remaining 15 pillars were developed along floor. The 10 pillars developed along roof were permitted to be extracted in single lift upto 4m high galleries, the remaining 15 pillars developed along floor level were permitted to be extracted in 2 lifts with 2.7m in 1st lift and 2.2-2.4m in 2nd lift over the sand stowed bottom lift. About 0.6m to 2.9m coal is left in the roof to improve strata condition. The main roof consists of massive sandstone of about 16.47m just above the immediate coal roof. Till now about 18 pillars have been extracted using sand as stowing material while the remaining 7 pillars are being extracted in conjunction with bottom ash stowing on experimental basis.

Pillar size in this panel is 40m x 31m and the gallery dimension is 4m x 2.6m (width x height). The depth of cover at Panel No.3S-16 varies from 257m to 298m. Coal production from this panel is about 500-600 t/day by employing 3 SDLs.

5.0 STOWING PERFORMANCE WITH BOTTOM ASH

Bottom ash stowing at GDK 1 Incline commenced on 08.12.2012 and till 20.01.2013 about 10,439m^3 of bottom ash was stowed in about 16 slices of Panel No.3S 16. A stowing rate of 80 – 90 m^3/ hr was achieved with bottom ash stowing at a hydraulic gradient of 1 in 4.3 and at water to ash ratio varying from 1:2 to 1:3.

The barricade were made of double layer bamboo matting with an overlapping of 0.3m in between adjacent bamboo mattings and 0.5 m lag along the roof, floor and sides of the gallery in order to properly secure it against escape of material. These barricades were reinforced with wire ropes grouted along the side walls and roof/floor. Additional precaution in the form of wooden cogs was erected at the outby side of the barricade as shown in the Fig 6. On visual inspection of stowed area it was found out that the fill has fully consolidated and there was no difficult for SDL to move on it in the 2nd lift slice. There were no instances of barricade failure and on puncturing the rib from adjacent slice, it was observed that the

stowed ash was fully packed and touched the immediate roof and was self standing throughout the entire height of slice as shown in the Fig.5.

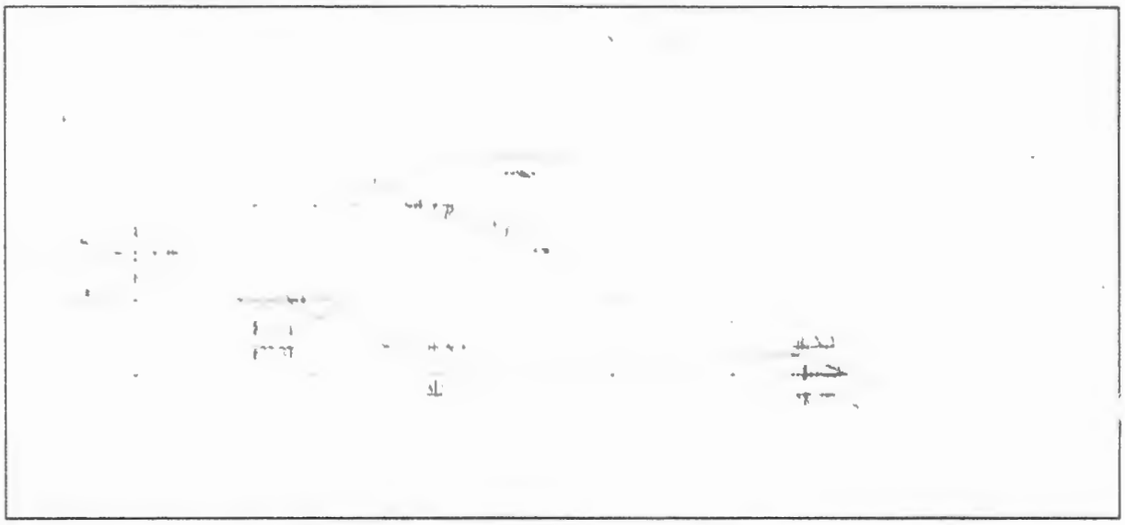

Fig. 4: Hydraulic profile of the stowing range

Fig.5: Self standing height and full packing of bottom ash in the stowed slice

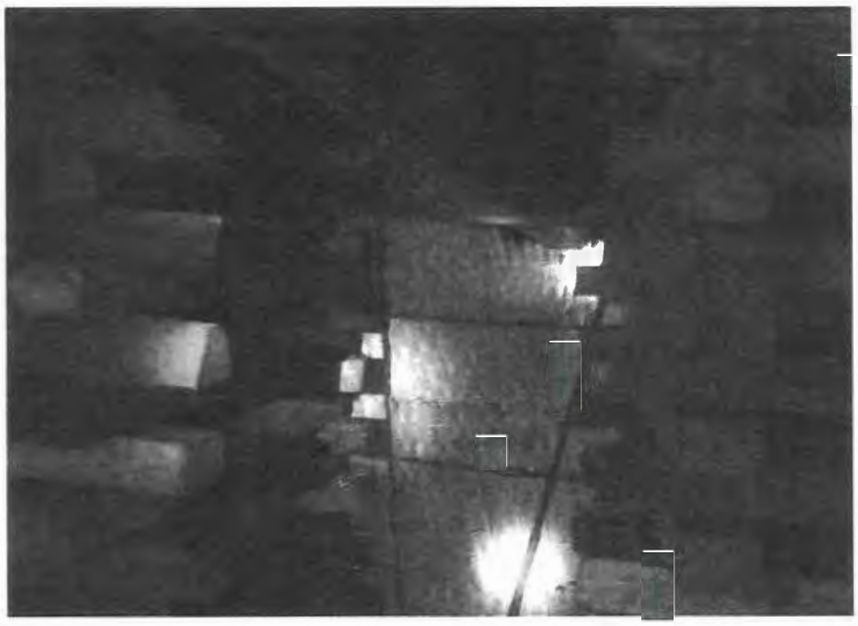

Fig.6: Barricading arrangement for bottom ash stowing

6.0 FIELD INVESTIGATION ON SHRINKAGE

Shrinkage may be defined as volume reduction of the fill mass without the application of external load on it. The initially placed bottom ash pack in the goaf is likely to undergo shrinkage due to percolation of excess water as well as its compaction under its own weight. The shrinkage is found to be more with low density packs compared to that with high density packs.

CIMFR scientist made an underground visit of 3 seam working in Panel No.3S/16 on 21.01.2013 to select site for conducting shrinkage study. After visual inspection of the panel and consultation with the mine management. a site near 44½ LS/17R was selected for carrying out the shrinkage study. At the proposed site five measuring stations were fixed viz. S1, S2, S3, S4 and S5 as shown in the Fig. 7

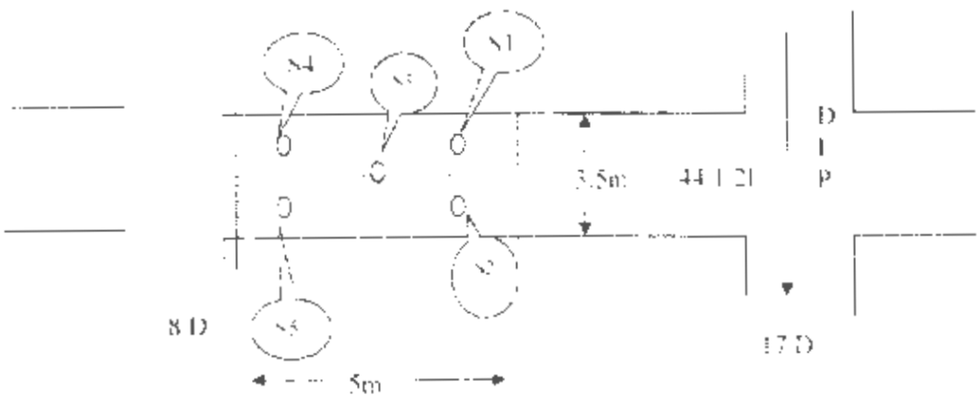

Fig.7: Schematic diagram of position of monitoring station at the trial site

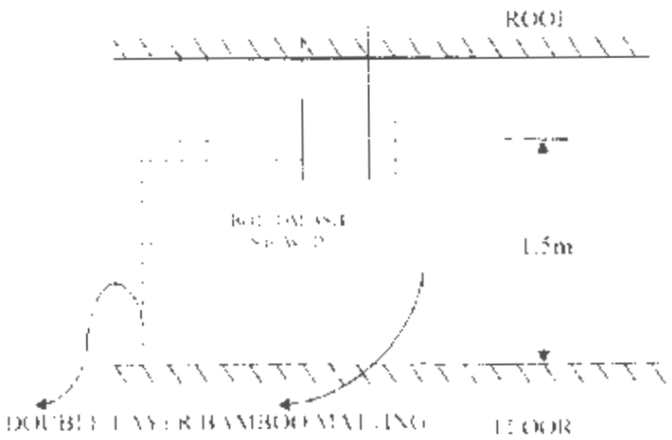

Fig. 8: Sectional view of the trial site

The measuring station was established by drilling roof bolts in the roof and keeping about 1m portion of the bolts protruding out. Metallic measuring tapes were fixed to these rods at all the five stations as shown in the Fig 9. After the establishment of measuring station, it was decided to carry out the field trial for shrinkage study.

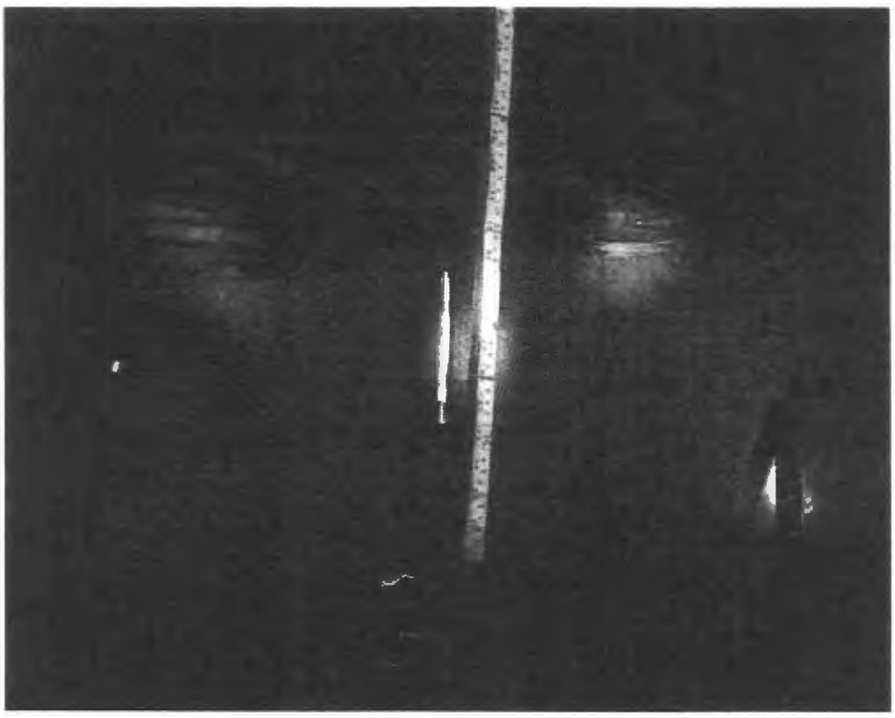

Fig.9: Measuring tape attached to the roof bolts to monitor shrinkage

Shrinkage study was carried out by filling up the experimental void up to a height of 1.5m from the floor so that all the measuring stations are sufficiently submerged inside the bottom ash. This experiment was conducted from 29/01/2013 and daily monitoring of the measuring station was made to observe fall in bottom ash level in the experimental void. The observations made at all the five measuring station from 29th Jan. to 6th Feb. 2013 are given in Table 4 (a, b, c, d & e).

From the above table it can be observed that all the five stations encountered shrinkage of 15mm during initial 3 days reading. The percentage shrinkage of bottom ash at the stowed experimental site within 3 days of stowing was found to be 1% as shown in Fig. 9. No shrinkage of the stowed mass was observed after initial shrinkage and the reading became constant.

Table: 4(a): Readings observed at monitoring station S1

No. of days	Date	Station S1			
		Reading	Shrinkage(cm)	Cum. Shrinkage	% Cum. shrinkage
0	29/01/2013	208.5	-	-	0
1	30/01/2013	209.2	0.7	0.7	0.47
2	31/01/2013	209.7	0.5	1.2	0.80
3	01/02/2013	210	0.3	1.5	1
4	02/02/2013	210	0	1.5	1
5	03/02/2013	210	0	1.5	1
6	04/02/2013	210	0	1.5	1
7	05/02/2013	210	0	1.5	1
8	06/02/2013	210	0	1.5	1
	Total		1.5	1.5	1

Table: 4(b): Readings observed at monitoring station S2

No. of days	Date	Station S2			
		Reading	Shrinkage (cm)	Cum. Shrinkage	% Cum. shrinkage
0	29/01/2013	119.5	-	-	0
1	30/01/2013	120.2	0.7	0.7	0.47
2	31/01/2013	120.7	0.5	1.2	0.80
3	01/02/2013	121	0.3	1.5	1
4	02/02/2013	121	0	1.5	1
5	03/02/2013	121	0	1.5	1
6	04/02/2013	121	0	1.5	1
7	05/02/2013	121	0	1.5	1
8	06/02/2013	121	0	1.5	1
	Total		1.5	1.5	1

Table: 4(c): Readings observed at monitoring station S3

No. of days	Date	Station S3			
		Reading	Shrinkage (cm)	Cum. Shrinkage	% Cum. shrinkage
0	29/01/2013	248.5	-	-	0
1	30/01/2013	249.2	0.7	0.7	0.47
2	31/01/2013	249.7	0.5	1.2	0.80
3	01/02/2013	250	0.3	1.5	1
4	02/02/2013	250	0	1.5	1
5	03/02/2013	250	0	1.5	1
6	04/02/2013	250	0	1.5	1
7	05/02/2013	250	0	1.5	1
8	06/02/2013	250	0	1.5	1
Total			1.5	1.5	1

Table: 4(d): Readings observed at monitoring station S4

No. of days	Date	Station S4			
		Reading	Shrinkage (cm)	Cum. Shrinkage	% Cum. shrinkage
0	29/01/2013	52.5	-	-	0
1	30/01/2013	53.2	0.7	0.7	0.47
2	31/01/2013	53.7	0.5	1.2	0.80
3	01/02/2013	54	0.3	1.5	1
4	02/02/2013	54	0	1.5	1
5	03/02/2013	54	0	1.5	1
6	04/02/2013	54	0	1.5	1
7	05/02/2013	54	0	1.5	1
8	06/02/2013	54	0	1.5	1
Total			1.5	1.5	1

Table: 4(e): Readings observed at monitoring station S5

No. of days	Date	Station S5			
		Reading	Shrinkage (cm)	Cum. Shrinkage	% Cum. shrinkage
0	29/01/2013	9.5	-	-	0
1	30/01/2013	10.2	0.7	0.7	0.47
2	31/01/2013	10.7	0.5	1.2	0.80
3	01/02/2013	11	0.3	1.5	1
4	02/02/2013	11	0	1.5	1
5	03/02/2013	11	0	1.5	1
6	04/02/2013	11	0	1.5	1
7	05/02/2013	11	0	1.5	1
8	06/02/2013	11	0	1.5	1
	Total		1.5	1.5	1

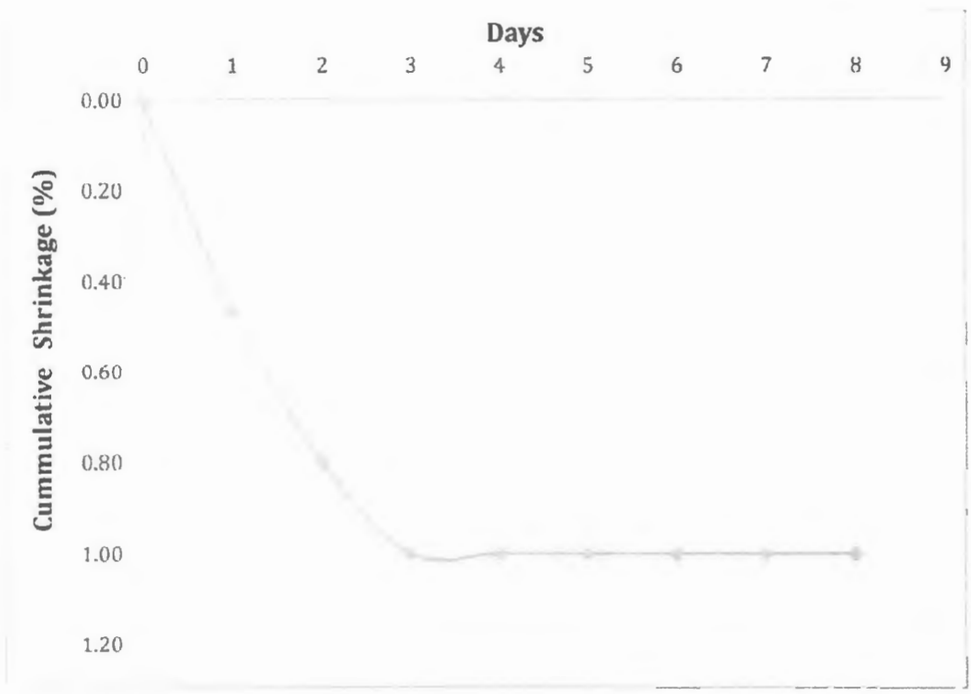

Fig. 10: Percentage shrinkage at all the five monitoring station

The stowing operation commenced from 08-1-2012 and continued for about nine months. The entire panel was worked with bottom ash stowing. The panel was completed on 09-09-2013. In this Panel about 41,100 m³ of ash was stowed during this period. The coal produced from this panel is about 45,934 tons. During this period regular sieve size analysis was done to determine the amount of particles below 53 micron. It has been observed that the percentage of the material below 53 micron was negligible.

7.0 CONCLUSION AND RECOMMENDTION

From the results of laboratory investigation and field trials for shrinkage study, following conclusions and recommendation could be made.

1. The bottom ash has several advantages over river sand when used as a stowing material for underground mines.
   i) Being light and fine it will offer saving in energy cost per unit volume in transportation by mechanical or hydraulic means, as it will require less tonnage of material for filling the same underground void and will cause less frictional head loss during transportation through pipelines.
   ii) Pumping cost will also be reduced because hydraulic backfilling with bottom ash will need less amount of water.
   iii) It will cause less wear of pipeline thereby increasing the life of the pipe.
   iv) The cementing effect developed in ash filled mass, due to the pozzolanic activity, will help in consolidation and thereby increasing the stability of the working.
2. The percolation rate was found to be as high as 22.83cm/hr and ash in the slurry at 50% concentration by weight settled within 30 min, this may be attributed to the fact that there is very little chance that bottom-ash will remain in the slurry form for a longer period of time and may cause barricade bursting.
3. The ultra fines (less than 53 micron size)is only 0.82% which indicates that percolation of water through the pack is not going to create any problem and the consolidation of the pack will take place within a short period.
4. Bottom ash of RSTPS was found to be least susceptible to spontaneous heating as CPT and IPT are not attained even up to 200°C bath temperature.

5. Results of shrinkage study carried out in the field indicates that the bottom ash stowed mass undergoes an initial shrinkage of 1% during first 3 days of readings and no shrinkage was observed beyond that. This initial shrinkage may be attributed to the dissipation of entrapped water in interstitial voids of ash fill mass.

6. The visual inspection of the site shows that the stowing is done properly upto the roof and the packed mass stand erect when the adjacent stooks were punchered. The pack was found to be uniformly distributed without making any heap and touching almost all the portion of the roof.

7. It has been observed that the performance of bottom ash stowing was satisfactory. It is also proposed to carry out further scientific study during ash stowing in the next panel.

THE SINGARENI COLLIERIES COMPANY LTD.
(A Govt. Company)

REPORT
ON
POND ASH STOWING TRIALS
AT
PK.No.1 INCLINE MINE
MANUGURU

MARCH, 2003

HYDRAULIC FLY ASH STOWING
IN UNDERGROUND MINES OF MANUGURU
SINGARENI COLLIERIES COMPANY LIMITED (SCCL)
ANDHRA PRADESH

During September, 1999, Ministry of Environment and Forest (Govt. of India) issued a Gazette notification under Environmental Protection Act, 1986 regarding the disposal and utilisation of Ash by Thermal Power Plants in a phased manner within a maximum period of nine years from the date of issue of notification.

Consequent to the above, General Manager, Heavy Water Plant, Manuguru consulted Adviser and Director, Fly Ash Mission, Dept. of Science and Technology for having a complete study and to advise on proper utilisation of Ash including disposal into underground mine voids.

Meanwhile, General Manager, Heavy Water Plant, Manuguru, discussed the problem with the GM., SCCL, Manuguru Area.

1.0 In continuation of the above, first meeting was conducted on 27th July, 2000 at Heavy Water Plant, Manuguru, with Scientists of CMRI, CFRI, IIT Delhi, G.M., HWP and Chief GM. SCCL, Manuguru, wherein the Advisor, Fly Ash Mission Sri Vimal Kumar had assured that the problems experienced by the SCCL previously will be solved with the help of CMRI and CFRI.

2.0 On 20.09.2000, Sri H.S.Kamath, Chairman & C.E., Heavy Water Board met with C&MD, SCCL, and he has agreed for conducting the trials in SCCL.

A Memorandum of Understanding between SCCL and HWP was made on 30.12.2000 followed by a letter from Sri S.C.Hiremath, Chairman and C.E. HWB, explaining the responsibilities of various agencies involved in the operation.

The following will be arranged by M/s. SCCL. Manuguru as per the MOU between M/s. SCCL and HWP (M) and as required by FAM, DST (GOI)

1. To make available the stowing point in a good working condition and to maintain the same (including spares, labour and other costs) during the period of this activity.

2. To incorporate modifications/additions, if any, as per the requirements of FAM experts, though these would be kept to minimum as assured by Fly Ash Mission.

3. To make available water, power and other inputs utilities as per the requirement.

4. To facilitate and install barricades as per the design that would be provided by FAM and CMRI.

5. To provide safety and emergency aid as required in view of the working site conditions.

6. To provide semiskilled workers during the execution of the activity. Generally four persons would be positioned on the surface (at the stowing plant) and two persons in the mine at the stowing area in addition to the supervisors and executives.

7. To facilitate and provide unhindered approach to the working area or the required areas/facilities to FAM experts/workers for and during the execution of the work.

8. Local conveyance to the FAM team and officers of HWP (M) shall be arranged by HWP (M). Charges of boarding and lodging shall be born by the FAM team as per SCCL rules.

9. To extend full co-operation and firm commitment for successful stowing pond ash and nominate a co-ordinating officer.

HWP (Manuguru) will provide the following facilities for carrying out this work as per the MOU between M/s. SCCL. Manuguru and HWP (M) and as required by FAM:

1. To incur construction and technical fee payable to FAM for this activity.
2. Arrange for transportation of pond ash to the stowing plant of SCCL through contractor.
3. To organise and ensure timely availability of fly ash.
4. To supply pond ash at stowing plant as per the stowing schedule mutually agreed between FAM and SCCL based on the available facilities and storage and to deliver pond ash at a point that would be mutually decided by FAM and SCCL.
5. To ensure that there is no unwanted spillage of pond ash during transportation.
6. To arrange collection and despatch of ash samples to CMRI, Dhanbad or any other destinations as intimated by FAM.
7. To extend full co-operation and firm commitment to complete the activity successfully.
8. If during the operations, it is found that the machinery/equipment is getting damaged which can be attributed to the usage of fly ash, then, both SCCL and HWP will discuss the matter to be settled amicably.

Consequently Sri B. Bhaskara Rao, Addl.G.M.Underground Mines, Dr.Vimal Kumar, Adviser (FAM) DST and Dr. C.N.Ghosh, Head of Stowing Division, CMRI, Dhanbad prepared a detailed work program.

3.0 During July, 2001 a meeting was conducted with Dy.Director General of Mines Safety, Southern Zone, Hyderabad and Director of Mines Safety, Hyderabad Region No.1 along with officers of FAM, HWP (M), CMRI and SCCL to seek the permission for hydraulic pond ash stowing in a depillaring district of P.K.No.1 Incline mine, explaining the various safety factors and methodology of stowing.

4.0 Due to technical reasons, as advised by Director of Mines Safety, first phase of pond ash stowing trial was permitted in a development gallery at 43D/42LS out bye of SP-1 panel of P.K.No.1 Incline.

Accordingly the Phase-I trial was conducted with 280 M^3 of pond ash on 22nd May, 2002. The site was inspected by Sri S.C.Hiremath, Chairman and Chief Executive, Heavy Water Board, Mumbai, Dr.Vimal Kumar and Chief GM, Manuguru, SCCL.

5.0 After the above trials to decide upon the future plan of action considering the experiences of the first trial a meeting was conducted at TIFAC, DST, NEW DELHI with DMS, Hyderabad Region No.1 and the officers of SCCL, FAM (TIFAC), and HWP (M) on 12th August, 2002. It was decided to conduct one more trial (Phase-II trial) at P.K.No.1 Incline mine in a development gallery with a quantity of 2000 to 2500 M^3 of pond ash, further to study the following.

1. Load on the barricades.
2. Rate of water filtration through barricades
3. Chemical analysis of the pond ash water slurry collected through barricades
4. Other pond ash stowing operational problems

Accordingly Phase-II trial was conducted from 29.10.2002 to1.11.2002 by stowing 2,100 M^3 of pond ash at 37D/43L gallery at P.K.No.1 Incline.
The results were found to be encouraging with the following observations.

1. Persons are able to walk freely over pond ash bed within half an hour after stowing.
2. The water seepage through barricades was good.
3. Water seeping through barricades was collected and sent for chemical analysis and determination of suspended solids.
4. Once the pond ash sealed to full height of the barricade, water percolation through barricade had considerably reduced/stopped.
5. Some pond ash fines were deposited in the drainage galleries before reaching the main storage sump.

During the trials pond ash could not flow freely from the surface bunker and to the mixing trough, because of contamination by earthen material, plant roots and grabs at the ash pond. Care will be taken in future trials to prevent the contamination.

After the Phase-II trials, a detailed report was prepared by GM, Manuguru Area and the same was circulated vide letter No.MNG/AGTUG/115/625 Dated 19.11.2002.

6.0 **Subsequent to the Phase-II trials, a meeting was conducted at FAM, TIFAC, DST, New Delhi on 5.12.2002 where the officers of DGMS, SCCL, FAM DST, HWB and HWP (M) participated.**

It was decided to conduct Phase-III trial in a working depillaring district by pond ash stowing instead of sand stowing with a quantity of about 8,000 M^3 to10,000 M^3 of pond ash during January, 2003 – February, 2003 to observe the following:

1. Effect of hydraulic pond ash stowing on neighboring working places.
2. The effect of water draining from barricades on floor coal of galleries.
3. Rate of water percolation through pond ash bed.
4. Effect of water draining from barricades on human agency deployed in the district during actual mining operations.
5. Effect on main water sump and 240 HP pumps.
6. Estimation of additional arrangements required for proper drainage from the barricades and upto the Main Sump.

Minutes of the meeting held at FAM (DST), New Delhi on 5.12.2002.

1. The list of presentees is placed at **Annexure-I**. CMRI was also requested to participate; however due to other pressing engagements, it could not be possible.

2. Dr.Vimal Kumar, Mission Director, Fly Ash Mission, TIFAC, DST welcomed the members for the meeting and thanked them for their continued support and participation and guidance for the subject activity.

3. Mr. Bhaskara Rao presented the chemical analysis and solid content results of all the water samples collected during the stowing operation undertaken between 29th October, 2002 to 1st November, 2002.

The results were discussed along with earlier report circulated by M/s. Singareni Collieries Co. Ltd. (SCCL), Manuguru on the results and observations of the stowing undertaken during the above said period. All the results were found to be satisfactory except for Boron content in the water samples which needs to be rechecked because of erratic observation for Boron for inlet water samples as well as outflow water sample. Another water sample report for analysis undertaken at Khammam by SCCL (Manuguru) had shown boron content within the permissible limits.

4. Based on the successful stowing operation undertaken in two phases so far and the satisfactory results thereof, the aspects relating to third phase of stowing of about 8,000 - 10,000 M^3 pond ash was discussed.

5. Mr. Bhaskara Rao was requested to present the availability of voids and the time schedule when third phase of stowing can be undertaken. Two alternative voids were discussed viz 40,000 M^3 void available in panel SP-1 and void to be created in the fresh panel of NG-1. After detailed deliberations, it emerged that fresh panel NG-1 besides being on the rise side and at shallow depth, may not be available before March, 2003. All the concerned agencies were of the opinion that the third phase of stowing should preferably be undertaken during January - February 2003 so that the total demonstration can be concluded within the current financial year. It was noted that the approved duration of subject demonstration project has already been over long back.

It was agreed that SCCL would submit the official request to Directorate General of Mines Safety, Hyderabad Region No.1 for modification of permission for stowing of 10,000 M^3 of pond ash into the ongoing panel SP-1 and this stowing would be tentatively planned for mid January, 2003 and would be completed mid February, 2003. Mr. B.P.Ahuja, Director, DGMS-Hyderabad agreed to consider this request.

6. HWB/HWP (M) confirmed that necessary arrangements would be made to make available the required quantities of pond ash as per the requirements of SCCL in line with the schedule agreed above.

7. The aspects regarding this Technology Demonstration to the other mines of SCCL and at the national level were also discussed. It was agreed that a meeting of senior officers of SCCL, DGMS-Hyderabad, HWB, Fly Ash Mission and CMRI-Dhanbad would be arranged towards first fortnight of January 2003 at Hyderabad to appraise about the achievement so far and to take guidance for future plan of action.

8. It is also emerged during the discussions that an in-house Seminar/Workshop be organised at SCCL to share the findings of the subject Technology Demonstration Project of its success inviting other selected stakeholders. This would facilitate a broader dissemination and acceptance of technology. This would be discussed and finalised in the proposed meeting at Hyderabad.

7.0 METHOD OF STOWING POND ASH AT PRAKASHAM KHANI NO.1 INCLINE MANUGURU AREA, THE SINGARENI COLLIERIES COMPANY LIMITED.

Prakasham Khani No.1 Incline mine is located at a distance of 12 Kms. From Manuguru Railway station, Khammam Dist. of Andhra Pradesh. Underground workings are spread over an area of 5.47 Sq.kms. at a maximum depth of 284 Mtrs. and the minimum of 40 Mtrs. Presently coal is winned by depillaring by hydraulic sand stowing at panel No.SP.1 and NF-3 and a development district at 28 Dip/54Level.

The proposed hydraulic pond ash stowing will be taken up at SP.1 panel.

7.1 The sand stowing plant No.2 is located at 2.75 km, away from PK.No.1 Incline is being used for stowing SP.1 depillaring panel. Nine Nos. of 8" boreholes with a depth of 210 Mtrs. with casing are provided for this plant. The same existing facilities are utilised for pond ash stowing with minor modifications of the mixing trough as suggested by CMRI, Dhanbad.

Arrangements are made to prevent flying of pond ash while it is dropped from the gantry to the storage bunker.

7.2 Ash pond of HWP (M) is located a distance of 15 Kms. From the stowing plant so far 2400 Cu.M of pond ash required for the first two trails was transported by lorries arranged by HWP (M). For the convenience of continuous availability, pond ash can be stocked at the site of stowing plant in advance before commencing stowing operations.

7.3 The pond ash transported from HWP (M) is first dumped into the screening bunker having capacity of 100 Cu.M, Where more than +100 mm size rejects are eliminated. From there through conveyor it is taken to the storage bunker over tunnel wherein it was screened up to a size of −20mm.

The pond ash is drawn through the chute in to the trough wherein it was mixed with water at a ratio of 1:1. One water flow meter is arranged on incoming to 8" water line for quantity measurement. One surface water tank with 1.0 Lakh gallon capacity was arranged. The water is supplied by a 240 HP pump located in underground near SP-1 depillaring panel.

7.4 For early settlement of fly ash fines resulting uninterrupted filtration of water, CMRI has developed an additive, which was mixed at the mixing chamber on surface with pond ash - water slurry @ 5 PPM approximately.

7.5 Thus the ash water slurry is taken upto the voids in underground workings through an 8" cased bore hole. Pipelines are arranged from bottom of the bore hole upto the discharge point in the district.

7.6 As directed by the office of the Director General of Mines Safety, Hyderabad, Region No.1, initially one development gallery was selected i.e. 43D/42LS and stowed with 280M^3 of pond ash on 22nd May 2002.

As suggested by CMRI the rise barricade was constructed with an additional lining with Hessain cloth and with side notching to prevent the fines of pond ash draining out of the barricade. Initially 280 Cu.Mtrs. of pond ash stowed at the ratio of 1:1 pond ash to water at an average stowing rate of 105 Cu.Mtrs. per hour.

The water filtration from barricade was found to be good. It was observed that ones the pond ash is sealed upto the roof level in front of the barricade, water started over flowing out through the level barricade, since the pond ash does not allow water percolation as fast as sand from the dip barricade.

8.0 In this context CMRI, Dhanbad has submitted a detailed report on utilisation of pond ash as stowing material, covering, physical characteristics, chemical characteristics, water percolation characteristics, spontaneous heating characteristics, rate of settlement and instrumentation.

Some of the chief investigations are as follows.

8.1 **PHYSICAL CHARACTERISTICS:**

Storage, transportation and disposal of ash have been found to be greatly influenced by the physical characteristics. Hence, the physical properties of ash samples of HWP, Manuguru were tested at CMRI. The results are summarised below.

(i) Specific gravity : (a) Pond ash - 2.00
(b) Sand - 2.65

(ii) Bulk density : (a) Pond ash - 1.06 t/m^3

b (b) Sand - 1.67 t/m^3

(iii) Percentage Void : (a) Pond ash - 47%
(b) Sand - 40%

(iv) Granulometric Distribution:

Size fractions (microns)	% retained	Cum.% retained	% finer than
-300+150	1.05	1.05	100.00
-150+100	2.15	3.20	98.95
-100+50	64.04	67.24	96.80
-50+20	24.00	91.24	32.76
-20+10	4.75	95.99	8.76
-10	4.01	100.00	4.01

The specific gravity of Manuguru ash has been found to be 2.00, which means that it is about 25% lower than river sand (Avg. Sp. Gravity 2.65).

8.2 CHEMICAL CHARACTERISTICS:

The results of the chemical analysis of the pond ash samples as determined by CMRI are as follows:

Parameters	Concentration (% by wt.)
SiO_2	59.007
Al_2O_3	19.551
Fe_2O_3	15.350
TiO_2	3.158
K_2O	1.271
CaO	1.151
Mn_2O_3	0.197
ZrO_2	0.184
SrO	0.028
NiO	0.042
Nb_2O_5	0.012
V_2O_5	0.049

From the results of chemical analysis it could be observed that oxides of silicon, aluminum and iron constitute the major percentage i.e. 94% of the total composition. The lightness of ash is mainly attributed to the low iron content. Due to high silica content it is apprehended that it may cause dust related environmental hazards during surface transportation from thermal power station to the mine site. The presence of calcium (mainly in oxides form) renders it pozzolanic in characteristic.

8.3 Settlement Rate of Pond ash slurry

Experiments were carried out with pond ash of HWP, Manuguru at different concentrations in measuring cylinders. The effect of addition of additives on the settlement rate was also studied in the same setup. The results are as follows:

Normal dilute slurries without any additive show very low settlement rate. Although the coarser fractions settle quickly within 15 minutes but the finer fractions take long time i.e. more than 90 minutes to settle. Even after that the ultra fines remained in suspension form.

Therefore, an additive was used with ash and water slurry for induced settlement. The mechanism behind induced settlement lies with the fact that interlinked mesh between coarser and finer articles and between various layers is formed on addition of additive.

It has been found that settlement rate of HWP, Manuguru ash increases with increase in slurry concentration. At 40% concentration by weight about 100% settlement of the solids take place within 30 minutes whereas the time reduces to 15 minutes when the concentration is increased to 50%. Above 60% the slurry is non-flowable.

8.4 Water Percolation Rates (cm/hr)

Water percolation rates of ash samples were determined in a constant head permeameter. The results are given below:

(1) Percolation rate of pond ash only - 16.235 cm/hr

(2) Percolation rate of pond ash+additive - 18.970 cm/hr

It can be seen that the use of additive has a positive impact on the percolation rate.

Attempts were also made to determine the quantity of water percolating out through the barricade with increase in time. The experiments were carried out on a reduced scale gallery model to simulate actual fill behavior when placed underground.

It was observed that the amount of water percolating out of the fill mass increases with time as well as the height of the fill mass. On completion of the fill cycle it was found that 70% of the total water percolates out within 15 minutes. Out of the 30% water remaining inside the fill mass some amount of utilized in the pozzolanic reactivity the ash fill, where as, the rest water is expected to percolate out with increase in time.

8.5 SPONTANEOUS HEATING CHARACTERSTICS:

To determine the spontaneous heating characteristics, laboratory investigations on proximate analysis and their crossing and ignition point temperatures of ash samples of HWP, Manuguru were performed. The results are as follows:

Proximate analysis:

Moisture %	0.2905
Ash %	97.4655
Volatile Matter %	1.6898
Fixed Carbon %	0.5542

Crossing Point & Ignition Point Temperature:

(a) CPT : Not reached till 200°C

(b) IPT : Not reached till 200°C

As the proportion of total combustibles (F.C. and V.M) is very low, i.e. 2.244% the ash sample did not attain crossing point and ignition point temperatures even at a bath temperature of 200°C. Therefore, it could be concluded that the ash of HWP, Manuguru has no affinity towards spontaneous heating and hence, could be safely used as underground fill material.

8.6 INSTRUMENTATION:

It is proposed to carry out instrumentation to determine the pressure on the barricade. For this purpose it is proposed to install some pressure cells at the pack near the barricade. The deformation of the pack will be measured by installing some remote sensing deformation indicator. The instrument is based on the change in resistance over a solenoid. A rigid steel cog will be installed about one meter from the barricade. The indicator will be sensed at a distance from the barricade. It is also proposed to install some convergence indicator and some load cells to study the roof behaviour during the stowing operation.

8.7 RECOMMENDATIONS:

The Laboratory test and the model study indicate that pond ash can be used as a stowing material for underground coal mines. However, the field trails are to be carried out before using it in large scale. It is proposed to carry out the field trials at the underground mines of Manuguru area, SCCL which is very close to Heavy Water Plant (M), in association with Fly Ash Mission (Department of Science & Technology), Heavy Water Plant (Atomic Energy Commission), Singareni Collieries Company Limited and Directorate General of Mines Safety. Ash is having some disadvantages over percolation rate & settlement characteristics and drainage of fines through barricades. Some of these problems could be overcome with addition of some additives. The leachate was tested in CFRI and was found to have no adverse impact due to use of the additives. On the other hand use of ash is having some advantages. Due to its pozzolanic property it develops some compressive strength with time.

Considering the fact that the country is producing about 100 million tonnes of coal ash presently and there is dearth of sand due to construction of dams in the river and its huge application in the construction purpose. So it is felt that if ash can be used as a stowing material both the problems faced by the power plant as well as the mining industry could be overcome.

9.0 Phase-II trials were conducted from 29.10.2002 to 1.11.2002 at 37D/43L South with a view to study load, coming on to the barricade and to evaluate the contamination of water coming out of the barricades, besides other operational problems.

Instrumentation to monitor the hydrostatic pressure on the barricades was designed by Shri B.P.Ahuja, DMS, Hyderabad Region - I. Accordingly 3 strain-gauge type Load Cells were arranged on X-Y axis at and around the center of the barricade. The readings on instruments were monitored by scientists from CMRI on hourly basis from the commencement of pond Ash Stowing till completion. Maximum load observed on barricade was only 1 Kg/cm2, which was very low to the load bearing capacity, provided to the barricade.

The load cells arranged by CMRI, were set at an initial load of 2 tonnes. The final reading recorded was of 3.0 Tonnes only. Ultimate load shown on the barricade was only 1Kg. /Cm2. When compared to the load resistance provided to the barricade with flexible rope the load exerted by pond ash water slurry on to the barricade was negligible.

9.1 Details of the readings recorded from the three load cells (strain gauge type) installed at 37R/46L barricade in thick seam, bottom section of P.K.No.1 Incline. 24 Hours observations were made from 12.00 Noon to 29.10.2002 to 7.00 AM on 3.11.2002. Total 318 readings were recorded.

The ultimate minimum and maximum readings are

Date & Time	Load cell Nos. and readings		
	No 221 At center	No 223 33 cm. On X axis from center	No 218 33 cm. On Y axis From center
29.10.2002 setting load.	2.0 tonnes	2.0 tonnes	2.0 tonnes
Initial readout at 12.00 Noon.	19.2	23.7	27.0
Maximum reading recorded at 20.30 hrs. on 29.10.2002	19.6	26.2(3.00 tonnes)	27.1

As per on site observations, the load gradually increased over the barricade as the height of ash filling increases. The maximum load was recorded when the ash was filled upto the full height of the gallery along the barricade. Further stowing in remaining area does not show any increase of load on the barricade.

9.2 The inlet water, the water ash slurry at discharge end of the pipe line and the filtered water through barricade, was collected and sent for analysis. The results are as follows:-

AT NUCLEAR FUEL COMPLEX, HYDERABAD. In PPM.

		Water ash	Filtered water	Permissible

Description	Inlet Water	slurry at discharge point	behind the barricade	limits BIS-IS 10 500 PPM
CHROMIUM	<0.02	<0.02	0.002	0.05
COPPER	<0.01	0.01	0.001	0.05
IRON	0.03	0.06	0.28	0.3
MANGANEES	<0.02	0.03	0.002	0.1
NICKLE	<0.05	<0.05	-	(WHO)0.02
LEAD	<0.05	<0.05	0.001	0.5
ZINC	<0.05	0.06	2.2	5
ARSENIC	<0.05	<0.05	Nil	0.05
BORAN	27	32	0.01	1
CADMIUM	<0.01	<0.01	0.002	0.01
COBALT	<0.01	<0.01	-	N.A
Note : Slurry sample indicated 2% solids.				

10.0 During the meeting conducted in the office of FAM, TIFAC, DST on 5.12.2002 at New Delhi, between the officers of DGMS, SCCL, FAM (DST), and HWP (M), it was decided to conduct the Phase-III trials during January, 2003 – February, 2003 with a quantity of 8,000 to 10,000 Cu.M of pond ash in the workings at Panel No.SP-1 while the coal winning is under progress to study its direct impact on the persons working therein and on coal produced, besides other operational problems.

11.0 Accordingly IIIrd phase of Trials were started from 24-01-2003, and are completed by 10th March, 2003. 7,600 cu.mtrs. of Pond Ash was stowed during IIIrd phase of trials.

During the trials, on 26-2-2003 Dr.Vimal Kumar, Advisor (FAM), Shri B.P.Ahuja, DMS, Hyderabad Region No.1 and Dr.C.N.Ghosh,CMRI., and Sri J.V.Dattatreyulu,GM., SCCL Manuguru visited the site of stowing area at PK.No.1 Incline and conducted a meeting in the evening along with Shri R.V.Gupta,CGM, HWP, Manuguru. They expressed the results are encouraging and the stowing is satisfactory.

It was also discussed in the meeting regarding the following problems observed during the trials.

- The Fly Ash fines from the Pond Ash are not settling in time, in the gallery causing the large fluid mass resting against the barricade leads to dangerous situation.
- The fines less than 53-micron size were all found to be creating the problem.

- It is observed that the vegetation grown up at the pond is also causing hindrance for the even operations of stowing.

It was discussed in the meeting; appropriate and suitable technology shall be explored for separation of fines at the source of generation itself.

Meanwhile, an appropriate site at the Ash Pond will be selected for avoiding ash fines to some extent, during future stowing activities.

12.0 It was proposed to use pond ash as a regular stowing material at large scale in a depillaring district at PK No.1 Incline, to study further on site underground and surface operational problems and to evolve an appropriate system of surface stowing arrangements and mode of bulk transportation from Heavy Water Plant to Manuguru Underground Mines, besides Quality Control (segregation of fines) of Pond Ash suitable for stowing.

*****

No. 43011/(102)/2007-CPAM
Government of India
Ministry of Coal

New Delhi, the 21st July, 2011

OFFICE MEMORANDUM

Subject Record note of discussions of the meeting of the Expert Committee to Guide and Advise on disposal of Fly Ash along with OB material, etc. held on 18th July 2011.

The undersigned is directed to forward herewith a copy of minutes of the above mentioned meeting for information and necessary action.

(Sandeep Gupta)
Under Secretary to the Govt. of India.
Phone No.23073934

Encl: As above.

To

1. Secretary, Ministry of Science and Technology, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi. **(FAX:+91-1123710618.)**
2. Shri B.P. Ahuja, Deputy Director General of Mines Safety (HQ), Directorate General of Mines Safety (DGMS), Dhanbad-82600. **(FAX No.0326-2221027 & 2221020).**
3. Shri Neeraj Khatri, Deputy Director, Ministry of Environment & Forest (Fly Ash Utilization), Paryaravan Bhavan, CGO Complex, Lodi Road, New Delhi. **(Tele-Fax: 24365199).**
4. Shri Bibash Kumar, Chief Engineer (TCD), Central Electricity Authority, 9th Floor, N-Wing, Sewa Bhavan, R.K. Puram, New Delhi-110066. **(Tel : 011-26100050 (O) Mob : 9717255988).**
5. Shri A.K. Bhandari, Director C- TEMPO, Ministry of Mines, CGO Complex, Room No.507 New Delhi.
6. Dr. C.N. Ghosh, Scientist "F", Mining Stowing Division, Central Institute of Mining and Fuel Research (CIMFR), Barwa Road, Dhanbad-826 015. **(FAX No. 0326-2296025, 2296033 & 2296030)** e-mail:dcmrips@yahoo.co.in, amalenducmir@yahoo.com
7. CMD, Central Mine Planning & Design Institute Limited, Gondwana Place, Kanke Road, Ranchi (Jharkhand) **(FAX No.0651-2230003).**

Copy to:-

(i) PPS to Special Secretary (Coal).
(ii) Director (Technical).

CEA,

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True Copy

Record Note of Discussions of the Meeting of the Expert Committee to Guide and Advise on Disposal of Fly Ash along with OB material, etc. held on 18 July, 2011.

****

List of participants is annexed.

2. Special Secretary (Coal) chaired the meeting. Inviting the participants, SS (Coal) mentioned about the background of the formation of the Committee and the scope to study and guide the industry to comply with the requirement of the Gazette Notification of MoEF dated 3 November, 2009 in this regard. He requested for the views of participants on the subject matter.

3. Representative of CMPDIL mentioned that there are certain practical issues mainly related to safety of operations to comply with the requirements of MoEF's Notification in the operating opencast mines concurrently. He explained about the mismatch between carrying the overburden dumping operations and disposal of ash on the OB benches both internal and external dumps. However, he mentioned that disposal of fly ash as a stowing material in filling the voids in underground mines is not a problem and proper arrangements for mixing and transportation of the stowing material after mixing with the fly ash can be suitably designed at the pitheads. Similarly, abandoned opencast mines in different coalfields could also be considered for disposing off the fly ash. Further, the final voids at the end of operating mines could also be considered at an appropriate time for this purpose. He reiterated that safety of the operations and environmental pollution due to leaching effects of fly ash need special consideration in undertaking any of these operations.

4. Representative of Department of Science & Technology (DST) mentioned that the issues raised by the representative of CMPDIL were discussed in detail earlier while formulating the draft Notification in MoEF and the safety

regulator Director General of Mine Safety (DGMS) was also consulted in this regard. The lab tests carried out at CIMFR confirmed safe disposal of fly ash without any significant safety and leaching effects. He further mentioned that the Committee would need to impress upon the industry to take up fly ash disposal concurrently with the mining operations in the running open cast mines.

5. SS (Coal) desired to know whether any such operations are being carried out anywhere in India. In response, representative of DST mentioned that only lab tests have been conducted but practical demonstration has not been carried out in operating opencast mines.

6. Representative of Central Electricity Authority (CEA) mentioned that the height of the existing ash dykes in different thermal power stations is being increased to some 10 to 15 mtrs. but no failure of the ash dump is reported. However, a study could be undertaken to address the issues raised by the representative of CMPDIL.

7. Director (Technical), MoC mentioned that the swelling factor of overburden material restricts accommodating any additional material to fill the voids in mines. Generally, the swelling factor of OB material is anywhere between 70 to 80% and it is observed that if the stripping ratio increases 1.2 cubic mtrs per tonne accommodation of additional material in voids creates problems. He further mentioned that in earlier occasions MoC has facilitated NTPC to take up some trial studies in some of the areas in coalfields to accommodate fly ash in the existing mines. However, no feedback is made available by the NTPC. He requested representative of CEA to interact with NTPC and inform the Committee about the developments in this regard. He further mentioned that any additional operations to be carried out in the mines of coal companies beyond the approved environmental permission

would need fresh consideration by MoEF particularly to dispose of fly ash in the mines from pollution load point of view.

8. Representative of Ministry of Mines mentioned that effect of leaching due to fly ash disposal is not significant in Indian conditions and we can consider filling of voids in mines with fly ash.

9. SS (Coal) suggested that unless it is tried in some of the mines no specifics can be insisted upon regarding the percentage of ash to be accommodated in the coalmines either by volume or by weight.

10. In conclusion, SS (Coal) mentioned that fly ash disposal as stowing material in underground mines, abandoned opencast mines and final voids at the end of mining operations can be considered. However, regarding disposal of fly ash in operating mines there is a need to take up this exercise in one of the operating mine in collaboration with the mining company. He directed that an update be provided by CIL on the effort carried out by NTPC with the coal company. He reiterated that any deviation from mining plan be cleared both from DGMS and Ministry of Environment and Forests before this exercise is undertaken. He took serious note of the absence of representative of DGMS, MoEF and CIMFR in the meeting. A formal letter to concerned representative may be written indicating our dissatisfaction.

11. The meeting ended with Vote of thanks to the Chair.

*****

Annexure

LIST OF PARTICIPANTS

1.	Shri Alok Perti, Special Secretary, Ministry of Coal	Chairman
2.	Shri D.N. Prasad, Director (Technical), Ministry of Coal	
3.	Shri A.K. Debnath, Director, CMPDIL, Ranchi.	
4.	Dr. Vimal Kumar, Scientist G & Head Fly Ash Unit, Department of Science & Technology	
5.	Shri A.K. Bhandari, Consultant, Ministry of Mines	
6	Shri Bibash Kumar, Chief Engineer (I/C), CEA.	

.....

F. No. 43011/102/2007-CPAM
Ministry of Coal
Govt. of India
**

Shastri Bhavan, New Delhi
February 2012

Sub: Use of Washed, Blended or Beneficiated Coal in Thermal Power Plants – meeting convened on 10th January, 2012 at 11.30 A.M. at Paryavaran Bhavan, New Delhi – reg.

*****

The undersigned is directed to refer to Ministry of Environment & Forests letters No. Q-15017/11/2011 CPW dated 17.1.2012 forwarding the minutes of the meeting and 01.2.2012 seeking comments of MoC on the minutes. Accordingly, comments of MoC are furnished below:

Point No. 5 needs to be modified in view of the current practice of GCV based grading of thermal coals saying that:

"Coals of less than 4000 Kcal/kg GCV being used for power generation should not be allowed to be transported over long distances (1000 Kms. and above) from the pitheads for the thermal power plants and for those located at critically polluted areas without washing irrespective of the inherent ash content of coal. The existing monitoring of ash content on annual average basis would not be required".

In view of the above suggested modification, Point No. 6 may be dropped.

This issues with the approval of Secretary, Ministry of Coal.

(D.N. Prasad)
Director (Technical)
Tel. No.23383356 Fax No. 23073922
Email: dirtech.moc@nic.in

Shri R.N. Jindal,
Scientist 'E',
Ministry of Environment & Forests,
Room No. 556, Paryavaran Bhavan,
CGO Complex, Lodi Road,
New Delhi – 110510
Tele-Fax No. 24366347

[illegible] PAM
Ministry of [illegible]
Govt. of [illegible]
**

Shastri Bhavan, [illegible]
Dated 8th February [illegible]

[illegible] Monitoring [illegible] with [illegible] Fly [illegible]

***

In [illegible] to MoEF's communication No. [illegible] subject, Ministry of Coal [illegible] the [illegible] Clause (i) and (ii) of Sub-paragraph 8 of the Fly Ash [illegible] and [illegible] discussed in detail in the meeting of the Expert Committee to guide and advise on disposal of fly ash along with OB material held on 18.07.[illegible] of the minutes [illegible] view of the practical difficulties from safety point of view of the operations of coal mines and need for [illegible] from environmental management point of view, the compliance of the recommendations is found to be [illegible] Thus the provisions need a complete review. Till such time, implementation of these provisions in mining plans may be kept in abeyance.

It may further be noted that the representative of Ministry of Coal brought the above to the notice of the Chair during the discussions held on 20 December, 2011 but the same was not recorded in the minutes.

This issues with the approval of the Secretary, Ministry of Coal.

([illegible])
Under Secretary to the Govt. of India

Ministry of Environment & Forests
Dr. [illegible]
Director
Room No. 914, Paryavaran Bhawan,
CGO Complex, Lodhi Road
New Delhi – 110003
Telefax No. [illegible]

सही प्रति
True Copy

NO.43011/102/2007-CPAM
Government of India
Ministry of Coal

New Delhi, the 19th July, 2016

OFFICE MEMORANDUM

Subject: Order of NGT, Bhopal in OA 55 of 2015 regarding use of fly ash as stowing material

The undersigned is directed to refer to MoEF's letter No. 11-4/2013-HSMD, dated 23rd December, 2015 on the above cited subject and to enclose herewith a copy of report on Utilization of Fly Ash in Coal Mines (UFAIC) received from CMPDI for taking further necessary action.

Encl: As above.

(I.P Nagpal)
Under Secretary to the Govt. of India

OFFICE COPY

To

Secretary,
(Smt. Shri Sanchita Jindal, Director)
Ministry of Environment, Forests and Climate Change,
Indira Paryavaran Bhawan,
Jor Bagh Road, New Delhi-110003.

UTILISATION OF FLY ASH IN COAL MINES (UG/OC)

JUNE 2016

1. Introduction

Coal is likely to remain the main fuel source for the domestic energy market in India over the next few decades. Indian coal is of low calorific value and high ash content. The thermal power plants in India using domestic coal supply consumes about 0.7 kg of coal to generate one kWh of energy, whereas United States thermal power plants consume about 0.45 kg of coal per kWh. Low grade Indian coal is having ash content up to 40%.

Fly ash is one of the byproduct generated in combustion of coal. Fly ash along with bottom ash is known as 'coal ash' and is generally captured from the chimneys of coal-fired power plants and from the bottom of the boiler. Depending upon the source and geological formation of the coal being burned, components of fly ash vary considerably. The progressive ash generation at coal/lignite based thermal power stations and its utilization for the period from 1994 to 2014-15 as per data collected from Fly Ash Unit (FAU), Department of Science & Technology (DST) and other sources is given in Table-1 below:

Table-1: Fly ash generation and utilization in India

Sl. No.	Year	Fly Ash Generation (mtpa)	Fly Ash Utilization (mtpa)	Percentage Utilization
1	1994-95	40	1	**2.5**
2	2008-09	160	80	**50**
3	2011-12	220	110	**50**
4	2014-15	230	130	**57**

As per the developed countries scenario the fly ash is being used as a basic raw material for construction of road and building and to some extent void filling work. The worldwide production of coal combustion products (consisting of fly ash, bottom ash, FGD gypsum) for the year 2010 is given below in Table 2. The largest coal combustion products generating country was China (395 MT). The percentage of utilization is almost 90-100% in countries like Japan, Europe.

Table-2: Coal Ash Utilization–International Scenario

Country	Total Ash Production (MTY*)	Ash Utilization (MTY)	Utilization in % of production
Australia	13.1	6	45.80
Canada	6.8	2.3	33.82
China	395	265	67.09
Europe	52.6	47.8	90.87
Japan	11.1	10.7	96.40
Middle East & Africa	32.2	3.4	10.56
United States of America	118	49.7	42.12
Other Asia	16.7	11.1	66.47
Russian Federation	26.6	5	18.80

Source: Published in 2013 World of Coal Ash Conference, "Coal Combustion Production: A global Perspective", Craig Hedrich, Hans Jaochim Feuerborn, Anne Wier,

The fly ash generation in India is second highest in the world. Despite fly ash being used a raw material for cement industry as well as a building material the problem of unutilized fly ash is a serious environment problem.

2. Background

In the meeting of the Central Monitoring Committee on Implementation of Fly Ash utilization held on 18.06.2014, it was decided that "**Ministry of Coal through its expert Committee or by involving any other agency such as CMPDI, will examine the issues of use of fly ash as stowing material in operating mines and will suggest the way forward for consideration of Ministry of Environment and Forest" (Annexure I).**

Further to the above, Ministry of Environment & Forest (MoEF) in reference to the order of Hon'ble National Green Tribunal (NGT), Bhopal dated 5th November, 2015 in OA 95 of 2015 **(Annexure II)** regarding disposal of fly ash especially through mine backfilling, directed Ministry of Coal (MoC) to provide the action taken on this issue at the earliest so that they could file a reply before Hon'ble NGT in time.

The draft report on the subject matter was submitted by CMPDI to MoC on 28th December, 2015. This draft report was further supplemented on 4th April, 2016 and 8th April, 2016 and MoC was requested for their comments so that it could be incorporated in the final report.

3. Scope of work

The above matter was considered in the hearing of Hon'ble NGT Bhopal on 4th April 2016 and CMPDI requested for some more time to submit the final report. The request was agreed by the Hon'ble NGT.

Accordingly, a four member committee was constituted in CMPDI and the committee examined the following:-

- Statutory requirements for backfilling of fly ash in coal mine voids
- Studies carried out for fly ash utilization in coal mines by different agencies including CMPDI .
- Operational, safety & environmental issues of stowing / backfilling of fly ash in coal mines
- Operating as well as abandoned mines were considered for further study

Based on the above, the committee has formulated this report for submission to MoC.

4. Chronology of events

a. Meeting of the Central Monitoring Committee on implementation of Fly Ash utilization held on 18.06.2014. Minutes of meeting is enclosed as Annexure-I.

b. Point No. 11 of the Minutes of the meeting (as above) states " "The representatives of the Ministry of Coal submitted that as per the provisions of the notification, they have constituted the Expert Committee to guide and advise the backfilling or stowing of mine by utilizing fly ash. The issues had been discussed by the Expert Committee of the Ministry of Coal. It has been agreed that fly ash disposal as stowing material in underground mines, abandoned opencast mines and final voids at the end of mining operation can be considered. The Ministry of Coal has written to MoEF that in view of practical difficulties from safety point of

view, specifically in operational mines, it is not practically possible for mixing fly ash with external OB dumps and then back filling of operating mines. Thus, provisions in the notification need a complete review. Till such time, incorporation of these provisions in mining plans may be kept in abeyance. It was decided that the Ministry of Coal will get the issue examined through appropriate agencies such as Central Mine Planning and Design Institute and the Expert Committee. The MoC will forward the outcome for consideration of the MoEF. The proposed exercise may be completed by MOC within a period six months".

c. The minutes were forwarded by MoEF to MoC vide letter no. 9-8/2005-HSMD dated 31st July 2014. The following decision was taken with respect to fly ash utilization in coal mining industry –

"**Ministry of Coal through its expert Committee or by involving any other agency such as CMPDI will examine the issues of use of fly ash as stowing material in operating mines and will suggest the way forward for consideration of the Ministry of Environment and Forests within a period of six months**".

d. Vide letter no. 43011/102/2007-CPAM dated 16th September 2014 CMPDI was requested by MoC to examine the issue of use of fly ash as stowing material in operating mines and to suggest the way forward for consideration of MoEF within a period of six months.

e. MoEF, vide letter no. No.11-4/2013-HSMD dt. 23rd December 2015, in reference to the order of Hon'ble NGT, Bhopal dated 5th November, 2015 in OA 95 of 2015 requested MoC to submit the said report **(Annexure – III).**

f. CMPDI submitted a draft report to Director (Tech.), MoC in this regard and further revised the same and sent it by mail on 28thDecember 2015 to MoC. The draft report was further supplemented on 4th April, 2016 and 8th April, 2016. Further, MoC was requested for their comments so that it could be incorporated in the final report.

h. NGT (CZ), Bhopal order dated 4th April 2016, wherein CMPDI has been given two months' time to complete the said report and be present on 4th July 2016. **(Annexure–IV).**

5. Conventional Approach in Backfilling of voids in mines

a. Underground mines

In underground mines, extraction of coal is carried out by mining methods involving either

- Caving, wherein overlying strata is allowed to cave and fill-in voids created due to extraction ; or
- Stowing or backfilling the voids so created.

Primarily, mining methods with caving is adopted for extraction of coal in underground mines while mining methods with stowing or backfilling is adopted only in certain specific conditions, such as -

- Constraints on surface; in such cases damages to surface features are to be protected by minimizing subsidence;

- Problems in extraction of coal due to complex geo-mining conditions, like multiple seams/working in contiguity or proximity, thick seams with multi-section workings, disturbances due to overlying mine workings, steep seams etc.

Stowing or backfilling is generally carried out keeping in view conservation of coal. Stowing or backfilling operation in underground mines is non-productive and is an additional operation in the coal extraction process. Difficulties in stowing or backfilling may create hindrances in the normal mining operations as it falls in the process cycle of underground mining operation, thereby affecting profitability & viability of the underground mines.

Hence, very limited number of underground mines exists (or may be available) where extraction of coal is planned or carried out by adopting stowing or backfilling. This is also reflected in total sand stowing which has been carried in underground mines (as approved by CCDA) of different subsidiaries of CIL during the three financial years 2013-14, 2014-15 and 2015-16 as under:

Company	Quantity of sand approved by CCDA (in million m^3)		
	2013-14	2014-15	2015-16
CIL	3.015	3.059	2.848

(*Data provided by Coal Controller office, Kolkata*)

Characteristic of stowing or backfilling material has direct bearing on coal production process by underground mining methods, thereby affects production, productivity and overall economics of the mine. Hence, it is necessary that material selected for stowing or backfilling in underground coal mines has requisite properties. DGMS has imposed restriction on use of fly ash with particle size less than 53 µm (Copy of the permission for use of 'bottom ash' is enclosed as **Annexure-V**).

Generally, river sand is used for stowing in underground mines. Its suitability has been established in stowing/backfilling in underground coal mines. Processes for stowing with sand has been standardized and adopted in underground coal mines. Stowing operation involves additional cost. A part of the cost incurred on the stowing or backfilling with sand is reimbursed by CCDA.

Abandoned underground mines:
In abandoned underground mines where final extraction has been completed with caving, the voids generally gets filled-up with broken overlying rocks due to increase in its volume. The internal spaces within the broken rock, generally gets filled up water.

In case of abandoned or discontinued mines where final extraction (depillaring or pillar extraction) has not been completed, backfilling may not feasible as coal reserve locked in pillars may be lost forever. Further, if such underground workings are left abandoned or discontinued for the longer periods, it may also get filled-up with water.

In the limited voids that may be available in abandoned mines, generally filled with water, blind backfilling, i.e. filling up the stowing material in the inaccessible UG mine from surface, or stowing would be very difficult.

Nowadays, water locked-up in abandoned underground mines act as reservoirs, which are being used for water supply to surrounding residential colonies and other nearby villages. This is done under the instruction of the MoC in view of water crisis in the nearby areas.

b. Opencast mines

In opencast mining, handling of overburden (OB) is considered the most important activity requiring very careful and elaborate planning. The purpose is to reduce land requirement for external dumping of overburden and accommodate maximum overburden in internal dumps. There are also restrictions on maximum dump height, i.e. up to 90 m or three decks of 30 m each above surface level. The overall working slope is kept at approximately 24-26 degrees, that is further flattened while reclamation at the end of the mine life. In many steeper seams (steeper than 1 in 6 to 1 in 7 gradient) simultaneous internal dumping is not recommended at all. Additionally, many other geo-technical parameters are considered for handling of overburden.

During mining operations, as the active coal face advances beyond a distance of 100-150m, the internal overburden dump benches are also advanced, maintaining recommended bench dimensions.

For external dumping, OB decks of recommended height are made on top of each other. Ramps are provided on the decks for transporting OB from mine faces to dumps.

6. Statutory requirements for using fly ash in mine voids

The notification S.O.2804 (E), dated 3rd November, 2009, issued by MoEF, is particularly related to the utilization of fly ash in various sectors. The relevant extracts related to mining sector are as under:

8(i) ***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).***

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of fly ash as may be decided by the expert committee referred in sub-paragraph (10) for this purpose.

8(ii) ***No person or agency shall within fifty kilometers (by road) from coal or lignite based thermal power plants, undertake or approve without using at least 25% of fly 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).***

The notification also spells out that –

(10) ***The Ministry of Coal for this purpose shall constitute and expert committee comprising of representatives from Fly Ash Unit, Department of Science and Technology, Ministry of Science and Technology, Director***

General of Mines Safety (DGMS), Central Mine Planning and Design Institute Limited (CMPDIL), Ministry of Environment and Forests, Ministry of Power, Ministry of Mines and the central Institute of Mining and Fuel Research (CIMFR), Dhanbad; the committee shall also guide and advise the backfilling or stowing in accordance with the provisions contained in sub-paragraphs (8) (i), 8(ii) and (9), and specifications and guidelines laid down by the concerned authorities as mentioned in sub-paragraph (1) of paragraph 3.

7. Studies carried out on backfilling of mine voids

Several studies have been carried out on issues related to fly ash utilization. Some of the relevant studies related to coal mining sector were examined. The conclusions/ recommendations/ constraints mentioned in these reports are given as under:

a. Coal S&T project funded by MoC "Characterization and Leaching Studies of Indian Fly Ashes for Evaluation of their Stability as Mine Fill Material" carried out by CIMFR, Dhanbad (2001-2004).

The **conclusions / recommendation** of the above report is as under (page - 93 & 94 of the said S&T report)

- The percentage determination of the major components present in Ramagundam and Chandrapura ash revealed that both the ashes belong to class-F category because calcium oxide content present in these ashes is less than 10%.
- From the batching leaching experiment, it has been seen that leachates produced from Ramagundam fly ash contained maximum concentration of dissolved solids. Chandrapura fly ash showed high concentration of fluoride and manganese in it, more than the drinking water standard. Chromium, in fly ash leachate of Ramagundam, has been found more than in drinking water standard. The leachates of bottom ash, pond ash and weathered ash of Ramagundam and Chandrapura have not shown any pollutant at high concentration level.
- Effect of pH on leaching behaviour of pond ash of Ramagundam and Chandrapura revealed that dissolution of heavy metals from coal ash surfaces, in aqueous solution follows a predictable pattern of decreasing release with increasing pH, except chromium. At lower pH of 2, high concentrations of all the heavy metals are released from the ash surface.
- The total metal content determination in fly ash, bottom ash, pond ash and weathered ash of Ramagundam and Chandrapura showed that iron is the major component in each type of ash, whereas cadmium is present in least concentration.
- The three major size fractions of pond ash of Ramagundam and Chandrapura indicated that almost all the fractions have similar type of leaching behaviour and amount of pollutants released shown similar concentrations.
- Open column percolation leaching experiment carried out on fly ash, bottom ash, pond ash and weathered ash of Ramagundam and bottom ash, pond ash and weathered ash of Chandrapura showed that in all the experiments, in the beginning higher concentrations of total dissolved solids, total hardness, calcium, magnesium, chloride, sulphate, fluoride and potassium were released but gradually after passing few pore volume of water through the column substantial decrease in the concentrations of all parameters have been observed.

- Release of heavy metals through open column percolation experiment showed irregular pattern of concentration. At a few occasions, a few of the heavy metals showed higher level of their release in the leachates, otherwise in overall experiment very less concentrations of heavy metals were released.
- ASTM column leaching experiment conducted on pond ash of Chandrapura and Ramagundam also showed the similar pattern of leaching behavior as it has been seen in open column percolation experiment.
- Physical properties determination of fly ash, bottom ash, pond ash and weathered ash of Ramagundam and Chanrdapura revealed that the bottom ash of Ramagundam showed good settling characteristics and also its specific gravity is also quite less as compare to sand. Physically bottom ash of Ramagundam is better than the fly ash and pond ash, if it is used for underground mine fill. All the ashes of Chandrapura are not very favourable for underground mine stowing as they have poor settling rate and very less compressive strength. For filling of abandoned opencast mine, the physical properties of all ashes are not very important, hence all the ashes of Ramagundam and Chandrapura are physically suitable for abandoned opencast mine filling.
- Field investigation of ground water quality evaluation at ash filled Damoda abandoned open cast mine revealed that fluoride and manganese concentration resemble with the leachates characteristics of batch leaching. Monthly evaluation of ground water quality also revealed that in the initial month's fluoride concentration has been found very high as compare to its prescribed limits but gradually its concentration has been found to decrease in later months. Concentration of manganese has also been found to a very high level than its prescribed limits, throughout the investigation period.
- It has been predicted that like concentrations of all parameters in long term leaching experiment carried out in columns of different ashes of Chandrapura, the concentrations of all parameters including fluoride and manganese will also decrease to the acceptable level as the time pass.
- Effect of ground water quality beneath the ash filled zone has a little effect on ground water quality at the periphery of the ash filled zone but no effect on ground water quality ½ km away from the ash filled zone. The villagers of that area, for drinking purpose, are using this ground water. This ground water has not shown any parameters including heavy metals at alarming concentrations.

Recommendations

- Fresh fly ash of Ramagundam should not be used as underground mine filling material as it contributes to high concentration of chromium in its leachates.
- Pond ash, bottom ash and weathered ash of Ramagundam are suitable for underground mine filling as they do not show any pollutant at alarming level in their leachates.
- Physically bottom ash of Ramagundam is better than pond ash and weathered ash, if it is used for underground mine filling.
- Fly ash, bottom ash, pond ash and weathered ash of Chandrapura should be avoided as underground mine filling material because of their poor physical properties.
- All the ashes of Chandrapura can be used for opencast mine filling. The filling should be done in those abandoned open cast mines, which are away from the human habitat area and sources of drinking water.

b. Coal S&T project funded by MoC "Fly Ash Characterization for Mine Void Reclamation" carried out by CMPDI, Ranchi (2003-2011).

The **conclusion / recommendation** of the above report is as under (page - 123 of the said S&T report)

- Elemental concentrations obtained through Mine Water Leaching Procedure (MWLP) are unlikely to reflect actual field concentrations as it will also be influenced by the method of Coal Combustion Byproduct (CCB) placement, its hydraulic conductivity, the ability of the surrounding mine spoil / ground strata to sequester toxic elements, adjacent ground water quality, and gradients.
- In view of the above mine specific studies are to be carried out before fly ash from a particular Thermal Power Station is backfilled into a particular mine because of the likely change in the characteristics of fly ash and mine water due to the passage of time.
- MWLP is expected to provide an important component of the overall risk assessment picture.
- The concentration of Mn, Cu have found to be in excess of Drinking water standard and as such the backfilling of fly ash of Amarkantak TPS should be avoided to be placed in Mine Void of Amlai OC and similarly fly ash of Ib TPS should be avoided to be placed in Belpahar OC and that of Talchar TPS should be avoided to be placed in Jagannath OC and in Ananta OC.
- Since Cr is also found to be higher in leachate samples on carrying out Mine Water Leaching Procedure (MWLP) when compared to the effluent standard (0.2 ppm), fly ash from Chandrapura TPS should be avoided to be placed in Madhuban OC, Bokaro TPS in Bokaro OC, Patratu TPS in Sayal 'D' OC, Tenughat TPS in SwangOC, Korba TPS in Manikpur OC, Amarkantak TPS in Dhanpuri OC & Sharda OC, Singrauli STPS in Jhingurdha OC & Bina OC and Ib TPS in Lilari OC.
- Further investigations can be carried out with mine water from other nearby mines so that if suitable fly ash backfilling can be carried out in those mines.
- Placement of fly ash in acidic mines should be avoided as far as possible.
- Ground water quality monitoring in terms of Drinking Water Standard is also to be carried out to observe the building up of the metal concentration in long run.

c. DST project funded by MoC "Fly Ash Characterization for Mine Void Reclamation" carried out by CMPDI, Ranchi (2003-2011).

The constraints as described in the above report is as under (page - 64 & 65 of the said DST report)

Constraints

The DST report details the constraints and bottleneck for utilization of fly ash in Mining Sector. In spite of R&D work already carried out by Ministry of Coal and other Government Agencies, there is no mass scale application of fly ash in mining sector. There are many technical, economic, environmental, and regulatory barriers to increased use of Fly Ash in mining sector, which have been summarized below:

Technical Barriers

1. Quality of fly ash: Quality of fly ash in terms of its size (whether larger than 53 micron or smaller) is important for its greater utilization in mining sector. Delivering fly ash with desired fineness needs extra care and investment to which TPS owners are generally reluctant as there is no incentive for them in doing so.
2. Technological Limitations: Medium Concentration Slurry Disposal (MCSD) and High Concentration Slurry Disposal (HCSD) of fly ash and the methodology of backfilling of mine with fly ash mixing with OB in opencast mines are not known. The methodology of stowing of fly ash in underground mines is also not yet established.

Economic Barriers

1. Transportation Cost: One of the most important financial barrier is the associated transportation cost of fly ash, these costs have restricted the use of fly ash inspite of policy mandating its free dispatch by power plants. Cost of fly Ash for mine backfilling is a direct function of cost of transportation increasing with the distance between power plants and abandoned mines limiting the shipment of fly ash.
2. Cost of handling Fly ash: Investment involved in handling of fly ash often pose a hindrance in its utilization in mining sector.

Environmental Barriers

1. Leachate Pollution: Chemically fly ash consists of Si, Al, Mg, Ca, K, Ti and Fe in greater proportion with many trace elements as V, Mn, Cr, Cu, Ni, As, Pb, Cd and smaller quantity of various potential toxic elements, that can migrate to soil and subsequently to ground water over a period of time, thus deteoriating the quality of ground water.

Regulatory Barriers

1. Lack of monitoring institutions/ mechanism for implementation of policy: There is a need for government agencies or committees to act as monitoring institutions for implementation of policy for increasing fly ash utilization.
2. Lack of directions, guidelines by regulatory bodies for safer utilization of fly ash in mining sector.

Other barriers

1. Unwillingness of mine owner due to operational difficulties: There are adequate numbers of abandoned coal mines but owners are not willing to dump the fly ash as the OC operation will be further carried out in the near future. The present scenario should be considered for Technological Assessment and Forecasting the viable and feasible option for enhancing the fly ash utilization in mining sector.
2. Mismatch between life of TPS and life of mines: There is a mismatch between life of a power plant and life of a mine which often pose as a barrier for mine backfilling on a continuous basis.
3. Problem in concurrent fly ash backfilling: Concurrent Fly-ash dumping during mining operation is not possible due to following reasons:-

    - Fly-ash will make the dump floor slippery in contact with water. It will hamper the stability of internal dump.

- In case of dragline dumping, fly-ash will put extra surcharge load on newly formed dragline dump.
- Fly-ash carrying trucks will cause hindrance to movement of dumper carrying both O.B and Coal.
- Thorough mixing of fly-ash and O.B dump material is not all possible in the opencast coal mining.
- There is scarcity of land for O.B dumping in almost all the opencast coal mines of CIL, as most of the opencast mines are having stripping ratio of more than 1 and as high as 7 and further dumping of fly-ash is not possible during mining operation in opencast coal mines of CIL.
- Fly-ash dumping can be possible only on top of shovel-dumper dumps when there will be no further dumping on these dumps.

However these operational and safety issues can be overcome in case of captive mines (barring dragline dumping) as being done in M/s JSPL, Raigarh, where administrative control is one for mining activity as well power production so that the backfilling is done under strict supervision.

8. Operational, Safety & Environmental issues of backfilling fly ash in mine voids

I. Operational and Safety Issues

A. In Underground Mines

Stowing of fly ash is a potential safety hazard in underground coal mines as the water - fly ash slurry exerts hydrostatic pressure on the barricades and failure of these barricades due to this pressure is a big safety threat. Stowing of fly ash on experimental basis has been tried in PK-1 (Prakasham Khani) colliery and GDK 6A of SCCL and at least two instances of failure of barricades were reported there in. Subsequently, 'Directorate General of Mine Safety' (DGMS), which is a regulatory authority for monitoring the safety of mines, has imposed restrictions on using fly ash as stowing material. In a permission granted by DGMS for depillaring (i.e. final extraction of coal) in conjunction with stowing with fly ash, a condition has been imposed for using fly ash having particle size more than 53 µm (Annexure-V).

In the total fly ash generated, percentage of fly ash particles having size more than 53µm is only 20% (approximately). So, even if expensive hydro-cyclone is used for concentrating the fly ash, a very small percentage of fly ash will be available for stowing in underground coal mines.

Other than safety issues discussed above, there are operational problems which are a big deterrents in using fly ash as a stowing material.

Two major coal producer in public sector, namely, Coal India Limited as well as Singareni Colliery Company Limited have tried to use fly ash as stowing material for underground coal mines. Their experience are as under:

(i) **Coal India Limited (CIL)**

- High concentration of fly ash stowing was tried at Madhuban Colliery, BCCL. The project was started in January, 2002 by BCCL and as it could not be completed despite their efforts by M/s BCCL

as well as M/s CIMFR and the project was terminated by CIL, R & D Board in 2010 due to operational problems.

- As per the case study for using fly ash in Durgapur-Rayatwari Colliery of WCL, it was found that "After working in various phases it can be concluded that pond ash/ fly ash with high percentage of fines may be used without any problem if it is mixed with some granular material like sand in such a proportion that ultimate percentage of fines in the ash-sand mixture comes down to maximum 2 to 3 percent only.

(ii) Singareni Collieries Companies Limited (SCCL)

- In SCCL it was tried in GDK No. 2, 3 and No. 5 between 1998 and 1999. The experience of SCCL, as par the report "Fly ash stowing in underground mine in India and abroad – SCCL (April, 2002), are as under:
- Damage of barricades due to hydrostatic pressure.
- Generation of dust and more settling time.
- Accumulation of fly ash in underground sump.
- Contamination of mine water which is being used as a source of water supply for colonies as well as near-by areas, and
- Degradation of coal quality due to leakage of fly ash through barricades into working panels and choking of surface filters beds.
- Due to above reason, it cannot be recommended to use fly ash without some major technical break-through into underground coal mines.

B. In Open-Cast Mines

In case of opencast mines, overburden material swells upto 20% due to blasting or fracturing. Hence in most of the opencast mines, despite provision of internal dumping, substantial volume of overburden is required to be dumped externally. Dumping of overburden outside the mine is not at all environment friendly as it sterilizes precious land resource that can be gainfully utilized for other purposes. To accommodate 25% fly ash in external OB dumps, outside land requirement will further increase.

Secondly, for internal dumps, additional 25% ash on upper benches of overburden dump will raise total planned height of the dump beyond allowable limit. That will again necessitate acquiring additional land for external dumping.

In case of abandoned mines with lower stripping ratios, the remaining voids are used to accommodate the external dump of adjacent mines or as a water reservoir or for other purposes. In many cases opencast coal mines are being planned for expansion and it is not advisable to dump fly ash and close the void.

In operating opencast mines, fly ash will be required to be dumped in dry form in separate layers or by mixing with OB while dumping. Both these processes would require elaborate and complex scheduling of various activities/ equipment, hampering mine production and creating unsafe conditions owing to high equipment density in limited space of mine operations.

Concurrent fly-ash dumping during mining operation is also not recommended due to following additional reasons:

- Fly-ash will make the dump floor slippery in contact with water resulting in unstable internal dump.
- Mixing of overburden and fly ash is difficult while in operations due to huge volumes involved and non-availability of any technology to carry out such operations. Further it will adversely affect mine functioning.

Coal India Limited has already given abandoned South Balanda OC mine of MCL for fly ash backfilling.

II. Environmental issues due to Leaching on aquifer

Leaching Analysis of Fly ash from the following power plants was carried out in the Env. Lab of CMPDI(HQ) uncer a S&T project "Fly Ash Characterization for Mine Void Reclamation" with the mine water of coal mines having potential for fly ash backfilling.

Sl. No.	Related Identified TPS	Mine Void for dumping fly ash
1	Chandrapura TPS, DVC	Madhuban, BCCL
2	Bokaro TPS , DVC	Bokaro OC, CCL
3	Patratu TPS, JSEB	Sayal 'D' OC, CCL
4	Tenughat TPS, TenughatVidhyut Nigam	Swang OC, CCL
5	Korba STPS, NTPC	Manikpur OC, SECL
6	Amarkantak TPS, MPEB	Dhanpuri OC, SECL
		Sharda OC, SECL
		Amlai OC, SECL
7	Singrauli Super TPS, NTPC	Jhingurda OC, NCL
		Bina OC, NCL
8	Ib TPS, OPGC	Lilari OC
		Belpahar OC
9	Talcher TPS, NTPC	Jagannath OC
		Ananta OC

Based on the leaching study the following may be inferred

- Mine specific studies are to be carried out before fly ash from a particular Thermal Power Station is backfilled into a particular mine because of the likely change in the characteristics of fly ash and mine water due to the passage of time.
- Mine Water Leaching Procedure is expected to provide an important component of the overall risk assessment picture.
- Placement of fly ash in acidic mines will have detrimental effect of leaching out of trace elements.
- Long term leaching studies are to be carried out to get a true picture

Details of the study along with the literature on metal composition of fly ash and leaching characteristics is also attached as **Annexure VI**.

9. Views of Expert Appraisal Committee (EAC) on stowing / backfilling of fly ash in coal mines

A. Minutes of 39th Expert Appraisal Committee (EAC) (Thermal & Coal Mining Meeting held on 3rd & 4th January 2012 in Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi on the issue of use of fly ash in coal mines "The committee decided to further consider the project upon receipt of the aforesaid details. The Committee also decided that the Central Pollution Control Board may bring out a Technical Guidance Document/ Manual for various uses of fly ash and disposal by dumping in coal mine voids. The Manual may address the environmental issues, the environmental issues that would require to be addressed and an environmental management plan which includes the technologies and methodologies for the environmental assessment "short-term and long-term" use of fly ash for dumping in decoaled voids and for other uses vis-à-vis MOEF Notification on Flyash"**(Annexure VII)**.

B. Minutes of 34th meeting of the Re-constituted Expert Appraisal Committee on environmental impact assessment of thermal power and coal Mining Porjects held on 29th & 30th April 2015 in Paryavaran Bhavan, Jor Bagh, New Delhi on the issue of use of fly ash in coal mines **(Annexure VIII)** also specifies that the sheer volume of fly ash make it hazardous and there is all possibility of heavy metals leaching into ground water.

C. In the recent environmental clearance of Cluster 1, 9 and 10 of ECL, EAC has prohibited use of fly ash in coal mine filling. The environment clearance of Cluster 1, ECL is attached as **Annexure IX**.

10. Conclusions

Underground mines

- The volume of void is difficult to estimate in the depillared (de-coaled) area. Moreover, these are generally filled with water. Such water filled underground voids are being used as a water resource for irrigation and domestic use.

- Stowing is adopted in only limited number of mines where there is surface and other constraints as it severely affects production and productivity of the mine.

- The Operational/ safety issues have been highlighted in this report for running/operating mines. DGMS has imposed restriction on using fly ash having size less than 53 micron, which is only about 20% (bottom ash) of the total ash generated.

Opencast coal mines

- In most of the cases, dump space is insufficient to accommodate additional quantities owing to swelling of overburden material while mining. Due to swelling, external dump is needed which consumes extra land resource. If fly ash is added additional land will be required for external dumping as total volume of dumping material will substantially increase. This is also true if fly ash is accommodated in internal dumping. That is undesirable.

- In operating mines, it is very difficult to mix fly ash with external overburden dumps and also in internal dump while back filling the de-coaled area. Fly ash mixing processes would require elaborate and complex scheduling of various activities, adversely affecting mine production. The practice will also create unsafe conditions owing to high equipment density in limited space.

- Operational difficulties will be encountered with safety issues during heavy rains with slippery roads and sliding of dump benches owing to fly ash.

- In case of abandoned opencast mines with low strip ratio, the remaining voids are generally used to accommodate the external dump of adjacent mines or as a water reservoir.

- In many cases opencast coal mines are being planned for expansion in the dip side and it is not advisable to dump fly ash and close the void completely.

- Dumping of fly ash may be planned on case by case study basis in an abandoned opencast mine.

Environmental Issues

- EAC has desired that leaching studies of fly ash dumped over a long period is to be carried out thus long term leaching studies need to be done to establish the absence / presence of trace elements which can leach out in the ground water when fly ash is backfilled / stowed in a coal mine. Moreover, mine specific leachate studies are to be carried out before fly ash from a particular Thermal Power Station is backfilled into a particular mine because of the likely changes in the characteristics of fly ash and mine water due to the passage of time.

LIST OF ANNEXURES

Annexure I : Minutes of meeting of the Central Monitoring Committee on Implementation of Fly Ash utilization held on 18.06.2014.

Annexure II : O.A no. 95 dated 5th November 2015, order issued by NGT (CZ) regarding suggestion of methods by which backfilling of fly ash can be done in abandoned mines.

Annexure III : Letter no. 43011-102-2007-CPAM-Vol-II of MoC to CMPDI and Letter no.11-4/2013-HSMD dated 23rd December 2015 of MoEF to MoC to submit the said report.

Annexure IV : Order of NGT (CZ), Bhopal order dated 4th April 2016, wherein CMPDI has been given two months' time to complete the said report and be present on 4th July 2016

Annexure V : Copy of permission of given by DGMS for depillaring in conjunction within hydraulic sand stowing for a coal mine of SCCL – modification for usage of "Bottom Ash" instead of sand as stowing material – extension thereof.

Annexure VI : Details of the study along with the Literature on metal composition of fly ash and leaching characteristics

Annexure VII : Minutes of 39th Expert Appraisal Committee (EAC) (Thermal & Coal Mining Meeting held on 3rd & 4th January 2012

Annexure VIII : Minutes of 34th meeting of the Re-constituted Expert Appraisal Committee on EIA of thermal power and coal Mining Projects held on 29th & 30th April 2015

Annexure IX : Environment Clearance Letter No. J-11015/78/2011-IA-II.(M) dated 16th January 2015 of Cluster 1 group of 11 mines

149

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Annexure – I

Minutes of Meeting of the Monitoring Committee to monitor the implementation of the provisions of the notification on Fly Ash Utilization-regarding

A meeting of the Monitoring Committee to discuss various issues relating to the implementation of notification on utilization of fly ash, namely; generation of fly ash, gainful utilization of fly ash and environmentally sound disposal of fly ash was held on 18.06.2014 under the Chairmanship of Shri Shashi Shekhar, Additional Secretary, Ministry of Environment and Forests. The list of participants of the meeting is Annexed.

2. The Chairman welcomed all participants and mentioned that the Ministry of Environment and Forests (MoEF) has issued notification dated 14th September, 1999, as amended, on utilization fly ash generated from coal or lignite based power plants. The notification, inter-alia, provides for utilization of fly ash based products in construction of buildings within a radius of hundred kilometers from a coal or lignite based thermal power plant by every construction agency. The agencies undertaking construction of roads or fly over bridges, reclamation and compaction of low lying areas are also required to use fly ash. The fly ash is required to be used in backfilling or stowing of the mines also. The thermal power plants in operation before 03.11.2009 are required to utilize 100% of the fly ash generated within a period of four years from the date of the second amendment notification. The plants commissioned after 03.11.2009 are required to achieve the target of 100% utilization within a period of five years from the date of their commissioning. However, based on the information from Central Electricity Authority (CEA) for the year 2012-13 for 138 power plants, the overall utilization of Fly Ash was only about 61.37% of the total fly ash generated in the country. The Chairman has stressed that all stakeholders need to emphasis to maximum the utilization of fly ash. He further stressed that fly ash could be gainfully utilized on road construction. He requested the representatives of National Highways Authority of India (NHAI) to present the updated status of action taken by them to comply with provisions of the notification.

3. The representative of NHAI informed that they are prescribing the use of fly ash and fly ash based products in their tender documents, schedules of specifications and construction applications. Shri V. Upadhaya, Director (IA), MoEF informed that there were instances of non-compliance by the contractors of NHAI involved in construction of roads in the State of Orissa. NHAI was requested to ensure strict compliance to the notification of the fly ash by their contractors. The NHAI must include the relevant provisions of the notification as one the conditions, while granting contracts for road construction projects.

4. The Chairman informed that one of the objectives of the notification is to protect top soil layer so as to maintain and enhance the agriculture yield in the country and asked NHAI to furnish its views on proposal to modify conditions for using fly ash/ fly ash based products in road construction projects by increasing the prescribed distance of 100 kilometer to 300 kilometer. The paradigm to evaluate the aforesaid proposal should be economic analysis instead of financial analysis since the later is related to the benefits and costs for individual road laying projects. He requested NHAI to conduct a study to evaluate the proposal of increasing the distance by considering the benefits and costs for the whole economy of the country. In response NHAI was of the opinion that this will increase the cost of road construction projects. The NHAI further suggested that Central Road Research Institute (CRRI) may carry out a study to evaluate the techno-economic viability of such proposal. Representative from Indian Road Congress submitted that the evaluation study should include life cycle assessment of the road construction projects. It was decided that MoEF will request NHAI and CRRI to conduct a study for evaluating the proposal of modifying end point distance prescribed for utilization of fly ash in road construction projects by increasing the prescribed distance from 100 to 300 kilometers.

5. The representative of NHAI further submitted that information regarding availability of fly ash in the country is not available with them. He requested MoEF for the information; State-/UT-wise, regarding availability of fly ash in various parts of the country. The representative of Central Electricity Authority (CEA) informed that such information is available in their report titled 'Fly Ash Generation at Coal or Lignite based Thermal Power Station and its Utilization in the Country' for the year 2011-12 and 2012-13. The report, inter-alia, provides summary of fly ash generation and utilization, plant wise and state wise data related to fly ash generation and utilization in the country, etc. The report is available on the website of CEA. The information regarding fly ash generation and utilization for the year 2013-14 is being compiled by CEA. The NHAI and Central Public Works Department (CPWD) were requested to procure the information regarding the locations of power plants, generation and utilization of fly ash from CEA and to ensure strict compliance to provisions of the notification in projects being undertaken by them.

6. The representatives from CPWD informed that they are prescribing the use of fly ash and fly ash based products in tender documents issued by them. However, the fly ash bricks available in the market do not conform to the prescribed standards. Fly ash bricks absorb more moisture than that of the limits prescribed by the Bureau of India standards (BIS). The use of sub-standard fly ash bricks can substantially increase the risk of development of cracks in buildings. CPWD was requested to inform the Ministry of Environment and Forests about technical difficulties being faced by them in implementations of the notification.

7. The representative of BIS informed that it has published Standards on fly ash, namely IS 3812 (Fly ash for use of pozzolana and admixture), IS 6491 (Method of sampling fly ash), IS 10153 (Guidelines for Utilization and Disposal of Fly Ash) and IS 13757 (Burnt clay fly ash building bricks). Indian Road Congress (IRC) has published the codes, namely IRC: 60-1976 Tentative Guidelines for the Use of Lime-Fly Ash Concrete as Pavement Base or Sub-Base, IRC: 68-1976 Tentative Guidelines on Cement-Fly Ash Concrete for Rigid Pavement Construction IRC: 74-1979 Tentative Guidelines for Lean-Cement Concrete and Lean-Cement Fly Ash Concrete as a Pavement Base or Sub-Base IRC: SP-89-2010 Guidelines for Soil and Granular Material Stabilization Using Cement Lime and Fly Ash. The Standards and Guideline for use of fly ash in construction of buildings and roads are available. However, the construction agencies are required to ensure utilization of fly ash in their projects so as to ensure implementation of the notification. It was decided that MoEF will also write to the Environment Department of every State and UT requesting them to ensure compliance to the provisions of the notification by the construction agencies in their jurisdictions.

8. Most of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) in Union Territories (UTs) did not attend the meeting. The Central Pollution Control Board (CPCB) was requested to coordinate with all SPCBs/PCCs for getting status of constitution of State Level Monitoring Committee, which is mandatory as per the notification on fly ash utilization. The CPCB should submit this status to the Ministry. The representative of CPCB informed that the flow of information vis-à-vis submission of annual report/ action plan from the State agencies/ power plants is very poor. The CPCB was requested to write to all SPCBs/ PCCs directing them to issue directions under section 5 of the Environment (Protection) Act, 1986 to the agencies/ authorities those are not complying with the provisions of the fly ash notification.

9. The representatives from NTPC informed that while according environmental clearance to Thermal Power Projects, Ministry has been recently stipulating conditions that fly ash, shall not be used in filling of low lying areas, in agriculture and in backfilling/stowing of mines, etc. These conditions are contrary to provisions of Ministry's notification on Fly ash utilisation. These conditions may have to be suitably reviewed so that the target of 100% utilization of fly ash, as mandated in the Notification of 3rd November,

2009, could be achieved. The Forest departments in certain States/ UTs are not allowing development of forest wasteland by utilizing fly ash.

10. NTPC also informed that use of fly ash in backfilling/stowing of closed/abandoned/running open cast and underground mines has large potential for utilization of fly ash, especially for pit head thermal power stations which otherwise have limited avenues for fly ash utilization. However, it's potential is yet to be fully utilized. The use of fly ash in back filling/stowing of open cast and underground mines within a radius of 50km of any thermal power station as mandated in Ministry's Notification of 3rd November, 2009 has to be ensured right from initial stage of preparation of mine development plan. Inclusion of fly ash and bottom ash as backfill materials in the guidelines for preparation of mine closure plan is required, for which Ministry of Coal and other concerned Ministries/Authorities have to take necessary action. However, there are environmental and safety concerns for use of fly ash along with other materials for back filling of operating open cast mines. These concerns need to be addressed.

11. The representatives of the Ministry of Coal submitted that as per the provisions of the notification, they have constituted the Expert Committee to guide and advise the backfilling or stowing of mine by utilizing fly ash. The issues had been discussed by the Expert Committee of the Ministry of Coal. It has been agreed that fly ash disposal as stowing material in underground mines, abandoned opencast mines and final voids at the end of mining operation can be considered. The Ministry of Coal has written to MoEF that in view of practical difficulties from safety point of view, specifically in operational mines, it is not practically possible for mixing fly ash with external OB dumps and then back filling of operating mines. Thus, provisions in the notification need a complete review. Till such time, incorporation of these provisions in mining plans may be kept in abeyance. It was decided that the Ministry of Coal will get the issue examined through appropriate agencies such as Central Mine Planning and Design Institute and the Expert Committee. The MoC will forward the outcome for consideration of the MoEF. The proposed exercise may be completed by MOC within a period six months.

12. The representative of DST informed that it has now been established, through their research projects, that use of fly ash in agriculture sector is safe. However, there is no specific report available with them to demonstrate that there is no negative environmental impact of use of fly ash in reclaiming the low lying area, back filing and stowing of the open mines, etc. DST was requested to provide copies of such study reports to MoEF along with its recommendations with regard to safe use of fly ash in agriculture.

13. The Chairman informed that there is perception among people that presence of heavy metals and other hazardous elements may affect the ground water due leaching of heavy metals and may complicate land disposal. Therefore, it is necessary that the distribution of heavy metals in the coal in different Georegions of the country and so also the fly ash from coal of such regions need to be analysed. Also, leaching characteristics of coal and ash samples should be investigated with various laboratory extraction procedures. CPCB should undertake this study. Based on the study report, MoEF would review the conditions regarding fly ash utilization, which are being specified in Environmental Clearances granted to the thermal power plants and coal mines. NTPC was requested to compile the information regarding international practices for gainful utilization of fly ash.

14. The following decisions were taken:

1) The MoEF will write to all Departments of Environment of States/ Union Territories (UTs) requesting them to ensure strict implementation of the provisions of notification on fly ash by all the agencies concerned and in particular by the agencies responsible for construction activities in States/ UTs. **(Action: MoEF and States/ UTs)**

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2) MoEF will write to the Ministry of Urban Development (MoUD) and the Ministry of Road Transport and HighWays (MoRTH) in order to ensure implementation of the provisions of fly ash notification by the construction agencies coming under their respective jurisdiction. **(Action: MoEF, MoUD, MoRTH)**

3) Ministry of Coal through its expert Committee or by involving any other agency such as CMPDI will examine the issues of use of fly ash as stowing material in operating mines and will suggest the way forward for consideration of the Ministry of Environment and Forests within a period of six months. **(Action: MoC)**

4) The Central Pollution Control Board will coordinate with all SPCBs/ PCCs for getting the status of constitution of the State level monitoring Committees and will submit the status to the Ministry of Environment and Forests within three months. CPCB will also direct to SPCBs/ PCCs to issue directions under section 5 of the Environment (Protection) Act, 1986 to the agencies/ authorities those are not complying with the provisions of the fly ash notification. **(Action: CPCB, SPCBs and PCCs)**

5) CPCB will conduct a study to anlayse distribution of heavy metals in the coal available in different Georegions of the country and so also the fly ash from coal of such regions. CPCB will also analyse leaching characteristics of coal and ash samples with various laboratory extraction procedures during the study. The CPCB will submit the aforesaid report to MoEF within period of three months. Based on the findings of the study, MoEF would review the conditions regarding fly ash utilization, which are being specified in Environmental Clearances for power plants and coal mines. **(Action: CPCB, MoEF)**

6) DST will provide study reports regarding establishment of the fact that use of fly ash in agriculture is safe to MoEF. **(Action: DST).**

7) CPWD will inform MoEF about the difficulties, which are being faced by them in implementation of various provisions of the fly ash utilization notification. **(Action: CPWD)**

8) NTPC will compile the information regarding international practices for gainful utilization of fly ash and will share this information with the MoEF. **(Action: NTPC)**

15. The meeting ended with a vote of thanks to the Chair.

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LIST OF PARTICIPANTS

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2. Shri Chander Mohan Scientist- `G', & Head- Fly Ash Unit, Department of Science and Technology (DST) New Delhi (Mobile:-09312888632, E-mail:- chander.m@nic.in)
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153

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Annexure- II

BEFORE THE NATIONAL GREEN TRIBUNAL, CENTRAL ZONAL BENCH, BHOPAL

Original Application No. 124/2014 (CZ)
Ajay Dubey Vs. State of Chhattisgarh & Ors.

CORAM : HON'BLE MR. JUSTICE DALIP SINGH, JUDICIAL MEMBER
HON'BLE PROF. A.R.YOUSUF, EXPERT MEMBER

PRESENT : Applicant : Shri Sanjay Kumar, Advocate
Shri Vineet Singh, Advocate
CSPGCL : Shri Apoorv Kurup, Advocate
Shri Shantanoo Saxena, Advocate
Shri Deepesh Joshi, Advocate
Respondent CECB : Shri Parul Bhadoria, Advocate
Shri Purushaindra Kaurav, Advocate
Respondent SECL: Shri Yogesh Bhatnagar, Advocate
MoEF&CC / UoI: Shri Om S.Shrivastav, Advocate
State of Chhattisgarh: Shri Apoorv Kurup, Advocate
NTPC: Shri Sachin K.Verma, Advocate

Date and Remarks	Orders of the Tribunal
Item No. 7 **5th November, 2015**	Appeal No. 42/2015 primarily is against the notice dated 03.07.2015 issued by the CECB / Respondent for closure of their 4x50 MW Thermal Power Plant at Korba (Korba East). The other Original Applications pertain to critical pollution as a result of number of power plants which have been allowed to be set up and run at Korba and major issue of pollution being caused from fly-ash generated at these plants and water utilisation therefore and discharge into the river Hasdeo from these power plants. As regards the Appeal No. 42/2015 filed by Chhattisgarh State Power Corporation in the Appeal in paragraph 6.20 the Appellant has submitted that they intend to close down the said plant in a phased manner between June 2016 to June 2018 as it is a very old plant having been commissioned in the 1960's. As per the information provided in para 6.20 in the memo of Appeal, in the first phase, unit to be shut down is unit no. 3 by June, 2016. Similarly unit no. 1 by March 2017, unit no. 2 in December, 2017 and unit no. 4 by June, 2018. It has also been submitted that all the employees who are

going to be affected as a result of the de-commissioning would have to be suitably re-deployed except those who shall be superannuating.

While the aforesaid proposals were submitted by the Appellant to mitigate the issue the CECB contended that the plant did not have consent right from 1994 and despite several letters, correspondence and notices the plant did not take steps to achieve the required stake emissions. And therefore, 3rd July, 2015 a notice for closure was given by the CECB. We find that from the data that have been supplied by the CECB in their reply that stake emissions have varied at various units of the Appellant power plant in various months during the last three year for which the data has been provided by the CECB from 2012 to 2015. It is not therefore a situation where the Appellant is in no position to curb the stake emissions at the time of operations of these units. There is a great deal of variance between the stake emissions and this is of course disputed by the Appellant. We however at this stage do not wish to go into the controversy as to which of the data is corrected but, however, we would direct that for the month of November and December a joint study in respect of the stake emissions levels would be carried out for the remaining 45 days of this calendar year and submitted before this Tribunal. If we find that the stake emission level are not being reduced to level which have been achieved by the Appellant in the past we will have to take a view as to whether or not the plant of the Appellant corporation can be given the approval for the closure plan which they have submitted.

As regards the major issue which have been raised in most of these Original Application arising out of the problem of pollution as a result of accumulation of the fly-ash at Korba since Korba has got a large number of thermal power station which are all coal based and