BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

I.A. NO. _____ OF 2022

IN

ORIGINAL APPLICATION NO: 104 OF 2018

IN THE MATTER OF:

SHIVPAL BHAGAT & ORS. …APPLICANT(S)

VERSUS

UNION OF INDIA & ORS. …RESPONDENT(S)

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FILED BY:



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DATE: 11.05.2022

PLACE: NEW DELHI

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

I.A. NO. _____ OF 2022

IN

ORIGINAL APPLICATION NO: 104 OF 2018

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SHIVPAL BHAGAT & ORS. …APPLICANT(S)

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OBJECTIONS ON BEHALF OF JINDAL POWER LIMITED TO THE ENVIRONMENTAL COMPENSATION AMOUNTING TO RS. 48,30,000/- LEVIED ON IT VIDE THE OVERSIGHT COMMITTEE'S REPORT DATED 16.12.2021 AND AFFIRMED VIDE ORDER DATED 15.02.2022 BY THIS HON'BLE TRIBUBAL IN THE CAPTIONED MATTER

MOST RESPECTFULLY SHOWETH:-

BRIEF DESCRIPTION OF JINDAL POWER LIMITED

1. Jindal Power Limited [hereinafter "**JPL**] has been contributing significantly to the growing needs of power in the country and its installed capacity is 3400 MW. JPL has emerged as a best performer in Ministry of Power and Central Electricity Authority project execution excellence study and won two National Awards - Gold Shield and Silver Shield for early completion of Thermal Power Projects. To optimize its operations, the company has adopted leading edge technologies, efficiency processes and world's best practices in project execution and management, thereby setting new benchmarks in India's power sector. JPL has consistently topped the Central Electricity Authority's highest plant load factor list among the major thermal power plants (above 200 MW capacities) in India. Furthermore, for the benefit of the locals, the company deploys its resources to improve infrastructure, education, health, sanitation in and around the area of its operations besides undertaking several CSR initiatives. Thus, the operations of JPL are equally essential for the welfare of the local public and the economy at large. The said

Thermal Power Plant is the source of supply of electricity to various state distribution companies, including but not limited to those in the States of Tamil Nadu and Kerala. Furthermore, more than 5000 families are dependent on the continuing operations of JPL.

2. As detailed herein below, this Hon'ble Tribunal had constituted an Expert Committee and further an Oversight Committee to examine the aspect of environmental damage, remedial steps and assessment of compensation. The proceedings undertaken by the Oversight Committee culminated into the Report dated 16.12.2021 [hereinafter "**Impugned Report**"] which assessed the compensation to be paid by the PPs and public officials, including JPL and also provided long-term and short-term measures to be taken by PPs as remedial steps. Thereafter, this Hon'ble Tribunal passed order dated 15.02.2022 ("**Order**") in ***O.A. 104 of 2018*** vide which it was directed that compensation assessed by the Report be deposited as interim compensation. It was further directed that the State Pollution Control Board put all PPs, PWD and Health Departments through the Chief Secretary, Chhattisgarh to notice of these proceedings with view to provide them opportunity to show cause why higher compensation be not determined, having regard to the said violations, having regard to their financial capacity.

   A copy of the Impugned Report is marked and annexed, herewith, as ***Annexure – A***.

   A copy of order dated 15.02.2022 passed by this Hon'ble Tribunal in ***O.A. 104 of 2018*** is marked and annexed, herewith, as ***Annexure – B***.

3. Pursuant to the Order, CECB issued a Notice dated 03.03.2022 ("**Impugned Notice"**) directing JPL to pay the environmental compensation within 2 months which is the subject matter of the captioned Application. Furthermore, a Show-Cause Notice dated 3.03.2022 ("**SCN – Enhanced Levy"**) was issued by CECB asking JPL to show-cause as to why enhanced compensation should not be levied in terms of the Order.

   A copy of the Impugned Notice is marked and annexed, herewith, as ***Annexure – C.***

A copy of the SCN – Enhanced Levy is marked and annexed, herewith, as ***Annexure – D.***

FACTUAL BACKGROUND NECCESITATING THE FILING OF THE PRESENT OBJECTIONS

4. The factual background leading up to filing of the present Application is as follows:

   a. The captioned matter bearing ***O.A. 104 of 2018*** titled as ***Shivpal Bhagat vs Union of India & Ors.*** was filed before this Hon'ble Tribunal on 28.02.2018 praying for issuance of directions to the Respondent Authorities to, *inter-alia*, take remedial steps with respect to the allegations of pollution caused by the thermal power plants, the coal mines and coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including JPL, M/s Jindal Steel & Power Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s. Hindalco Industries Limited and M/s. Monet Energy Limited, SECL, i.e. Project Proponents [hereinafter "**PPs**"].

   b. As understood from various orders of this Hon'ble Tribunal in the instant matter, several reports were submitted by the Expert Committee constituted by the Hon'ble Tribunal to examine the aspect of environmental damage, remediation measures, fly ash management etc. Further vide order dated 27.02.2020, the Hon'ble Tribunal directed the Expert Committee to act as an Oversight Committee with the CPCB being the nodal agency. The Oversight Committee held several meetings, and submitted its status reports including the Impugned Report. The Oversight Committee visited JPL's plant at Tamnar, Raigarh on 17.03.2021 when the alleged leakage of ash slurry from the ash dyke was observed subsequent to which, the Committee recommended that JPL conduct a study through a research organization of national repute to determine the stability of the existing ash dyke and take measures required to strengthen the same, as needed (see page 39 of the Impugned

Report). Notably, the leakage was rectified/repaired using the filter media and the completion of rectification of the leakage by JPL was informed to Regional Officer, CECB (Member of the Oversight Committee) vide letter dated 03.05.2021. Thereafter, the Oversight Committee conducted a follow up visit on 24.08.2021 when admittedly, no leakage was found.

A copy of the letter dated 3.05.2021 sent by JPL to Regional Officer, CECB is marked and annexed herewith as ***Annexure – E***.

c. In fact, JPL had engaged L&T-Sargent & Lundy Limited to conduct the stability of its ash dyke and submitted its Report [hereinafter "**L&T Report**"] vide aforesaid letter 3.05.2021. The purpose and scope of L&T Report is reproduced hereinbelow:

> ***"1.0 Purpose and Scope:***
> *The* ***purpose of this document is to furnish stability analyses of Stage II ash dyke raising and design of new decantation well & its foundation inside the existing filled up ash pond for 4x250 MW O. P. Jindal Super Thermal Power Plant at Tamnar, Raigarh****."*

The L&T Report was also re-checked, verified and approved by Prof. S.R. Gandhi, Director- S.V. National Institute of Technology, Surat. Pertinently, the L&T Report also concludes that the ash dyke satisfies all safety parameters.

A copy of the L&T Report is marked and annexed herewith as ***Annexure – F.***

d. Thereafter, pursuant to directions of the Oversight Committee, the Applicant also submitted a detailed Report, prepared by NIT [hereinafter "**NIT Report**"] on 18.11.2021, which affirmed the stability of the ash dyke and specifically noted that no boiling/leakage was observed.

A copy of the NIT Report dated 16.11.2021 along with letter dated 18.11.2021 sent to the Regional Officer, CECB is marked and annexed, herewith, as ***Annexure – G (Colly)***.

e. The proceedings undertaken by the Oversight Committee culminated into the Impugned Report dated 16.12.2021 [which assessed the compensation to be paid by the PPs and public officials and also provided long-term and short-term measures to be taken by PPs as remedial steps]. Pertinently, the said compensation was determined only pursuant to specific directions in this respect by this Hon'ble Tribunal vide its order dated 24.06.2021.

f. Thereafter, an email dated 21.12.2021 was sent by Dr. R.P. Mishra on behalf of Oversight Committee containing the Impugned Report which merely does lip service to the cardinal principle of *audi alteram partem* inasmuch as the contents therein had already been finalised and submitted to this Tribunal. Therefore, no effective opportunity was given to JPL to challenge the contents of the Report which are *ex-facie* arbitrary and premised entirely on conjectures. It is humbly submitted that JPL ought to have been impleaded before passing of the Order as it was a necessary party. A copy of email dated 21.12.2021 sent on behalf of the Oversight Committee to JPL is marked and annexed herewith as ***Annexure – H***.

g. Subsequently, the order dated 15.02.2022 [hereinafter "**Order**"] was passed by this Hon'ble Tribunal in ***O.A. 104 of 2018*** vide which it was directed that compensation assessed under the Impugned Report be deposited as interim compensation. It was further directed that "*the State Pollution Control Board put all PPs, PWD and Health Departments through the Chief Secretary, Chhattisgarh to notice of these proceedings with view to provide them opportunity to show cause why higher compensation be not determined, having regard to the said violations, having regard to their financial capacity."*

h. Pursuant to the Order, CECB issued a Notice dated 03.03.2022 ("**Impugned Notice"**) directing JPL to pay the environmental compensation within 2 months which is the subject matter of the captioned Application. Furthermore, a Show-Cause Notice

dated 3.03.2022 ("**SCN – Enhanced Levy"**) was issued by CECB asking JPL to show-cause as to why enhanced compensation should not be levied in terms of the Order.

i. Without prejudice to JPL's right to challenge the levy of enhanced compensation vide SCN – Enhanced Levy, it is humbly submitted that the environmental compensation assessed at Rs. 48,30,000/- [hereinafter "**Impugned Levy**"] qua JPL is liable to be quashed. The same has been levied based on mere visual assessment and is uncorroborated by scientific evidence/quantifiable data.

j. In this regard, it is submitted that the Applicant has been diligent in complying with directions of this Hon'ble Tribunal as also the Oversight Committee which is borne out by the fact that it has deposited the Impugned Levy on 11.04.2022 in terms of this Hon'ble Court's directions vide the Order. However, it was clearly stated that the said payment is without prejudice to JPL's right to challenge the same as detailed herein below.
A copy of the proof of payment of the Impugned Levy by JPL along with Cover Letter is marked and annexed, herewith, as ***Annexure – I (Colly).***

5. In the above conspectus, JPL has filed the present Application seeking to challenge the findings/ compensation assessed qua JPL in the Impugned Report submitted by the Oversight Committee vide which the Impugned Levy has been calculated as also the Impugned Notice issued by CECB.

6. The present Application is being preferred on the following grounds (among other grounds which JPL might take at the time of hearing), that may be read conjunctively or disjunctively as the case may be, and without prejudice to one another:

GROUNDS

A. BECAUSE JPL has promptly rectified/repaired the leakage and complied with all directions of this Hon'ble Tribunal as also the Oversight Committee as is evident from the follow up visit conducted by the Oversight Committee on 24.08.2021 wherein no leakage was observed.

B. BECAUSE JPL has established its diligence and *bonafides* by complying with the directions of the Oversight Committee and repaired the leakage.

C. BECAUSE JPL's diligence and respect for the Hon'ble Tribunal and directions of the Oversight Committee is further borne out by the fact that it has deposited the Impugned Levy with the CECB on 11.04.2022, on a without prejudice basis and only proceeded to challenge the same vide the present Objections in view of its *bonafide* grievances.

D. BECAUSE officials of JPL comprehensively explained the Standard Operating Procedure ("**SOP**") as per which regular inspection of the dyke is conducted and any damage/leakage observed is immediately rectified. The process undertaken for repair of alleged leakage of ash was explained to the Oversight Committee. The relevant excerpt of the Oversight Committee's Report is reproduced hereinbelow:

> *"The **committee has discussed in details about process adopted for repair of the leakage** and directed M/s JPL to submit the authentic report about strength of repairing undertaken and the stability report of the existing ash dyke from research organization of national repute on or before 30-11-2021."*

E. BECAUSE the Oversight Committee's interim-report dated 17.03.2021, as reproduced in this Hon'ble Tribunal's Order dated 24.06.2021, only assessed certain alleged violations and directed the aforesaid study to be conducted, i.e. the alleged violations in the Oversight Committee's view were a curable breach.

It was only subsequent to the directions given by this Hon'ble Tribunal vide order dated 24.06.2021 in ***O.A. 104 of 2018*** that the Oversight Committee embarked on levying environmental compensation which, in JPL's case, is arbitrary and overlooks crucial scientific evidence.

A copy of order dated 24.06.2021 passed by this Hon'ble Tribunal in in ***O.A. 104 of 2018*** is marked and annexed, herewith, as ***Annexure – J.***

F. BECAUSE JPL focuses on adopting sound Environment Management practices and oriented towards continual improvement. JPL strictly adheres to all the regulatory norms and adopts new technologies for protecting the environment. In fact, JPL has been certified under Quality Management System (ISO 9001:2000), Environment Management Systems (ISO 14001: 2004) and Occupational Health & Safety Assessment System (OHSAS 18001:2007).

G. BECAUSE JPL had also engaged L&T-Sargent & Lundy Limited to conduct the stability of its ash dyke and vide the L&T Report, it was held in ringing terms that the ash dyke satisfied all safety parameters as is evident from the excerpt of the said Report reproduced hereinbelow:

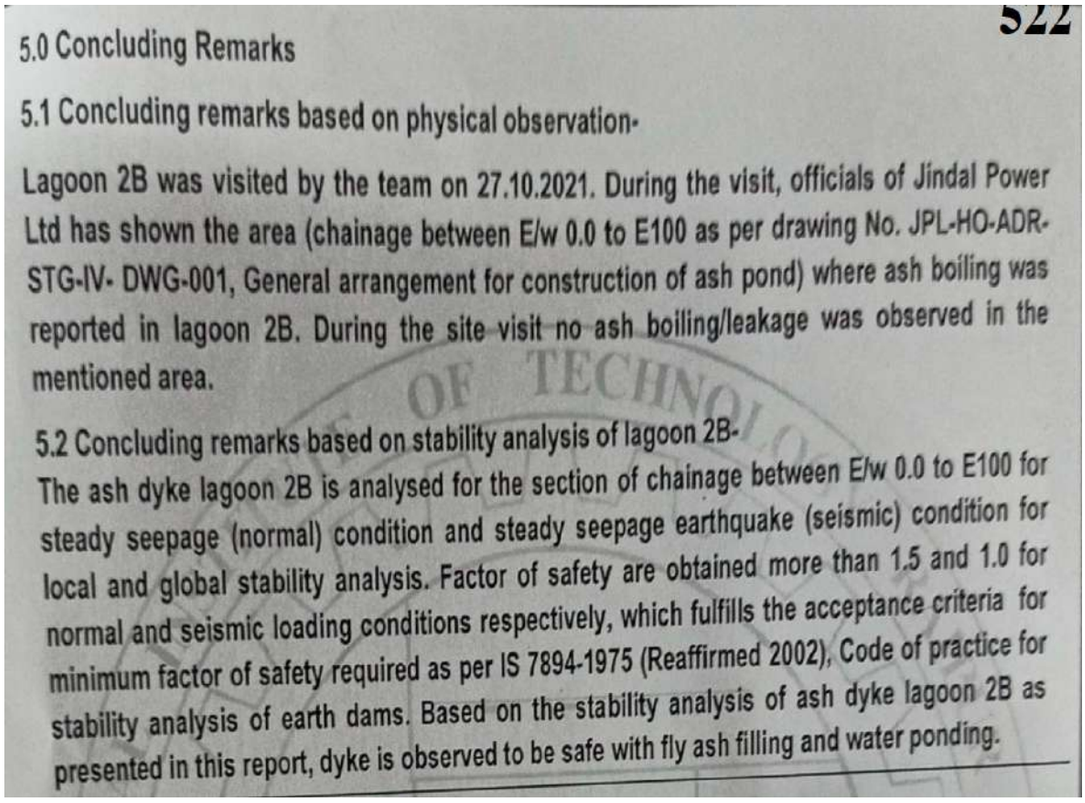
Results

The factors of safety obtained from the Geo-Studio for all conditions are well above the desired values for the new dyke to be raised. These are furnished in Table 6.1.

Table 6.1: FOS values for Dyke

Construction Stage-I	Condition	**Factor of Safety**	
		Calculated	Required
Starter Dyke (Earthen)	Steady-state	**1.623**	1.50
	Earth quake (downstream slope)	**1.161**	1.0
Stage I Dyke	Steady-state	**2.116**	1.50
	Earth quake (downstream slope)	**1.628**	1.0
Multi Stage (upto stage-III)	Steady-state	**1.982**	1.50
	Earth quake (downstream slope)	**1.525**	1.0

H. BECAUSE pursuant to directions of the Oversight Committee, JPL submitted a report prepared by NIT, Raipur on 18.11.2021, which affirmed the stability of the ash dyke and specifically noted that no leakage was observed as is evident from the concluding remarks of the said Report:



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5.0 Concluding Remarks

5.1 Concluding remarks based on physical observation-

Lagoon 2B was visited by the team on 27.10.2021. During the visit, officials of Jindal Power Ltd has shown the area (chainage between E/w 0.0 to E100 as per drawing No. JPL-HO-ADR-STG-IV- DWG-001, General arrangement for construction of ash pond) where ash boiling was reported in lagoon 2B. During the site visit no ash boiling/leakage was observed in the mentioned area.

5.2 Concluding remarks based on stability analysis of lagoon 2B-

The ash dyke lagoon 2B is analysed for the section of chainage between E/w 0.0 to E100 for steady seepage (normal) condition and steady seepage earthquake (seismic) condition for local and global stability analysis. Factor of safety are obtained more than 1.5 and 1.0 for normal and seismic loading conditions respectively, which fulfills the acceptance criteria for minimum factor of safety required as per IS 7894-1975 (Reaffirmed 2002), Code of practice for stability analysis of earth dams. Based on the stability analysis of ash dyke lagoon 2B as presented in this report, dyke is observed to be safe with fly ash filling and water ponding.

The same was also reiterated vide letter dated 18.11.2021 sent by JPL to the Regional Officer, CECB:

Dear Sir,

This has reference to above referred letter on captioned subject regarding Hon'ble NGT, Case No. 104/2018 of Shivpal Bhagat Vs Union of India. We would like to inform you that as per instruction given by oversight committee during the hearing at Bilaspur, the stability study of ash dyke through reputed institute i.e. National Institute of Technology (NIT) Raipur has been completed. NIT, Raipur has submitted the report. The stability report is attached as **Annexure-1**.

We hope the above study is in line with your requirement.

However, the Oversight Committee, without considering the aforesaid Reports, erroneously concluded that JPL is liable for environmental compensation from 17-03-2021 to 24-08-2021 amounting to Rs. 48,30,000/-.

I. BECAUSE the detailed Report prepared by NIT, Raipur extensively examined the issue pertaining to leakage from Lagoon 2B at the ash dyke and the structural stability of the ash dyke. Furthermore, it is also established that adequate measures are in place to avoid any environmental damage due to minor leakage. Pertinently, the Oversight Committee has failed to appreciate that the NIT has conducted its study and assessed the ash dyke after the leakage has been repaired by JPL. It is only upon thorough assessment of the dyke, NIT has affirmed its stability and observed it to be safe. Such observation in the Report implies and connotes that the process adopted for repair was upto the satisfaction and met all requisite parameters. However, the Impugned Report has not taken cognizance of these submissions and concluded that "*JPL after complying the direction have submitted stability report conducted by NIT Raipur but did not file any documents to show details about process adopted for repair of the leakage or to establish repair conducted by competent person/ authority therefore is liable for Environmental compensation from 17-03-2021 to 24-08- 2021*".

J. BECAUSE sometimes minor leakage of ash water from the ash dyke may occur. In order to avoid contamination of surrounding land, the ash dykes are provided with a toe drain at the bottom of the dyke. In fact, the only alleged violation qua JPL, as reproduced in the interim-report dated 17.03.2021 was that the "*leakage in the exiting ash dyke was observed and ash laden water was* ***found up to toe drain***" which cannot be construed as a breach under any circumstances whatsoever inasmuch as the rationale behind the construction of the toe drain around the ash dyke is also to prevent the spillage of ash water in the adjoining areas of the dyke. Lucidly, the toe-drain is nothing but a mechanism to ward off the possibility of spillage and contamination as any leakage of ash water upto the toe drain from the ash dyke is led to the ash water recycling system and after sedimentation of ash, the water is recycled back to the ash handling process. Thus, it is submitted that there was no spillage of ash water beyond the dyke area and there was no spillage of the same in to nearby agricultural fields/soil. Therefore, no

environmental damage can be alleged to have taken place due to the leakage.

K. BECAUSE no environmental harm was done by JPL by virtue of its activities. The contents of the Impugned Report do not state that any environmental damage is attributable to JPL. In fact, JPL has engaged Ultimate Envirolytical Solutions, a lab which is recognized by the Ministry of Forest and Climate Change under the Environment Protection Act, 1986, to undertake regular monitoring of the groundwater quality near JPL's plant. The Reports are regularly submitted to the MOEF and CECB. Pertinently, the Report dated 13.12.2021 prepared by Ultimate Envirolytical Solutions clearly bears out the present submission and specifically states that no groundwater has been contaminated around the vicinity of JPL's plant.

A copy of the report dated 13.12.2021 prepared by Ultimate Envirolytical Solutions is marked and annexed herewith as ***Annexure – K.***

L. BECAUSE it is curious that the Impugned Report does not even mention a single instance which states that JPL's activity has caused environmental damage but merely proceeds to levy the environmental compensation assessed at Rs. 48,30,000/- without annexing any further evidence/photographs.

M. BECAUSE the environmental compensation assessed at Rs. 48,30,000/- levied on JPL is liable to be quashed as the same has merely been levied based on visual assessment and is uncorroborated by scientific evidence/quantifiable data.

N. BECAUSE the imposition of the environmental compensation cannot be sustained being bad in law. The said compensation has been levied against JPL by the Hon'ble NGT without even impleading it in the said proceedings. Such levy is not in accordance with the mandate of law as the same has been imposed without allowing JPL with an opportunity to explain.

O. BECAUSE in complete disregard to JPL's submissions including the NIT Report, the Oversight Committee has assessed and the Hon'ble NGT has affirmed the entire compensation against JPL only on the basis that JPL has not presented documents to show the process adopted for repair. The same is ex facie arbitrary and unreasonable.

P. BECAUSE in any case, the calculation of environmental compensation has been done erroneously and in complete disregard of the fact that the rectification of leakage was completed by 03.05.2021 and the letter dated 3.05.2021 was sent to the Regional Officer of CECB apprising the Oversight Committee of such rectification. Therefore, without prejudice to the above, in no circumstances should the compensation be computed for period beyond the date of communication of rectification i.e. 03.05.2021.

Q. BECAUSE without prejudice to the above, it is pertinent to highlight that JPL has been facing serious hardships pursuant to the coal block de-allocation in 2014. It is submitted that JPL has incurred losses for several years. Therefore, any enhanced compensation determined against the Applicant will further add to its miseries and it is humbly requested that such facts are taken into account by the Hon'ble NGT before imposing any compensation on JPL.

R. BECAUSE JPL's objections as detailed hereinabove are being made *bonafide* and in the interest of justice. It is humbly submitted that grave prejudice would be caused to JPL if the prayers made vide the present Application are not granted.

PRAYERS

It is therefore, most respectfully prayed that this Hon'ble Court may graciously be pleased to:-

a. Pass an order quashing and setting aside the findings/assessment of compensation qua JPL in the Impugned Report dated 16.12.2021 submitted by the Oversight Committee to this Hon'ble Tribunal in ***O.A. 104 of 2018***;

b. Pass an order declaring that the amount of Rs. 48,30,000/- as calculated by the Oversight Committee vide Impugned Report dated 16.12.2021 is incorrect and liable to be quashed;

c. Pass an order quashing the Impugned Notice vide which JPL was directed to deposit the amount of Rs. 48,30,000/- as environmental compensation within 2 months and all incidental proceedings thereto;

d. Pass an order directing the CECB to refund the amount of Rs. 48,30,000/- with interest, paid by JPL in terms of the Order and the Impugned Notice;

e. Pass such other, further orders, directions and decree as this Hon'ble Court may deem fit in the facts and circumstances of this case and in the interest of justice.

FOR JINDAL POWER LIMITED

THR.

NAMAN JOSHI | GUNEET SIDHU
ADVOCATES FOR JINDAL POWER LIMITED
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naman.joshi@CJSlegal.in

DATE: 11.05.2021

PLACE: NEW DELHI

DEPONENT

VERIFICATION:

I, Rajesh Maurya S/o Mr. R.S. Maurya, aged about 43 years, Authorized Representative of Jindal Power Limited, having its Registered Office at Tamnar -496107, District Raigarh, Chhattisgarh do hereby solemnly affirm and verify that the contents of Paras 1-6 and A-R are true and correct as per the official records of the JPL or based on legal advice and nothing material has been concealed therefrom.

Verified at New Delhi on this 11 day of May , 2022

DEPONENT

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

I.A. NO. _____ OF 2022

IN

ORIGINAL APPLICATION NO: 104 OF 2018

IN THE MATTER OF:

SHIVPAL BHAGAT & ORS. **...APPLICANT(S)**

VERSUS

UNION OF INDIA & ORS. **...RESPONDENT(S)**

I, Rajesh Maurya S/o, Mr. R.S. Maurya, aged about 43 years, being authorised representative of the Jindal Power Limited, having its Registered Office at Tamnar - 496107, District Raigarh, Chhattisgarh, do hereby solemnly state and affirm as hereunder:

1. I am the authorized representative of Jindal Power Limited and am well conversant with the facts and circumstances of the present case, and hence am competent to swear the present affidavit.

2. I have read and understood the contents of the accompanying Application and state that the facts stated therein are true to my knowledge and belief or are based on the official records of JPL and nothing material has been concealed therefrom.

JINDAL POWER LIMITED

DEPONENT

Identify the Deponent who has Signed/put T.I. in my presence

VERIFICATION:

Verified at New Delhi on this ___ day of 4 MAY 2022, 2022 that the contents of the above affidavit are true and correct to the best of my knowledge and belief, and nothing material has been concealed therefrom.

JINDAL POWER LIMITED

DEPONENT

ATTESTED

NOTARY (Govt. of India)
Neelam Sharma
Advocate
Ch. No 165A, Gate No. No.11,
Patiala House Courts,
New Delhi-110001
(M): 9899408301

4 MAY 2022

ANNEXURE - A

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

Original Application No. 104/2018

Shivpal Bhagat & Ors. — Applicant(s)

Vs.

Union of India & Ors. — Respondent(s)

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1.	**Status Report** in compliance to Hon'ble NGT order dated 24.06.2021 in O.A. No. 104/2018 Shivpal Bhagat & Ors. Vs. Union of India & Ors.	
2.	**Exhibit 01**- A copy of Minutes of 1st meeting of Oversight committee held on 19.07.2021.	
3.	**Exhibit 02**- A copy of Minutes of 2nd meeting of Oversight committee held during 23 -26.8. 2021.	
4.	**Exhibit 03**- A copy of Minutes of 3rd meeting of Oversight committee held during 14-17.9.2021.	
5.	**Exhibit 04**- A copy of Minutes of 4th meeting of Oversight committee held during 26 -27.10.2021.	
6.	**Exhibit 05**- A copy of Minutes of 5th meeting of oversight committee held during 24 -25.11.2021.	
7.	**Exhibit 06**- A copy of Hon'ble NGT order dated 24.06.2021.	

(Nazimuddin)
Scientist E
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi- 110032.

Date: 16.12.2021
Place: Delhi

True Copy

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BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

In the OA No. 104/2018

Shivpal Bhagat versus Union of India &Ors

Status Report of Oversight Committee appointed by Hon'ble NGT

Date- 07.12.2021

1. The issue for consideration is the remedial action against pollution caused by the Coal mines , Thermal Power Plants, the coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including Chhattisgarh State Power Generation Company Ltd.(Gare Pelma Sector -III), M/s Ambuja Cement Ltd. Coal Mines (Gare Pelma Sector IV/8), M/s Jindal Power Limited, M/s Jindal Power and Steel Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s. Hindalco Industries Limited, and M/s. Monet Energy Limited, SECL. The operation of the said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants requiring monitoring of emissions, making the polluter accountable and to draw remedial measures.

2. A report dated 14-10-2019 was filed by the CPCB on behalf of the Expert Committee on 15.10.2019 in whichthe Committee visited various sites and considered the earlier reports, including maps and the data of air quality as well as water pollution. The committee also considered ground water depletion, soil pollution, forest loss, and livelihood loss and after detailed study of various aspects suggested for action plan in the form of short and long term measures.

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3. The oversight committee held meetings and field visits to ensure implementation of remedial measures and submitted the status reports on 17.11.2020 in tabular form and made further recommendation, considering those the Tribunal issued directions to the Health and PWD Departments of CG Govt. and SECL. The Tribunal also directed consideration of suggestions of the applicants for taking due precaution in the course of dumping in low lying areas. So far as suggestions given by the applicants are concerned the Tribunal directed that the suggestions may be duly considered by the concerned authorities and the committee which may be co-ordinate by the CPCB. Committee after due meetings and field visit submitted their compliance status as on 15-03-2021 in tabular form and also made recommendations on field observations. On 24-06-2021 Hon'ble NGT considered the Committee's report filed on 16-04-2021, committee's field visit, status of compliance as on 15-03-2021, field observations and recommendations. Hon'ble NGT also considered the response of the applicants to the report of the Committee and actions suggested by the applicants and passed order on 24-06-2021. Hon'ble NGT in its order dated 24.06.2021 reconstituting the oversight committee has passed following orders:-

> "8. We have given due considerations to the report of the Committee as well as suggestions made on behalf of the applicants. The recommendations of the committee need to be accepted. State Board should prepare list of areas where the unscientific disposal of fly ash has been taken place and generate data about the quantity of the coal mined, used in the industries and available for TPPs. Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara, disposal of fly ash in abandoned coal mines and constitution of state level committee to look into scientific utilization of the fly ash. Taking such steps is undoubtedly necessary for protection of the

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environment. The suggestions of the applicants reproduced above also need to be considered by the Oversight Committee.

9. The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The Committee may continue to oversee remedial measures in terms of directions of this Tribunal. The Committee may undertake field visit and also interact with all the stakeholders. The Committee will be at liberty to take assistance from any other Expert / Institution."

10. NGT passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to perform their constitutional obligation to protect environment and public health. Pending taking coercive measures for such failure in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned department , including PWD and Health on the subject of construction of road and providing Health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries" H

12. The report about the compliance status as on 30-11-2021 may be furnished to this Tribunal on or before 15-12-2021 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. A copy of the report may also be provided to the authorities who are required to implement the recommendations of the Committee to enable such authorities to file their response, if any, before the next date.

List for further consideration on 11-01-2022.

A copy of this order be forwarded to Chief Secretary, Chhattisgarh, MoEF&CC, NEERI, CPCB, State PCB, the Collector, Raigarh and Justice

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V.K.Shrivastava, Former Judge of Chhattisgarh High Court by e-mail for compliance."

4. First meeting HELD AT CIRCUIT HOUSE BILASPUR ON 19-07-2021

Compliance status of short term and long term measures as on 15-03-2021described in Hon'ble NGT's order dated 24-06-2021 in para 4 and field visit in para 5 has been discussed at length. Applicant's suggestions also seen. For compliance of Hon'ble NGT's order dated 24-06-2021 action plan has been considered. Hon'ble NGT has directed that The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The National Green Tribunal Act 2010 does not define compensation, however section 15 authorizes the Tribunal subject to sub sections (2) to (5) to provide by an order (a) relief and compensation to the victim of pollution and other environmental damage arising under the enactments specified in the schedule 1 (including accident occurring while handling any hazardous substance) (b) for restitution of property damaged (c) for restitution of the environment for such area and areas. State Pollution Control Board having various functions has also been empowered to do such other things and to perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purpose of The Air (Prevention and control of pollution) Act 1981. Although CPCB has drawn and issued methodology for assessing Environmental Compensation and action plan to utilize the same but that does not mean that it restricts assessment of compensation for

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victim of pollution relating to its person and property. In view of the above assessment of compensation as desired by Hon'ble NGT does not have any restricted meaning. Committee decided to meet applicants and interact with all stake holders, undertake field visit, collect information for making assessment of compensation relating to environmental, personal and property. No one file any document to appraise compliance of earlier recommendation however we expected with member concerned to file relevant papers so that further remedial measures may be considered. Committee decided to interact with applicants on 23-08-2021 in first part of the day and to interact with stake holders in second part of the day. Committee shall revisit sites earlier visited on 24-08-2021. Sites fresh or old not seen earlier to be visited on 25-08-2021. Committee's meeting should be held in first part of 26-08-2021. First meeting's minutes drawn is attached herewith as **Exhibit -1.**

5. On second meeting the issues raised by the applicants / villagers were about mishandling of fly ash by Jindal Power Limited (JPL) in GP IV/01, GP IV/02 and GP IV/03 mines. The applicants have also raised the issue of fly ash leakage from Ash Dyke of JPL and unscientific dumpling of fly ash in low lying areas by M/s TRN Energy Pvt. Limited and Mahaveer Energy & Coal Benefication Limited. Also applicants made brief submissions on their suggestions on action suggested before the Hon'ble NGT.

The oversight committee suggested to the villagers and applicants for submission of their claim in writing about damage occurred due to cause informed in the meeting. The claims were to be submitted in the office of Regional Officer, Chhattisgarh Environmental Conservation

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Board, Raigarh on before 10th September 2021 and claimants to be physically present for hearing before Oversight Committee on any day during 14th to 16th September 2021 at Bilaspur.

The oversight committee also heard the stakeholders in A/N on 23rd August 2021 for submission of their compliances on the issues raised by applicants/ villagers. We did Field Visit of Tamnar area on 24.08.2021 on this visit we visited CSPGCL Coal Mines (Gare Pelma Sector –III), M/s Ambuja Cement Coal Mines (Gare Pelma Sector- IV/8)-M/s Hindalco Mine drain and water supply in Kondkhel Village, Gare Palma IV/01 OC Mines,Gare Palma IV/02 & 03 Open cast mines of SECL. JPL Ash Dyke . On 25-08-2021 Field visit of Gharghoda area has been done.

The committee has visited few sites of fly ash dumping where proper strengthening and compaction of fly ash has not been ensured by M/s TRN Energy Pvt Limited resulting flow of fly ash in to adjoining fields and drains leading to River. The location of fly ash dumping exits in village Bhengari, Nawapara, Tenda and Kantagdeeh. Even on the side of State High way unscientific fly ash dump has been found, also adjoining fields have been covered under fly ash dump. The committee also visited newly constructed ash dyke near the power plant in Nawapara .Visit of Sites of Ash Disposal by M/s Mahaveer Energy & Coal Benefication has also not done. The committee has visited dumping sites on 25th August 2021 and found fly ash dumping in Bhengari village and also in the plant premises. Visit of Fluoride contaminated village- Saraitola, Tamnar- has also been made. On 26-08-2021status of implementation of short term and long term action plan as per field observation was discussed in the meeting .In order to summaries the non-compliances, damage caused, feasible remedies and assessment of compensation, the committee has decided to conduct the hearing meeting at Bilaspur during 14-17th September 2021.

Minutes of the meeting dated 23rd to 26 of August having complete details is **Exhibit -2**

6. For assessment of environmental compensation hearing meeting was conducted from 14th to 17th of September 2021.,in which opportunity of

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hearing was afforded to parties , State authorities and also CECB on various points . Review meeting was also done. In order to summaries the non-compliances, damage caused, feasible remedies and assessment of compensation, the committee has decided to conduct the meeting at Bilaspur during 26-27th October 2021 for Calculation of environmental compensation in those cases found not satisfied during hearing in last meeting,Calculation of property damage on application submitted by villager etc.

Minutes of meeting contains complete details and that is **Exhibit 3.**

7. On meeting dated 26-27th October 2021 (ivth meeting) and on 25-11-2021 (Vth meeting) Environmental compensation/Penalty has been assessed , for ready reference extracts of those are reproduced here in below :-

1.Supreme Court of India, M/S. Goel Ganga Developers India ... vs Union Of India Through Secretary ... on 10 August, 2018:- Para 59 (viii) We uphold the original order dated 27.09.2016 holding that the construction raised by the project proponent was in violation of the environmental clearance granted to it on 04.04.2008. Weuphold the fine imposed upon the PMC and the direction given to the PMC to take appropriate action against the erring officials. We also uphold the direction given to the Chief Secretary to the State of Maharashtra and in addition, direct that the Chief Secretary to the State of Maharashtra shall look into the conduct of the official holding the post of Principal Secretary (Environment) to the Government of Maharashtra on 27.09.2016 and will submit his report to the NGT within three months from today;

2. Director General (Road Development) National Highways authorities of India V. Aam Aadmi Lokmanch and others AIR 2020 Supreme Court 3471 .

(1) Calculation of environmental compensation against TPPs and Coal Mines in cases found not satisfied during hearing in last meeting

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

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Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

(2) Calculation of property damage on application submitted by villager in favour of the applicant against TPPs

(3) Calculation of property/ crop damage was done on the basis of area and tentative loss to crop and rate per hector.

1. <u>M/s TRN Energy Private Limited, Nawapara, Raigarh-</u>

M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately 28,79,126 MT fly ash during January 2016 to March 2021, out of which 58% (1665007MT) has been disposed in low lying area of village Chote Gumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal

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of fly ash is approximately17.378 Hectare.

TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidencesfor breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash intoneighboringhabitants.On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and nalah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda .The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On current visit dated 25-08-2021 we find that some of the fields have become useless, in agricultural field flowing of fly ash was found. On road side flow we could see the flowing of fly ash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat Fly ash dump have been made .

Although they brought some papers and made attempt to show that they have not violated the Environmental conditions. but could not produce permission / consent of State Pollution Control Board. The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E)

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dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level.

Chhattisgarh Environment Conservation Board has informed about issue of closure notice to the industry. TPP has submitted the reply of notice which is under consideration for decision. The representative of the industry have informed about construction of new ash dyke for which land has been acquired in 2017 and Environmental clearance obtained in year 2011.

Ash Dyke belonging to TRN Energy Ltd , on visit we find that at one place wall of the dyke is severely damaged and we apprehended that accident may took place, Nodal Officer informed the facts for repairs forthwith so as to avoid any unfortunate event. Underground water discharge from dyke is there and the discharged water is flowing to agriculture field. Water samples have been collected. Fly ash flying over the ash dyke has also been seen. Even some of the persons were seen roaming over the dried fly ash lying in the dyke. It appears that there is no recycle water system operating. Construction does not appear to be scientific.
Representatives of TRN does not dispute the damage but they contended that Railway has made dump of the soil in their outer wall and that dump has been eroded due to rain but could not show any evidence to support his contentions. They also stated that as per original permission accorded by MoEC&CC they have constructed this second Ash dyke and for perusal shown the permission letter. In this permission letter there is no sanction of more than one ash dyke even as per deliberation it could come to know that first ash dyke is inside the Plant and this ash dyke has been made outside the plant.Whether ash dyke should have been built in the vicinity of habitants, to reply this question they could not able to show any legal authority or any permission. So far as water discharge is concerned they stated that this water discharge belongs to Railway.

For non compliance of the environmental standard/ violations of legal

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direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. TRN is liable for environmental compensation.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s TRN Energy Private Limited, Nawapara is also included in that list for Environmental Compensation of Rs. 1,48,80,488 on which Hon'ble Supreme Court vide its order dated 04.11.2019 has directed deferment of the proceedings.

In addition to above and in view of a number of breaches of environmental conditions not earlier considered for compensation, independent Environmental Compensation for following period is calculated as under-

- Initial date of compensation- 01.04 .2020
- Last date of compensation- 30.11.2021
- Number of days- 608
- EC in Rs. 1,82,40,600/- (One Crore eighty two lakhs forty thousand and six hundred)

2. M/s Mahaveer Energy & Coal Benification Limited –

M/s Mahaveer Energy & Coal Benification Limited is Biomass based 12MW Thermal Power Plant located in Village Bhengari, Gharghoda, Raigarh. The plant started its commercial production in 2014 with an average generation of fly ash 20,000 MT per annum. The thermal power has generated approximately 1,39,839 MT fly ash during April 2014 to March 2021, out of which 0.04% (56MT) has been disposed in low lying area of village Bhengari. The industries during hearing have submitted documents related with agreement for fly ash use by Sh. Saroj Kumar S/o Sh. Prabhakar Kumar in Brick manufacturing. This agreement was done on 04.12.20 indicating that fly ash generated before 04.12.2020

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have been disposed in low lying area. The industry has also provided copy of revenue records in support of ownership of the land. Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level. No consent has been obtained from CECB .

The above said notification only permits for reclamation and compaction of fly ash in low lying area but do not give liberty to loose disposal of fly ash that's too above ground level. The oversight committees during its visit have observed heaps of disposed fly ash giving its way to become air borne or flow with rain water in drain leading to surface water contamination.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.
Mahaveer Bio Energy has created an ash dump behind its premises in violating theSOP and EC even creating a public hazard. On field visit dated 25-08-2021 we found near a temple there was a fly ash dump adjoining to Forest and River, due to erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground and as per persons gathered there the land is govt. land recorded as ""ChoteJhad Ka Jungle". No guidelines as prescribed since 1999 have been followed. As per report of committee

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dated 11-10-2019 it has been found that M/S Mahaveer Energy is indulging in extensive and irresponsible disposal of fly ash in village Bhengari. In that report Fig. 3 Éxtent of fly ash dumping in agricultural land in Bhengari Village close to Bhengari Nala and Fig. 4. 40 feet height flyash dump by M/s Mahaveer Energy in Bhengari village (in the name of low lying areas dump) . On recent visit on 25-08-2021 we saw the spot (Fig.4 of that report) and found that earlier reporting still continues. We also saw evidence of flowing fly ash from upper portion to lower portion. On 15-17 March visit it has been noted that Mahaveer Energy has created an ash dump behind its premises the top of dump is at least 10 feet height above the ground level and does not confirm to the SOP for dumping in low lying area, even there is no proper retaining wall around the dump creating a public hazard. In present visit we still found the Dump present in open sky flying ash in environment.

Representative from Mahaveer Bio Energy to defend their action have accepted all those dump but their contention is that because of demand of Mandir Samiti, dump near Mandir has been made, other dump are in their own land, they are using fly ash in making the bricks under their own kiln and also providing fly ash to other kiln holder but to support he could not produce land owner ship in his name or other documents regarding actual use of fly ash in making the bricks.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. M/s Mahaveer Energy & Coal Benification Limited is liable for environmental compensation.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to

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Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Environmental Compensation is calculated as under-

- Initial date of compensation- 01.01.2018
- Last date of compensation- 30.11.2021
- Number of days- 1429
- Operation factor considered- 0.5 (small scale- biomass plant)
- EC in Rs. 1,42,90,000/- (One crore forty two lakhs ninety thousand)

3. **Penalty/Fine on Principal Secretary Public Works Department, State of Chhattisgarh.**

Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made therein were considered by the NGT vide order dated 27-02-2020

Short term measures

4.1 f. Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

Long term measures

4.2 b) To reduce the pollution and other impacts caused by road transport of coal and mother minerals , direction may be issued that coal transport by road from coal mines or thermal power plants in these two blocks will be permitted only for a year , after which transport must done by rail or closed conveyor belt only.

Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that ***"We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for***

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protection of environment and public health and environmental rule of law.

<u>Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.</u>

02. Long Term Measures

REVIEW STATUS AS ON 09-11-2020
As per report obtained from SECL it is evident 35%increase in daily average dispatch by rail in comparison to the FY 2019-20 after construction of new rail line between Kharsia – Gharghoda- Korichhapar , coal dispatch from Korichhapar railway siding commenced in FY 2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.
The Committee on field observation has made recommendation as below:-

1. *EE PWD was present before committee to apprise the status of PWD roads in the area .Committee has observed very bad road conditions in Tamnar and Gharghoda area which seems to be one of the measure factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to DharamjayGarh about 76 Km and Punjipathra to Milupara about 35n Km.)but due to budget constraint the work is pending since last several years. An amount of Rs. 335Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 Kms, 7m wide tar road from Gharghoda to Jampali in compliance of NGT order.*
2. *RECOMMENDATIOINS*
3. *2.Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 Crore (@ Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7 m width (Raigarh to DharamjayGarh about 76 km and Punjipatra to Milupara about 35 km) and insure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.*

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Hon'ble NGT passed order that Principal Secretary Health and the PWD Department, Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and considered by Hon'ble NGT vide their order dated 24-06-2021.

f). Proper repairing and maintenance of road outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

REVIEW STATUS AS ON 15-03-2021
EE PWD, Raigarh has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to DharamjayGarh about 76 Km and Punjipathra to Milupara about 35n Km.) but due to budget constraint the work is pending since last several years.
Letter issued to PS, PWD, S-1/03 Mahanadi Bhawan, Raipur by this office vide number RDB/NGTOA 104/2018/553 dated 07-09-2020 and 06-01-2021 to sanction Rs. 335 crore for construction of 111 km CC road. No response has been received from PS, PWD Chhattisgarh Government.

FIELD OBSERVATION S
5. EE PWD Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharamjaygarh about 76 Km and Punjipathra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20-11-2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under:-

> Main High way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme
>Stretch from Chhal Mines to Gharghoda has been approved for two lanes
>Stretch from Punjipathra to Milupara via Tamnar not yet approved

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In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get the same approved so as to complete the work within three months. Stretch from Punjipathra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

RECOMMENDATIONS

4. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipathra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of work.

FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER DATED 24-06-2021.

. *5. Improve Road quality to reduce spillage and air pollution- Gharghoda and Tamnar area of Raigarh is extremely in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for existing industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. I order to ensure better ambient air quality and statistical balance is to be developed between road transport and rail transport. It was found satisfactory that developments of rail network with five coals siding the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only specially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.*

EE PWD, Raigarh has informed the committee that main highway immediately connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chall mines to Gharghoda has been approved for two lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and stretch from Milupara to Lailung not yet approved.

Action : Since the actual process of constructing the NH will take atleast

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two years , PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As for as constructions of other stretches are concern PWD shall take highest priority because these are the stretches with heaviest traffic density.

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities , constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,……. In para 9 directed that "The Oversight Committee may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law."In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to performs their constitutional obligation to protect environment and public health. Pending taking coercive measures for such failure in due course , we direct the Chief Secretary , Chhattisgarh to ensure necessary action on the part of the concerned department , including PWD and Health on the subject of construction of road and providing Health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order against PWD and Health Department of State of CG finally apprised them towards penal consequences of disobedience but both these department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment compensation/ penalty has been provided.Intimation was sent to PS PWD Chhattisgarh Government to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT.

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Chief Engineer, Bilaspur and Executive Engineer Raigarh of PWD attended the meeting and briefed the progress as under-

1. An amount of Rs.6274.33 Laks is sanctioned on 08.09.2021 for 27.50 km CC road from Punjipathra to Tamnar.
2. Approval granted on 23.02.2021for an amount of 2032.95 Lakhs for renovation work of 13.40 km road from Raigarh to Gharghoda.
3. Approval granted on 08.09.2021for an amount of 1797.25 Lakhs for renovation & Strengthening work of 10 km road from Chaal to Gharghoda.
4. So far as patch repair work is concerned, no documents or material could be produced even otherwise we could not see any repair work going on, on the roads.

All above sanctions and approvals are subject to acquirement of land, Release of Loan and two years' time for completion. Till date there is no progress regarding acquisition of land, sanction of loan, etc. All these facts itself shows that matter has not been given any seriousness or to say in near future the road is not going to be made.

The committee is not satisfied with submission.

Matter to be considered for imposition of Penalty/Fine

From afore stated complete facts it is clear that dept.of PWD did not care to follow the directions of the committee and also did not complied the orders of the Hon'ble NGT even they misguided committee and NGT by informing that road main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme which appears to be not correct because no such document to show that NH has taken over the Road has been provided. Although they received amount from SECL despite that they did not took interest to construct road. Non Construction of road and lack in repair work is one of the reason for pollution caused by road transport even there is no surety that in near future the construction of road will be made by the department. In fact this is a case of deliberate disobedience of remedial

measures by the PWD, therefore for environment breach Depart.of PWD is also responsible and therefore cannot escape its liability to pay Penalty / Fine ..

If environmental Compensation is to be levied as per calculation below-

- Start date non- compliance- 07.09.2020
- Last date of compensation- 30.11.2021
- Number of days- 448
- Rate Rs. 30,000 per day
- EC comes to Rs- 1,34,40,000 (One Crore, thirty four lakhs, forty thousand)

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penalty/Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

4. Penalty/Fine on Principal Secretary, Health Department,CG Govt.

Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made there in were considered by the NGT vide order dated 27-02-2020

Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (4A 314/2014 CZ) case. (Action by respective coal mine companies).

Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that "We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law. In para 5 have made reference to applicants contentions and passed order in para 6. ***In para 6 have ordered that "Mitigation measures for***

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heath issues may be over seen by the Principal Secretary , Health, Govt. of Chhattisgarh. For this purpose , the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary , Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."(NGT order dated 27-02-2020)

Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.

01. Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 09-11-2020

"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."

02. Long Term Measures

b) To reduce the pollution and other impacts caused by road transport of coal and other minerals, direction may be issued that coal transport by road from coal mines or thermal power plants in these two blocks will be permitted only for 1 year, after which transport must done by rail or closed conveyor belt only.

REVIEW STATUS AS ON 09-11-2020

The Committee on field observation has made recommendation as below:-

1.
2. *RECOMMENDATIOINS*

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3. *1. In order to ensure development of health facilities in the village of mining affected area, Principal Secretary, Health, Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities'.*

Hon'ble NGT passed order that Principal Secretary Health and the PWD Department, Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and considered by Hon'ble NGT vide their order dated 24-06-2021.

01. Short term measures
g). Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 15-03-2021
"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. Collector Raigarh has assured to arrange the required medical facility in the area by way arranging n health screening camps in all villages within next few months.
RECOMMENDATIONS
3. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.
FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER

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DATED 24-06-2021.

4. *Public health facilities and disease screening – The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area, Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis – JPL nultispecility hospital at Tamnar. Collector Raigarh has also assured to organize "health Camps" within the next three months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.*

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,……. In para 9 directed that "The Oversight Committee may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law."In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to perforsm their constitutional obligation to protect environment and public health. Pending takingcoercive measures for such failure in due course , we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned department, including PWD and Health on the subject of construction of road and providing Health care facilities and drinkingwater to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order and finally apprised them to wards penal consequences of disobedience but department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment Penalty/Fine has been provided to the department.

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Intimation was sent to PS, Health, Govt. of Chhattisgarh to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. PS Health Chhattisgarh Government could not ensure his presence in person/representative in the meeting.

The documents and information provided about infrastructure of health facilities reveals that health care facilities are insufficient and no serious efforts have been made to improve it even on the direction of Hon'ble NGT.

Hence the matter to be considered for imposition of environmental Penalty/Fine.

- The oversight committee in its report dated 14.10.2019 submitted to Hon'ble NGT had recommended proper and free health care facilities with multispecialty treatment system may be provided in all coal mine adjacent villages. In this context Hon'ble NGT has given the liberty to PS Health Government of Chhattisgarh to oversee the mitigation measures for health issues. For this purpose the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.

- In its further order dated 20.11.2020 Hon'ble NGT has directed PS, Health Govt. of Chhattisgarh to keep informing the oversight committee about development made in health facility. In spite of the direction issued by Hon'ble NGT no progress was submitted PS, Health, Govt. of Chhattisgarh to the oversight committee.

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- Hon'ble NGT in its order dated 27.02.2020 has directed that *mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.A copy of this order be sent to the CPCB, Principal Secretary, Health, Govt. of Chhattisgarh, Ministry of Coal as well as the MoEF&CC by e-mail.*

- Hon'ble NGT in order dated 24.06.2021 on point number 10 mentioned that
  "*We regret to note failure of the concerned departments of the State of Chhattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries. "*

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Principal Secretary Health neither responded the above orders issued by Hon'ble NGT nor could do any work to protect environment and public health. He not only took all the orders passed by Hon'ble NGT in a very casual manner but also gave a deaf ear to those orders His non involvement in taking remedial measures is one of the reason to increase public health hazard which arose due to air and water pollution. Neither he took part in environmental Penalty/Fine hearing although noticed nor could show any ground to exempt him from levying the Penalty / Fine.

If environmental Compensation is to be levied as per calculation below-

- Start date non- compliance- 27.02.2020
- Last date of compensation- 30.11.2021
- Number of days- 641
- Rate Rs. 30,000 per day
- EC comes to Rs. 1,92,30,000 (One Crore, ninety two lakhs, thirty thousand)

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penalty / Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

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5. Physical verification of progress as on 30.11.2021 and Environmental Compensation

Visit of CSPGCL Coal Mines (GarePelma Sector –III) - The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit





it was found that OB dump on one side Pic-02 of the road was located at approximately 80m distance from road side but OB dump all along road was not within prescribed distance, even on many places it is adjacent to road. Dump process is still continuing .We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Villagers assembled there and applicant's representatives have stated there that because of dump and traffic in road this place has been declared as accidental zone and within a year around 10 persons have been killed in accident. Road condition is very bad.Although in one side Provision of check drains have been seen but appears to be not having width of adequate size, the sludge or waste materials along with water is passing through the agricultural fields and is terminating in nallah.(Subsequently we come to know that this is not a Nala but River)((O.B. Dump in CGSPGCL mine at Gare Palma sector 3 observed on field visit during 15-17 March 2021 on both sides of Public Road). This public road is within the mining area and as stated and shown by company officers present there as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009.Although in one side Provision of check

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drains have been seen but in other side there appears no provision of check drains and garland drains have been made to ensure that the sludge or waste materials does not go into the nullah. (Subsequently we come to know that this is not a Nala but River).

For environmental compensation and for remedial measure CGSPGCL ,'was required to be heard on Maintenance of Public Road, on illegal OB dump , non use of fly ash , non construction of garland drains and proper settling tanks , Sludge and waste materials passing through agricultural field destroying crop production going to Nallah. (Subsequently we come to know that this is not a Nala but River) therefore the mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur. **Environment compensation hearing dated 14th September 2021. Heard, Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) -**

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB Dump has been made on both sides of road even in some places adjacent to road. This public road is within the mining area and as stated and shown by companies officer present there, as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009. For Mining operation roads with the mines area is to be constructed by the lessee and lessee has to divert public roads, at his own cost to facilitate scientific mining. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Condition of the road is bad. The mine authorities were present in hearing meeting with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by

Chhattisgarh Environment Conservation Board, Raipur.

The representatives of CSPGCL presented the mining plan in which location of the OB dump is sited on the same place subject to diversion of PWD road passing between lease area. They stated that CSPGCL has deposited required amount with PWD, Raigarh for diversion of the road. There is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start and complete the diversion.. Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was of the opinion that CSPGCL shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. CSPGCL shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. CSPGCL shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance from road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in progress. Mines authorities present there stated the further minimum 15 days time may take to complete the work. They also apprised that CSPGCL obtained necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash.M/s CSPGCL vide

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its letter dated 18.11.2021 requested to DGMS for obtaining permission to use fly ash in its OC mine Gare Pelma sector-III as per study report submitted by CIMFER. Director of Mine Safety, Raigarh vide its letter dated 23.11.2021 has restricted fly ash dumping in the opencast working till submission of clarification for factor of safety (FOS) and suitable geometry of inpit and external dump design by scientific agency.

Violations of environmental conditions and directions as noted above brings the Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

Environmental compensation is calculated as under-

- The CTO issued on 23.10.2020 has condition of fly ash utilization in stowing.

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- Consent condition was amended on 22.06.2021 for utilization of fly ash in OB dump.
- Date of first observation of non-compliance- 17.03.2021
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 253 days

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

6. **<u>Visit of M/s Ambuja Cement Coal Mines (GarePelma Sector- IV/8)-</u>**



The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit of the committee OB dumping was observed on both side of the road (Pic-03). This public road is passing through the mines area and utilized by public, Mines operator and coal transporters. No garland drains with proper settling tanks have been constructed. 25% of fly ash as required in 2009 notification for OB dump has not been done. We saw a number of coal loaded trucks passing through this road, Road condition is very bad. Ambuja Cement Ltd to be heard on Maintenance of Public Road, on illegal OB dump, non use of fly ash, non construction of drains and proper settling tanks . The mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

Heard, M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) on Environment compensation on14th September 2021

The field visit of oversight committee dated 17.03.2021 has

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observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump was located very near to road side which was creating danger to public and transport moving on road. The mine authorities were present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of M/s Ambuja Cement Limited presented the mining plan in which location of the OB dump is sited at distance of minimum 45m from road side subject to diversion of PWD road passing between lease area. Officials of M/s Ambuja Cement Limited stated that they have deposited required amount with PWD, Raigarh for diversion of the road but there is no material to know whether PWD is diverting the road or not and if they intend to divert the road , by which time they may start and complete the diversion . Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was in opinion that M/s Ambuja Cement Limited shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. M/s Ambuja Cement Limited shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. M/s Ambuja Cement Limited shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash in OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance form road on both side of road along full road length in leased area. The said

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construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in progress. Mines authorities present there stated that further minimum 15 days time may take to complete the work. They also apprised that they could not obtain necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash.

Violations of environmental conditions and directions as noted above brings the M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

Environmental compensation is calculated as under-

-
- The CTO issued on 23.10.2020 has condition of fly ash utilization in OB dump and stowing.
- Date of first observation of non-compliance- 17.03.2021
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 253 days

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)(30,000x253)

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

7. **M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5)**

The committee has also visited the site of M/s Hindalco Industries Limited coal mine on 24th November 2021 and found that the mine is divided in two parts. In both parts mines operation is continuing. Back filling was also being done without utilizing fly ash. OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GUL MOHAR, some fruit plant like mango, Guava etc. these plants are very small and their survival is under question. Trees to be planted in green belt or otherwise in mines area are not planted. We could not find garland drain along OB dump and settling ponds.From officials present we could come to know that coal extracted from here is supplied to their captive power plant situated in ORRISSA. When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in



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OB dump even they did not tell how they are disposing their own fly ash. M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) has been directed to be present to defend their liability to pay environmental compensation in environmental compensation hearing on 25.11.2021 at Bilaspur with all relevant documents.

HeardM/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) on 25-11-2021 on assessment of environmental compensation.

Representatives from M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) appeared and contended that they have on mobile connectivity contacted DGM for permission and guidance for utilization of fly ash ,who gave a date for their inspection. They stated that after getting permission from DGM they may take steps to utilize Fly ash in back filling and OB Dump.

The mines is found divided in two parts . In both parts mines operation was continuing. Back filling was also being done without utilizing fly ash. OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GULMOHAR, some fruit plant like mango etc. these plants are very small and their survival is under question. We could not find garland drain along OB dump and settling ponds. From officials present we could come to know that coal extracted from here is supplied to their captive power plant situated in ORRISSA . When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in OB dump even they did not tell how they are disposing their own fly ash.

M/s Hindalco Industries Limited was to provide adequate garland drain along with OB dump with sufficient number of settling ponds to ensure suspended solid free discharge of storm water in rainy season. Hindalco Industries Limited was to comply with the provisions of notification 2009 for utilization of 25% of fly ash in OB and back

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filling. They were also required to develop proper Green Belt.

In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale
5. LF, has been taken 1.0 for population less than one million

- The CTO issued on 02.01.2020 has condition of fly ash utilization in OB dump and stowing.
- Date of first observation of non-compliance- 02.01.2020
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 698 days

EC in Rs. 2,09,40,000/- (Two Crore, nine lakhs forty thousand) (30,000/-x698)

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8. **Visit of Gare Palma IV/01 OC Mines- The captive power plant of M/s Jindal Steel & Power Limited,** Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed near Nalah passing in mining lease area. (PIC- 07) The distance between disposal site and Nalah seems to be less than 500m and during rainy season fly ash may take a way to River kelo through Nalah. The issue has been considered as negligence in selection of site and M/s JSPL has been directed to be present in environmental compensation hearing meeting on 15.09.2021 at Bilaspur with all documents EC, Consent and quantity of fly ash disposed and remediation proposal if any.



On environmental compensation hearing representative from JSPL were present who have been heard and findings recorded that captive power plant of M/s Jindal Steel & Power Limited, Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area. The distance between disposal site and drain seems to be less than 500m and during rainy season fly ash may take a way to River Kelo through drain/ Nala (a watercourse). The issue has been considered as negligence in selection of site and M/s JSPL has been directed to shift the same on or before 30.11.2021.

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On verification on 24-11-2021 we found that fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area has been removed.. M/s JSPL vide its letter dated 28.10.2021 addressed to Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh has informed about removal of OB on 24.10.2021. The committee has also visited the site on 24th November 2021 and found that all OB dump was removed from the site. In view of noncompliance from 24th August 2021 to 24th October 2021 (62 days) EC may be imposed. In view of the above non-compliance Environmental compensation is calculated as under-



The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale
5. LF, has been taken 1.0 for population less than one million

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Date of observation of noncompliance- 15.09.2021

Date of observation of compliance – 24.10.2021

Hence EC (in Rs) = 30,000 X 39 = 11,70,000/- (Eleven Lakhs seventy thousand Only)

9. <u>M/s Jindal Power Limited, Tamnar, Raigarh-</u>

It was reported in over sight committee visit on 17.03.2021 about leakage of fly ash slurry from ash dyke of M/s Jindal Power Limited. The committee had suggested M/s JPL to conduct study through a research organization of national repute to determine the stability of the existing ash dyke and take measures required to strengthen as needed. In order to take the status, the oversight committee once again visited the site on 24th August 2021. Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has discussed in details about process adopted for repair of the leakage and directed M/s JPL to submit the authentic report about strength of repairing undertaken and the stability report of the existing ash dyke from research organization of national repute on or before 30-11-2021.

JPL after complying the direction have submitted stability report conducted by NIT Raipur but did not file any documents to show details about process adopted for repair of the leakage or to establish repair conducted by competent person/ authority therefore is liable for Environmental compensation from 17-03-2021 to 24-08-2021

In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

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EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale
5. LF, has been taken 1.0 for population less than one million

- The Environmental condition has been violated from 17-03-2021
- Date of first observation of non-compliance- 17-03-2021
- Date of compliance taken for assessment-24-08-.2021
- Number of days for non-compliance- -161days
- Determination of Environmental Compensation (EC)
- Hence EC (in Rs) = 30,000 X161 = 48, 30,000/- (Forty Eight Lakhs Thirty thousand Only)
-

10. **<u>Calculation of property damage on application submitted by villagers in favour of the applicant against TPPs</u>**

Applications were against TRN Energy Pvt.Ltd.and against M.s Mahaveer Energy& Coal Benification Ltd. Although copyof the application are been served on these TPPs but they did not file any reply.

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For hearing against these applications, both the parties remained absent. For verification services of concerned Patwari have been taken. As per information provided by the Patwari only 4 persons were found entitled therefore for those persons compensation has been calculated and remaining applications have been rejected.
Calculation of property/ crop damage was done on the basis of area and tentative loss to crop and rate per Quintal
As per report of the area Patwari Govt. has fixed per hector crop 37 quintal and price including bonus Rs.2500/- per quintal of paddy.

The damage claims submitted by the affected villagers and farmers were scrutinized by officials of land revenue departments. They have given the affected area of claimant. Environmental compensation in the shape of damage has been calculated as belowdamage claim submitted by villager details of affected land is as under-

-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare	Amount in Rs
01	Sh. Ghurauram Rathia Nawapara	381/01	0.076	7030
02	Sh. Harcharan Rathia &	09/01	4.411	408017.5 allowe only Rs.1,11,000/- as claimed 175287.5 allowed
	Sh. Malik Ram Rathia Kantagdeeh	09/02	1.895	Rs.1,11,000/- as claimed
03	Sh. Karam Singh Rathia	401/01	0.101	9342.5
Total Affected area			6.483	599677.5

-

- Note- Damage calculated based on productions of 37 quintals per hectare considering rate of crop @ Rs. 2500

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per quintal.

- The committee has decided that as environmental compensation /damage claim will be paid by M/s TRN Energy Private Limited to the affected villagers/ farmers as per above list accordingly.

At a glance

Environmental Compensation/ Penalty/Fine have been calculated for non-complying industries and departments. The details are as under-

Sl. No	Name of the industry / department	EC/Penalty/Fine amount in Rs
01	Principal Secretary, Public Works Department Chhattisgarh Government	1,00,00,000/-
02	Principal Secretary, State Health Department Chhattisgarh Government	1,00,00,000/-
03	M/s TRN Energy Private Limited, Nawapara Raigarh	1,82,40,600/-
04	M/s Mahavir Energy and coal benefication Limited	1,42,90,000/-
05	M/s Hindalco Industries Limited Coal Mine	2,09,40,000/-
06	M/s Ambuja Cement Limited Coal Mine (GP IV/8)	75,90,000/-
07	M/s Jindal Steel & Power Limited, Dongramau, Tamnar	11,70,000/-
08	M/s Chhattisgarh State Power Generation Company Limited	75,90,000/-

09.	M/s Jindal Power Ltd, Tamnar	48,30,000/-

Environmental Compensation against TRN Energy PVT. LTD. have been calculated for damage to property of individuals. The details are as under-

-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare	Amount in Rs
01	Sh. Ghurauram Rathia Nawapara	381/01	0.076	7030
02	Sh. Harcharan Rathia &	09/01	4.411	408017.5allowed only Rs.1,11,000/- as claimed 175287.5 allowed
	Sh. Malik Ram Rathia Kantagdeeh	09/02	1.895	Rs.1,11,000/- as claimed
03	Sh. Karam Singh Rathia	401/01	0.101	9342.5
Total Affected area			6.483	599677.5

Minutes of meeting dated 26 &27 October 2021 is Exhibit 4 and dated 24 & 25 November is Exhibit 5 As per minutes of 5th meeting dated 24&25 Nov. 2021

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8. Shri Sharachchandra Lele, One of the member has vide postal communication dated 04-Aug.2021 raised two points for consideration but after first meeting did not turn up to prosecute these points therefore in his absence we are constrained to take those points for considerations.

9. Shri (Dr.) Sharachchandra Lele's contention in brief is that "their recommendation regarding is continuing no further disposal of fly ash in low lying area has been accepted by Hon'ble NGT in order dated 27-02-2020 but it appears that dumping is continuing and Hon'ble NGT's order dated 27-11-2020 inadvertently introduced some confusion by saying that "the applicant has given suggestion to the effect that fly ash dumping in low- lying area should be ensured. Hon'ble NGT in its order dated 27-02-2020 has considered the recommendations. In para 4 has mentioned that "We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law. In para 5 have made reference to applicants contentions and passed order in para 6. So far as Order dated 20-11-2020 passed by Hon'ble NGT is concerned Hon'ble NGT in para 6 stated that "Further the applicant has given suggestions by way of written submissions filed on 18-11-2020, inter alia to the effect that contaminated sites be seen, fly ash dumping in low – lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps may be remediated. Hon'ble NGT after quoting submissions of the applicants have ordered that "The above suggestions may be duly considered by the concerned authorities and the committee which may be co-ordinated by CPCB. In view of the above we did not find any substance to revise our recommendation again.

10. Another grievance raised by Shri (Dr.) Sharachchandra Lele's is that there was no discussion about the content of the new ToR during the March field visit or meeting in collector's office nor any discussions regarding to whom to invite for the study The 30thMarch letter to NEERI was issued without any decision to that effect having been taken

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by the committee. His further grievance is that NEERI is also represented on the Oversight Committee therefor there is an apparent conflict of interest in the Oversight Committee commissioning NEERI to carry out the study. After study when report is to be vetted again conflict of interest will take place. Further contentions is that the ToR sent to NEERI has not been framed by the Committee to cover clear picture of carrying capacity.

11. Shri (Dr.) Sharachchandra Lele , PhD himself has recognized National Environmental Engineering Research Institute an excellent nationally recognized research organization in this field. Recommendations made by the Committee from time to time and concurrence given to the same by Hon'ble NGT from time to time , does not require to made any further recommendation contrary to earlier given.

12. **EXECUTION APPLICATION FILED BY APPICANTS BEFORE HON'BLE NGT NO.11 OF 2021.** Shivpal Bhagat Applicant No. 1 in OA No. 104/2018 has filed application seeking compliance and execution of order dated 27-02-2020 passed by Hon'ble NGT. On 20-10-2021 only one E-mail received having 2 letters. In one E-Mail learned counsel for the applicant has disclosed that "Albeit filed, EA 11/2021 was not on board on the said date. However, during the hearing, an oral submission on behalf of the applicant had been made with regard to submitting the attached application for considering by Ld.Committee.In furtherance to the submission, please find below the application that has been so filed. We bring to your kind attention that the same had been forwarded on an earlier occasion as well. It is requested that the submission of the applicant be also considered by the Committee while formulating a report as per the orders of the Hon'ble NGT." In another letter they have written that "we had filed the above mentioned Execution application before the Hon'ble Tribunal seeking compliance and execution of order dated 27-02-2020passed by Hon'ble Tribunal in Original application. The contents of the Execution application were

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brought to the notice of the Hon'ble Tribunal and it was opined by the hon'ble Tribunal that since the committee has taken cognizance of the matter, it would be appropriate that the issue raised in the Execution Application be considered by the committee. In light of the above, you are requested to consider the Execution Application attached herein below as representation on behalf of Applicant No. 1.

13. This execution application is pending before Hon'ble the NGT for determination, consideration and decision. There is no order from the Hon'ble NGT, to consider this execution application as representation of applicant no. 1 and to consider while formulating a report. The matter is sub judice therefore we do not find it appropriate to consider while formulating our report. In view of the above, the prayer made by the applicant to consider this execution application as representation of applicant no. 1 and to consider while formulating a report stands disposed of.

FINAL COMPLIANCE REVIEW STATUS AS ON 30-11-2021

1. Short-term measures

1.1 Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling.

As per compliance report submitted on 07.04.2021 and accepted by Hon'ble NGT in its order dated 24.06.2021 Two SECL mines (IV/2,3) and one JPL mine (IV/1) only are accepting fly ash for disposal in OB dump. Other coal mines in Tamnar and Gharghoda area are not accepting fly ash for disposal in OB dump.

Althoudh Environmental compensation has been assessed but for future they are not exonerated and shall be liable to assessment of Environment Compensation and other legal actions.

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CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority.

Oversight committee in its meeting dated 27.11.2020 has decided to write Chairman, CECB for constitution of State level Committee for permitting about utilization of fly ash for reclamation of low lying areas and in stowing of abandoned mines/queries only after ensuring the implementation of guidelines prepared by CPCB as per MoEF&CC notification No.SO 763(E) dated 14-09-1999. The decision was taken for giving effect to observations made by Hon'ble NGT in para 6 of their order 20.11.2020.

> *"Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect* ***that contaminated sites be seen,fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated.*** *Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis 13 and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes."*

In this context Nodal Officer of the oversight committee has written a letter to Chairman, CECB on 26.02.2021(RD/BPL/NGT OA-104/2018/202) for constitution of State level committee for utilization of

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fly ash for reclamation of low lying area, and in stowing of abandoned mines/quarries.

In this context, Member Secretary, CGEnvironment Conservation Board, Raipur, apprised us that State level committee has been constituted a long back and now has been reconstituted on 24.01.2019. This reconstituted committee is termed as monitoring committee constituted by Chhattisgarh Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009. This committee is also responsible to ensure implementation of clauses 7, 8(i) & 8 (ii) of MoEF&CC notification SO 2804 (E) dated 03.11.2009 which reads as:-

"(7) No agency, person or organization shall within a radius of hundred kilometers of a coal or lignite based thermal power plant under take or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub-paragraph (1) of paragraph 3.

(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 die 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 subparagraph (10) for this purpose.

(ii) No person or agency shall within fifty kilometers (by road) from coal of 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 die guidance of the Director General of Mines Safety (DGMS);

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

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When there is already one statutory committee for monitoring and facilitating implementation of notification at the respective State Government level , there appears no need for constitution of another committee for the same work in the same field,

CECB vide its letter number 318 dated 10.05.2021 has made allotment of fly ash disposal in void of Domnara OC mine (Abandoned) of Raigarh but no progress observed on ground, Only one abandoned mine is there for filling of fly ash but the same has been allotted to five companies situated in different area and with different quantities. This allotment has been done in complete violation of "GUIDELINES OF CIL OFFERING MINES VOIDS FOR FLY ASH DISPOSAL The guidelines is a complete code and following that only mines was required to be allotted and compliance should have been made. ***CECB should have asked Coal India Ltd to follow their own guidelines from inception of allotment of Mine void till disposal of fly ash and after closure of the site till reclamation.***

1.2 **Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.**

District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.

Hon'ble NGT in its order dated 20.11.2020 directed that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping

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should not be in unscientific manner. The legacy fly ash dumps be remediated. In this context Nodal Officer of the oversight committee has written a letter to Chairman, CECB on 26.02.2021 (RD/BPL/NGT OA-104/2018/202) for constitution of State level committee for utilization of fly ash for reclamation of low lying area, and in stowing of abandoned mines/quarries.

The committee has also directed Regional officer CECB for providing list of locations where fly ash have been disposed unscientifically and creating threat to environment and agricultural fields. In accordance with list provided by CECB, committee has visited Gharghoda area on 25.08.2021.



Unscientific disposal of fly ash in low lying areas of Gharghoda is one the major issues taken in the case. The committee has visited few sites of fly ash dumping where proper strengthening and compaction of fly ash has not been ensured by M/s TRN Energy Pvt Limited resulting flow of fly ash in to adjoining fields and drains leading to River. The location of fly ash dumping exits in village Bhengari, Nawapara, Tenda and Kantagdeeh. The committee has visited newly constructed ash dyke near the power plant in Nawapara and observed flow of water along with side of ash dyke leading in the fields of farmers. The committee has also witnessed the breaching and damage, then accordingly instructed the villagers & farmers to submit damage claim application in the office of Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh. The format of application for submitting damage claim has also been provided to villagers/farmers with request to be present during hearing at Bilaspur.

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M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately 2879126 MT fly ash during January 2016 to March 2021, out of which 58% (16,65,007 MT) has been disposed in low lying area of village Chote Gumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal of fly ash is approximately17.378 Hectare.

TRN power has created an ash dump as non-compliance of EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidencesfor breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash in to neighboring habitants.

On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and nalah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda .The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On road side flow we could see the flowing of fly ash in heavy

quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat , Fly ash dump have been made . Although they brought some papers and made attempt to show that they have not violated the Environmental conditions. but could not produce permission / consent of State Pollution Control Board. The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines give liberty to loose disposal of fly ash that's too above ground level.

The committee has also visited the Sites of Ash Disposal by M/s Mahaveer Energy & Coal Benefication Limited, Bio-mass based 12 MW power plant located in village Bhengari. The industry generates fly ash by burning of rice husk with coal and use to dump it unscientifically at two locations in village Bhengari. The committee has visited dumping sites on 25th August 2021 and found fly ash dumping in Bhengari village and also in the plant premises. The unscientific disposal of fly ash leads air borne during summer season and washed out during rainy season leading towards surface water body.



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Although Environmental compensation has assessed but that will not exonerate these companies from their illegal activities. We relying on judgment rendered by Hon'ble the **SUPREME COURT OF INDIA in the matter** NIDHI KAIM Vs.STATE OF MADHYA PRADESH, Civil Appeal No. 1727 of 2016, Decided on : 13-02-2017 in which Hon'ble SC has observed that :-

> **"There is a saying – when wealth is lost, nothing is lost; when health is lost, something is lost; but when character is lost, everything is lost. This is attributed to Billy Graham, an American clergyman, born on 7.1.1918. One cannot be certain, about the above attribution, because the same lesson has been taught in India, since time immemorial, by parents and teachers. The issue in hand, has an infinitely vast dimension. If we were to keep in mind immediate social or societal gains, the perspective of consideration would be different. The submission canvassed, needs to be considered in the proper perspective. We shall venture to derive home the point by an illustration. We may well not have won our freedom, if freedom fighters had not languished in jails … and if valuable lives had not been sacrificed. Depending on the situation, even civil liberty or life itself, may be too trivial a sacrifice, when national interest is involved. It all depends on the desired goal. The preamble of the Indian Constitution rests on the foundation of governance, on the touchstone of justice. The basic fundamental right, of equality before law and equal protection of the laws, is extended to citizens and non-citizens alike, through Article 14 of the Constitution, on the fountainhead of fairness. The actions of the appellants, are founded on unacceptable behavior, and in complete breach of the rule of law. Their actions, constitute acts of deceit, invading into a righteous social order. National character, in our considered view, cannot be sacrificed for**

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benefits – individual or societal. If, we desire to build a nation, on the touchstone of ethics and character, and if our determined goal is to build a nation where only the rule of law prevails, then we cannot accept the claim of the appellants, for the suggested societal gains. Viewed in the aforesaid perspective, we have no difficulty whatsoever, in concluding, in favour of the rule of law."

We recommend that M/s TRN Energy Private Limited and M/s Mahaveer Energy & Coal Benefication Limited shall remove the fly ash dump as seen by the committee during their field visit within 4 months else those dumps shall be removed on the cost of those companies ,by State PCB and removed mataerial shall be given to the concerned company for proper disposal as per law.

1.3. **Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks.**

Representative from JPL present in stake holders meeting has informed that 44,25,66 MT coal was transported in 2019-2020 &40,24,274in2020-2021 through conveyor belt to JPL. The quantity provided is about 70 % of total coal mined from GPIV/2&3, however coal quantity received for GP IV/2&3 is only satisfies its 25% requirement. Rest of the requirement is met from other coal mines of Chhattisgarh and Orissa. **State PCB shall verify correctness of the declaration by examining companies coal transportation records.**

1.4 **Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility**

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and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms. PHED should do the analysis (major cations/anions/trace elements) of the inlet and outlet sample of the Defluoridation plant installed in the region.

PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water in village and ensure quality of water in coordination with PHED Raigarh.

In order to ensure and verify the adequate quality of drinking water supply in Village Kondkhel, the committee has also visited Kondkhel village on 24.08.2021 along with applicant, representative of PHED and M/s Hindalco Limited. In the visit, water availability in hand pump as well as taped water supply was found in order.. More over National Environmental Engineering Research Institute (NEERI) Nagpur set up network of observation wells in





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Kondkhel village during 01-02 August 2021. These observation wells network consisting of India Mark II hand pump that are used to measure the ground water level. The ground water level from observation wells network was obtained using Electric Contact Gauze. The ground water level is obtained with respect to below ground level (BGL). The ground water extraction though hand pumps is used for domestic purposes only. The depths to ground water level (BGL-m) in the different observation wells varied between 5.24 m to 14.81 m during first week of August 2021.

Installation of Piezometers and monitoring: All the Coal Mine operators in the region need to install the Piezo meters as per the EC conditions. The installation need to be based on scientific lines and should take into account the depth up to which the mining is envisaged. Monthly monitoring of ground water level should be done by the mine operators.

1.5 **Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information.**

The committee during its field visits has observed installation of CCTV in coal mines and found its satisfactory operation its connectivity with CPCB and CECB should be made. M/s CSPGCL mines have installed two CAAQMS as per instruction and its connectivity with CPCB and CECB is in progress. CECB has also placed order for purchase and installation three CAAQMS in the area but as on 30.11.2021 no station was found operational.

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M/s CSPGCL mine has installed two CAAQMS and remaining is not complied. May its installation takes time but on this excuse concerned proponents are not entitled for excuse. CECB to issue directions to concerned proponents for installation of CAAQMS and for CCTV connectivity with CPCB and CECB.

1.6 **Proper repairing and maintenance of roads outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.**

Although Environmental Penalty / Fine has been assessed on Principal Secretary, PWD State of CG but he is not exonerated from complying earlier directions. He should comply those directions else shall be liable again for Penalty/Fine and other legal coercive measures.

1.7 **Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case.**

Although Environmental Penalty / Fine has been assessed on Principal Secretary, Health, State of CG but he is not exonerated from complying earlier directions. He should comply those directions else shall be liable again for Penalty/Fine and other legal coercive measures.

1.8 Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.

Yes. On Papers although Project Proponents have tried to show that they are doing the plantation work , but there is distinction between plantation and Green belt development therefore as per mining plan coal mines shall develop green belt and on OB dumps shall grow prescribed species of tree and as per CPCB guide lines 2019 TPP shall develop green belt.

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1.9 **We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major 4 noncompliance in pollution control and social cost (rehabilitation).**

Nodal officer of the committee has informed accordingly toMember Secretary (IA-Coal) Ministry of Environment Forests &CC vide letter number RD/BPL/NGT OA 104/2018/72 dated 18th September 2020. However Honorable NGT Order dated 27-02-2020 in Para 6 have observed; We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the 'Precautionary' and 'Sustainable Development' principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only and mechanism for remedial measures should be in place, including oversight of measures for health mitigation.

2.0 **Long-term measures**

2.1 **Commissioning a detailed and comprehensive environmental load carrying capacity study to be carried out by a reputed environmental research institute over a 24 month period. Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please beissued.**

In the meeting of the oversight committee held on 16.10.2020, CPCB has advised CECB to include the project cost in EC fund sponsored project.CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal was submitted by NEERI, Nagpur which is still under consideration in CECB.

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2.1.1 **The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.**

Action by CECB to ensure its incorporation during finalization of proposal submitted by NEERI, Nagpur for carrying capacity study.

2.1.2 **Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different sub regions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.**

Action by CECB to ensure its incorporation during finalization of proposal submitted by NEERI, Nagpur for carrying capacity study.

2.1.3 CECB shall ensure that within 4 month the **studied for environmental load carrying capacity pending with it shall be allotted according to legal process and allottee should ensure that after allotment study should be completed and report submitted within 24 months. Both of them should keep in mind that default if caused then defaulter shall be liable under legal consequences.**

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2.2 **To reduce the pollution and other impacts caused by road transport of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.**

IRCON International Limited, that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2021.

2.3 **Condition of greenbelt development may be incorporated at TOR stage of EC application to ensure that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.**

Copy of Hon'ble NGT order has been provided to MoEF&CC through its representative of the committee.

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2.4 **Ministry of Coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009.**

In this context, Member Secretary, CGEnvironment Conservation Board, Raipur, apprised us that State level committee has been constituted a long back and now has been reconstituted on 24.01.2019. This reconstituted committee is termed as monitoring committee constituted by Chhattisgarh Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009.

The committee seems to be responsible for obtaining specification of quality of fly ash from expert committee referred in sub paragraph (10) for this purpose. As per sub paragraph (10) ministry of coal for this purpose shall constitute an expert committee comprising of representative from fly ash unit, Department of Science and Technology, Ministry of Science and Technology, Director General of Mines (DGMS), Central Mine Planning and Design Institute Limited (CMPDIL), Ministry of Environment Forests & CC, Ministry of Power, Ministry of Mines and Central Institute of Mining and Fuel research (CIMFR).

Hon'ble NGT in its order dated 24.06.2021 on point no 6 has considered the field observations made in report dated 17.03.2021 about violation found on the JPL, JSPL, Hindalco Industries Limited, Mahaveer Energy and coal Benefication and M/s Ambuja Cement and M/s CSPGCL coal mines.

The com.mittee has addressed all issues during its site visit on 24th and 25th August 2021 and concerns were given opportunity of hearing on 14th and 15th September 2021.

The followingobservations made in the report dated 17.03.2021 has been found resolved.

1. Fly ash dumping with in GP IV/01, outside mine void
2. Fly ash dumping with in GP IV/02 & 03, outside mine void
3. Leakage of fly ash slurry from JPL ash dyke
4. Fire in coal mine/coal dump Gare Pelma IV/02&03
5. Discharge of untreated waste water from M/s Hindalco Industries Limited Coal mine
6. Inadequate quality of drinking water supply to Kondkhel village
7. Making abandoned mines available for disposal of fly ash

FOLLOWING ARE THE MAJOR RECOMMENDATION TO MEET OUT THE PROBLEM OF POLLUTION DUE TO TRANSPORTATION AND FLY ASH DISPOSAL:-

1. Coal brought from outside CG to Tamnar and Gharghoda area by TPP should be carried by train upto nearest Railway siding, may it be booked from any Rly station. From Rly siding to TPP coal may be carried through mechanically operated closed Goods Vehicle or through manual operated Tarpoline covered Goods vehicle. If any exigency arises State PCB may for limited period relax this condition.

2. Coal bought from inside CG to Tamnar and Gharghoda area by TPP should be carried by train upto nearest Railway siding if train connectivity is available . From Rly siding to TPP coal may be carried through mechanically operated closed Goods Vehicle or through manual operated Tarpoline covered Goods vehicle. If train connectivity is not available coal may be carried through mechanically operated closed Goods Vehicle or through manual operated

Tarpoline covered Goods vehicle. If any exigency arises State PCB may for limited period relax this condition

3. Fly ash is a byproduct of TTP and produced as a result of Coal/lignite Burning. Fly ash is hazardous to environment. For its disposal MoEF has from time to time issued notifications and as per notification 2009 one of the mode is stowing of mines using at least 25% of fly ash on weight to weight basis of the total stoving material used and 25% of fly ash on volume to volume basis on the total material used for external dump of over burden and same percentage in upper benches of back filling of open cast mines ,this utilization is to be done under the direction of DGMS.

4. Coal mines although are legally and morally bound to accept minimum above quantity of fly ash from TPP. To achieve this target it is recommended that when coal is sold by the coal company to TPP there should be a condition in the agreement to sell that at least 25 % Fly Ash of the coal sold, should be accepted by the coal company (Seller) from TPP (purchaser) failing which coal company shall be liable for civil action and other legal measures.

5. Before approval of mining plan by the approving authority, approving authority should ensure incorporation of fly ash disposal as required under notification 2009 clause 8(i) and 8(ii).

6. Till carrying capacity report comes, after taking due care to environment, authorities may grant mines, lease, consent permissions, EC etc. After receipt of the carrying capacity report, the same should also be taken as Governing factor.

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DIRECTIONS TO NODAL OFFICER

Nodal Officer is authorized to file status report (compliance status as on 30-11-2021) along with exhibits before the Hon'ble National Green Tribunal on or before 15-12-2021 by e-mail at **judicial-ngt@gov.in** preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. Nodal Officer shall send copy of the report to the authorities who are required to implement the recommendations of the Committee to enable such authorities to file their response, if any, before the next date. Nodal officer shall send copy of minutes under which assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law to Statutory State Board. Nodal Officer shall also send copy of minutes of meetings in which Penalty/ Fine have been assessed on Principal Secretary, PWD, Principal Secretary Health, Govt. of CG to statutory State Board for taking action. Nodal Officer shall if required hand over all paper which we received during working of Oversight Committee to Hon'ble NGT, further authorized on behalf of the committee to do all those works which on authorization can be done by him.

(Shri. S.K.Verma)
Regional Officer,
CECB, Raigarh

(Dr.P. R.Pujari)
Senior Principal Scientist,
NEERI, Nagpur

(Dr. Bhardwaj Adiraju)
Scientist 'C'
MoEF&CC IRO- Raipur

(Dr.R.P.Mishra)
Scientist "D"
CPCB, Bhopal

07.12.2021

(Justice V.K. Shrivastava)
Chairman

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First Meeting
Date- 19th July 2021

Minutes of the meeting of Oversight Committee
OA No. 104/2018 Shivpal Bhagat & Ors. Vs Union of India & Ors.

Hon'ble NGT vide its order dated 24.06.2021 in OA No 104/2018 has directed that the Oversight committee will now be headed by hon'ble Justice V. K. Shrivastava, former Judge of Chhattisgarh High Court. The copy of Hon'ble NGT order dated 24.06.2021 was provided to Hon'ble Justice V. K. Shrivastava at Bilaspur by CPCB and briefed about the content of case and its status as on date. As per direction received meeting of the Oversight committee was organized on 19.07.2021 at Bilaspur. The meeting was attended by all the members of the committee detailed as under-

1. Justice V. K. Shrivastava , Chairman
2. Dr. Paras Ranjan Pujari, Principal Scientist, NEERI, Nagpur
3. Dr. Sharachchandra Lele, Distinguished Fellow, ATREE, Bengaluru
4. Dr. R. P. Mishra Scientist "D' Central Pollution Control Board, Bhopal
5. Dr. Purussottam Sakhare, Scientist 'D' Regional Office, MoEF&CC, Nagpur
6. Sh. P. K. Gupta, DC, Raigarh
7. Sh. S.K. Verma, Regional Officer, CECB, Raigarh

On 24-06-2021 Hon'ble NGT considered the Committee's report filed on 16-04-2021 and passed order on 24-06-2021 based on Committee's field visit, status of compliance as on 15-03-2021, field observations with recommendations, and response of applicant. The relevant portion of the order enshrined in para 8 and 9 of the order are as below:

"8. We have given due considerations to the report of the Committee as well as suggestions made on behalf of the applicants. The recommendations of the committee need to be accepted. State Board should prepare list of areas where the unscientific disposal of fly ash has been taken place and generate data about the quantity of the coal Mined used in the industries and available for TPPs. Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara, disposal of fly ash in abandoned coal mines and constitution of state level committee to look into scientific utilization of the fly ash. Taking such steps is undoubtedly necessary for protection of the environment. The

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suggestions of the applicants reproduced above also need to be considered by the Oversight Committee.

9. The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The Committee may continue to oversee remedial measures in terms of directions of this Tribunal. The Committee may undertake field visit and also interact with all the stakeholders. "The Committee will be at liberty to take assistance from any other Expert / Institution."

The committee has discussed point wise progress made in short term and long term action plan being implemented in the matter. Chairperson of the committee has highlighted the key points to be focused on priority by concern departments. The key points of the meeting are as under-

1. Part-A Short term Action Plan :-

(1) Whether CECB amended the consent conditions of all TPP and Coal mines. **(Action by CECB)**

(2) Whether SECL Chaal (OC), Monet Ispat, M/s Ambuja Cement are accepting fly ash for disposal through OB and back filling. **(Action by CECB)**

(3) Whether CECB constituted State level Committee to decide the mode and quantity of fly ash to be disposed in working/abandoned mines/ Querries in the State. **(Action by CECB)**

(4) Whether as per precondition of SOP Power plant/land owner / agency have obtained statutory permission from regulatory authority SPCB. **(Action by CECB)**

(5) Whether CECB has submitted list of the location of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB. **(Action by CECB and DC Raigarh- All gram sarpacnch of the area in question may be called in stake holder meeting)**

(6) Whether complete supply of coal from Palma 1V/2&3 (SECL) have been made to JPL and JSPL through existing closed conveyor belts in 2019-20 and 2020-21. **(Action reported by CECB- Yes 44,25,66 MT in 2019-2020 & 40,24,274 in 2020-2021)**

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(7) Whether Hindalco is providing tap water in villages Kondkel in co-ordination with PHED. (Action by Hindalco and PHED, **Representative from HINDALCO and PHED may be asked to be present in the meeting of committee with stakeholders.)**

(8) Whether information has been collected regarding water recharge provided by coal mines while obtaining NOC from Central Ground Water authority. **(Action by CECB- Request has been sent to Regional Director, Central Ground Water Board (CGWB), Raipur on 18.06 .2021. Response from CGWB is awaited. RD, CGWB, Raipur may be asked to be present in the meeting of committee with stakeholders.)**

(9) Whether CCTV has been installed by M/s HINDLCO Industries, SECL Gare Palma IV/2 & 3, SECL Chaal, SECL, Gare Palma IV/1. **(Action by CECB- CCTV installed in all mine except Gare Palma IV/1 which is not in production as on date)**

(10) Whether CAAQMS has been installed in all coal mines having its connectivity wi.th CPCB/CECB servers. **(Action by CECB- CAAQMS purchase order placed by CECB)**

(11) Whether IRCON has completed work, 14 KM rail line from Gharghida-Bhalumunda-Gare Palma and 5 number of coal siding in Tamnar and Gharghoda area. **(Action by IRCON and physical verification by CECB, Representative from IRCON may be asked to be present in the meeting of committee with stakeholders.)**

(12) Whether proper repair and maintenance of Road have been done inside and outside the mine area by PWD and mining companies. **(Action by PWD for outside mining area)**

(13) Whether proper and free health facilities with multispecialty treatment system have been provided in all coal mine adjacent villages. **(Action by DC Raigarh- Organization of health camps have been started.)**

(14) Whether MoEF & CC has submitted compiled response received from coal mines relating to Green Belt developments as per EC conditions. **(Action by MoEF&CC Nagpur)**

(15) Whether after September 2020 any UG mines has been converted to OC coalmines. **(Action by MoEF&CC Nagpur)**

(16) What progress has been made for commissioning a detailed and Comprehensive environmental load carrying capacity study. **(Action by CECB- Offer called from NEERI. 1st round of technical meeting held on 02.08.2021)**

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(17) Whether in 2020-21 total transportation of coal to TPP have been made by coalmines through Rail or closed conveyor belt. **(Action by All Coal Mine – follow up by CECB)**

(18) Whether strict monitoring and follow up action by MoEF & CC for green belt development compliance has been made, if so, its result. **(Action by MoEF&CC, Nagpur)**

(19) Whether CMD SECL issued any permission for utilization of abandoned mines for disposal of fly ash. **(Action by SECL- Yes copy of the letter to be provided by CECB)**

2. PART-B Long term Action Plan:-

Hon'ble NGT has directed that the Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The National Green Tribunal Act 2010 does not define compensation, however section 15 authorizes the tribunal subject to sub sections (2) to (5) to provide by an order (a) relief and compensation to the victim of pollution and other environmental damage arising under the enactments specified in the schedule 1 (including accident occurring while handling any hazardous substance) (b) for restitution of property damaged (c) for restitution of the environment for such area and areas. State Pollution Control Board having various functions has also been empowered to do such other things and to perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purpose of The Air (Prevention and Control of Pollution) Act 1981. Although CPCB has drawn and issued methodology for assessing Environmental Compensation and action plan to utilize the same but that does not mean that it restricts assessment of compensation for victim of pollution relating to its person and property. In view of the above assessment of compensation as desired by Hon'ble NGT does not have any restricted meaning. For calculating Environmental compensation one of the main factor is period during which the violation of PC continued or still continuing and for that it is necessary' to know the result of earlier directions issued by the committee on field observations.

(1) Whether JSPL cleaned up the unauthorized dump. Whether JSPL complied the process of covering of fly ash with overburden /sweet soil and ensured daily watering or covering up the fly ash during back filling process. (GP IV/I) **(Action by CECB- reported complied on 23.06.21)**

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(2) Whether JPL cleaned up the unauthorized dump and disposed the fly ash in the mine void through the back filling process (GP IV /2-3) **(Action by CECB- reported complied on 23.06.21)**

(3) Whether directions issued seeing condition of leakage of fly ash dyke IIA and IIB of JSPL have been complied with or not. **(Action by CECB- Dyke Stability report submitted)**

(4) TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidences for breaching of mud wall leading to fly ash flowing into adjoined field even situation to fly ash into neighboring habitants. Whether further dumping is continuing, whether regular watering is done in mud dyke. Whether fly ash dumping caused injury to any person or any property. Whether fly ash dump was in his own land or in the land of others. **(Action by CECB- reported not complied on 23.06.21)**

(5) Mahaveer Bio Energy has created an ash dump behind its premises in violating the SOP and EC even creating a public hazard. Whether dump has been made in private land of villagers, whether improper dumping has been removed. **(Action by CECB- compliance awaited)**

(6) Whether to save hazard from fire which took place in Gare Palma IV /2-3 (SECL), SECL arrested all fire within 500 m of Kusumpalli and Sarasmal Village. **(Action by- SECL & DGMS- Report is awaited. Representative from SECL & DGMS may be asked to be present in the meeting of committee with stakeholders.)**

(7) M/s Hindalco Industries Ltd. violating EC condition have drained untreated water at Gare Palma IV/4 in to a drain leading to agriculture field, whether still continuous, whether it caused any damage to agricultural field. Whether any other way out has been made by the industry. **(Action by CECB- Representative from HINDALCO may be asked to be present in the meeting of committee with stakeholders.)**

(8) Whether OB dump by CSPGCE mine at Gare Palma sector 3 on both sides of public road was according to mining plan, if not what action has been taken by CECB and MoFF & CC. Whether any one suffered any loss from dump. **(Action by- CECB and MoEF&CC Nagpur)**

(9) What was the outcome of sample analysis of sample collected from River Kelo. **(Action by NEERI- Nagpur)**

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3. **PART-C Agenda of Field Visit:-**

(1) To interact with all stake holders and also to consider suggestions of the applicants reproduced in Hon'ble NGT order. **(Action by CECB to call applicant for meeting on 23.08.2021 (F/N) and Stake holders on 23.08.2021 (A/N).**

(2) Collection of data for assessment of Environmental Compensation. **(Joint action by DC, Raigarh, CECB and CPCB)**

(3) To collect information for drawing assessment of loss to person and property. **(Action by DC, Raigarh)**

(4) CPCB if completed, compilation of list of areas where unscientific disposal of fly ash has taken place and generated data about the quantity of the coal mined; used in the industries and available for TPPs. shall submit the same forth with. **(Action by CPCB on receipt of report and data from CECB)**

(5) Whether Road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara have been constructed **(Action by PWD- Report to be presented in Stake holders meeting)**

(6) To collect information regarding adjoining villages adjoining the mines area, and TPPs from Revenue authority and also to collect information regarding payment of any damage to any villagers due to fly ash dumping and breach of other EC. **(Action by DC, Raigarh to be presented in Meeting)**

(7) Applicants if so desired may show polluted areas. **(Action by CECB- To inform applicants about field visit of the committee on 24th August 2021)**

(8) Already visited area required to be revisited for confirmation of continuing violation or redressed thereof. **(Field Visit scheduled on 24-25th August 2021)**

(9) To verify whether CECB complied all the directions given by the committee and whether concerned have obeyed the same. **(Action by CECB- onward directions/letters issued to non-compliances further verification report submitted on 23.06.2021)**

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In compliance of point 1-9 from Part-3, it is decided to conduct field visit during 23-26th August 2021 by the Oversight Committee. The Oversight Committee will meet with applicants on 23rd August 2021 from 11 AM to 01 PM and with stake holders from 03 to O5 PM. All the concerned department listed in Part 01 & 02 will compile the related status report to place before Oversight Committee. The representatives of the concerned departments are also to be present during field visit on 24th & 25th August 2021. Regional Officer, CECB, Raigarh will co-ordinate with applicants and stakeholders and ensure their presence in meeting. He will also finalize meeting venue in consultation with DC, Raigarh.

The meeting ended with thanks to Chairman.

(Dr. Sharachchandra Lele)
Distinguished Fellow,
ATREE Bengaluru

(Dr. P.R. Pujari)
Senior Principal Scientist,
NEERI, Nagpur

(Dr. P. R. Sakhare)
Scientist-D, MOEF&CC, Nagpur

(Shri. S.K.Verma)
Regional Officer,CECB, Raigarh

(Dr. R. P. Mishra)
Scientist "D"
CPCB, Bhopal

(Sh. P. K. Gupta)
Deputy Collector Raigarh

(Justice V. K. Shrivastava)
(Chairman)

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In compliance of point 1-9 from Part-3, it is decided to conduct field visit during 23-26th August 2021 by the Oversight Committee. The Oversight Committee will meet with applicants on 23rd August 2021 from 11 AM to 01 PM and with stake holders from 03 to O5 PM. All the concerned department listed in Part 01 & 02 will compile the related status report to place before Oversight Committee. The representatives of the concerned departments are also to be present during field visit on 24th & 25th August 2021. Regional Officer, CECB, Raigarh will co-ordinate with applicants and stakeholders and ensure their presence in meeting. He will also finalize meeting venue in consultation with DC, Raigarh.

The meeting ended with thanks to Chairman.

(Dr. Sharachchandra Lele)
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CPCB, Bhopal

(Sh. P. K. Gupta)
Deputy Collector Raigarh

(Justice V. K. Shrivastava)
(Chairman)

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EXHIBIT - 02

2nd Meeting

Date- 23rd - 26th August 2021

Minutes of the meeting of Oversight Committee

OA No. 104/2018 Shivpal Bhagat & Ors. Vs Union of India & Ors.

Hon'ble NGT vide its order dated 24.06.2021 in OA No 104/2018 has directed that the Oversight committee will now be headed by Hon'ble Justice V. K. Shrivastava, former Judge of Chhattisgarh High Court. 1st meeting of the Oversight Committee was held on 19.07.2021 at Bilaspur and was attended by all members.

In accordance with decision taken in 1st meeting field visit of Raigarh was conducted during 23rd to 26th August 2021. Sh. Sharachchandra Lele, ATREE, Bengaluru could not attend the meeting due to health issue and MoEF & CC, Regional Office, Nagpur has nominated Dr. Bharadwaj Adiraju, Scientist C, IRO, Raipur in place of Dr. Purussottam Sakhare, Scientist "D" Regional Office, Nagpur. As per pre decided schedule committee had meeting with applicant and stakeholders on 23.08.2021, Field visit on 24-25.08.2021 and concluding meeting with concerned departments on 26.08.2021. The meeting and field visit was attended by members as under-

1. Justice V. K. Shrivastava, Chairman
2. Dr. Paras Ranjan Pujari, Senior Principal Scientist, NEERI, Nagpur
3. Dr. R. P. Mishra Scientist 'D' Central Pollution Control Board, Bhopal
4. Dr. Bhardwaj Adiraju Scientist 'C' MoEF&CC, IRO Raipur
5. Sh. P. K. Gupta, Dy. Collector, on behalf of Collector Raigarh.
6. Sh. S.K. Verma, Regional Officer, CECB, Raigarh

The committee has discussed point wise progress made on the issues included in the MOM of 1st meeting and also verified the status in field during 24 -25th August 2021. The points observed during meetings and field visits are as under-

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1. Meeting with Applicant and Stake Holders (23rd August 2021) -

The Committee has organized meeting in the Collector Office to hear applicant and stake holders on the various issues emerged from previous reports submitted and subsequent orders passed by Hon'ble NGT.

The applicants and villagers were heard by the Oversight Committee on 23rd August 2021 (F/N). The list of applicant and other villagers present in the meeting is as under-

01	Sh. Shivpal Bhagat	Applicant	**02**	Ms. Rinchin	Applicant
03	Smt. Janki Sedan	Applicant	**04**	Shri Ram Gupta	Applicant
05	Sh. Tuleshwar Baisnav	Bhengari	**06**	Sh. Kanahi Ram Patel	Villager
07	Sh. Dukkalu Ram	Sarasmal	**08**	Sh. Somnath Patel	Sarasmal
09	Sh. Karam Singh	Sarasmal	**10**	Sh. Mohan Lal	Millupara
11	Sh. Rathia	Kausampalli	**12**	Sh. Mohanlal	Millupara
13	Sh. Hemsagar	Salihamatha	**14**	Sh. Prahlad Sidar	Regaon
15	Sh. Mainsingh	Ukarpalli	**16**	Sh. Nohar Chauha	Narmunda
17	Sh Chedilal Chauhan	Ukaripalli	**18**	Sh. Teerthanand Patel	Kondkhel
19	Sh. Manhara	Kondkhel	**20**	Smt. Pushpa	Millupara
21	Sh. Khusiram	Millupara	**22**	Sh. Salikram	Millupara
23	Sh. Mayaram	Narmunda	**24**	Sh. Bharatlal Singhar	Nagarmunda

The issues raised by the applicants / villagers were about mishandling of fly ash by Jindal Power Limited (JPL) in GP IV/01, GP IV/02 and GP IV/03 mines. The applicants have also raised the issue of fly ash leakage from Ash Dyke of JPL and unscientific dumpling of fly ash in low lying areas by M/s TRN Energy Pvt. Limited and Mahaveer Energy & Coal Benefication Limited. Also applicants made brief submissions on their suggestions on action suggested before the Hon'ble NGT.

The oversight committee suggested to the villagers and applicants for submission of their claim in writing about damage occurred due to cause informed in the meeting. The claims were to be submitted in the office of Regional Officer, Chhattisgarh Environmental Conservation Board, Raigarh on before 10th September 2021 and claimants to be physically present for hearing before Oversight Committee on any day during 14th to 16th September 2021 at Bilaspur.

The oversight committee also heard the stakeholders in A/N on 23rd August 2021 for submission of their compliances on the issues raised by applicants/ villagers. The list of stakeholders present in the meeting is as under-

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S. No.	Name	Industry / Department
01	Sh. Sanjay Singh	EE, PHED, Raigarh
02	Sh. D P Verma	AE, PHED, Gharghoda
03	Sh. S M Minalza	GM, IRCON, Bilaspur
04	Sh. A K Singh	Dy. GM, IRCON, Bilaspur
05	Sh. B R Naik	Managar, IRCON, Bilaspur
06	Sh. Manoj Kumar Sahu	Dy. Director, DGMS, Raigarh
07	Dr. P K Naik	CGWB, NCCR, Raipur
08	Sh. G. Shreenath	CGWB, NCCR, Raipur
09	Sh. Vikrant Singh	CGWB, NCCR, Raipur
10	Sh. Sandeep Markan	Assistant Manager, SECL, Raigarh
11	Sh. S P Ahmad	SECL, Raigarh
12	Sh. N Rukmangad	GP IV 2&3 OCM, Raigarh
13	Sh. Sachin Sharma	M/s HINDLCO Mines, Raigarh
14	Sh. Sharanappa Kambali	M/s Ambuja Cement Ltd
15	Sh. Prahlad Prasad	M/s TRN Energy (P) Limited
16	Sh. Vikash Singh	M/s TRN Energy (P) Limited
17	Sh. S K Singh	GM,ENV, JPL, Tamnar, Raigarh
18	Sh. D K Bhargava	VP, JPL, Tamnar, Raigarh
19	Sh. C N Singh	ED, JPL, Tamnar, Raigarh
20	Sh. D P Singh	AVP, ENV, JSPL, Raigarh
21	Sh. B S Gupta	AGM, JSPL, Raigarh
22	Manager HR	M/s Mahaveer Energy & Coal Benefication
23	Sh. M R Bagde	EE, Civil, CSPGCL, Raipur
24	Sh. Mukesh Saxena	SVP, CSPGCL Mines, Raipur
25	Sh. S K Pal	VP, CSPGCL Mines, Raipur
26	Sh. Sanjeev Kumar	VP, CSPGCL Mines, Raipur
27	Sh. Rakesh Pandey	M/s Nav Durga Fuel (P) Limited
28	Sh. R N Jha	M/s Ambuja Cement limited
29	Sh. M L Sahu	M/s Nalwa Steel & Power Limited
30	Sh. Ganesh Mittal	M/s Anjani Steel, Raigarh

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- Representative of CGWB, Raipur Sh. Srinath Scientist "B" was present during meeting and assured the committee to provide the details about water recharge points provided by coal mines while obtaining NOC from CGWA in the 1st week of September 2021.

- M/s IRCON was to complete the work of 14 KM rail line from Gharghoda-Bhalumunda-Gare Palma and 5 number of coal siding in Tamnar and Gharghoda area.
  The representative from IRCON International Limited present in the meeting has informed about extension of target date up to December 2021 for completion of the project. The committee has asked M/s IRCON International Limited to submit the statement in writing.

- TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidences for breaching of mud wall leading to fly ash flowing into adjoined field even situation to fly ash into neighboring habitants. The representative of M/s TRN Energy Pvt. Ltd was present in stakeholder meeting, who stated that after NOC and agreement of land owner for disposal of fly ash in low lying area disposal has been made. As informed by the industry further disposal of fly ash in low lying area is not in process. The industry has constructed new flyash dyke for further disposal of fly ash in future.

- Free medical health facility was to be provided by State Government to villagers residing near to coal mining area. In this context it was informed that State Government has organized health check camp in August 2021 in all coal mine adjacent villages.

- The representative of M/s Mahaveer Energy & Coal Benefication Limited was present in stakeholder meeting who stated that after obtaining NOC and agreement of land owner for disposal in low lying area disposal has been made. As informed by CECB disposal of fly ash in low lying area is still in process and at present fly ash is being stored in the plant premises.

- Complete supply of coal to be made to JPL from Gare Palma 1V/2&3 (SECL) shall be made through existing closed conveyor belts. Representative from JPL has informed that 44,25,66 MT coal was transported in 2019-2020 & 40,24,274 in 2020-2021 through conveyor belt to JPL. The quantity provided is about 70 % of total coal mined from GPIV/2&3, however coal quantity received for GP IV/2&3 only satisfies its 25% requirement. Rest of the requirement is met from other coal mines of Chhattisgarh and Orissa.

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- The representative of JPL has also informed that they have cleaned up the stored dump and disposed the fly ash in the minevoid through the back filling process (GP IV /2-3). It was also informed that Regional Office, CECB, Raigarh has inspected the site and submitted his report for the same.

- The concerned officers from JPL has stated that they received CECB direction for leakage of fly ash dyke IIA and IIB and they submitted stability report for the same to CECB.

- The representative of JSPL stated that they have cleaned up the stored dump of fly ash and disposed the fly ash in the minevoid through the back filling process (GP IV /01). It is also stated that Regional Office, CECB, Raigarh has inspected the site and submitted his report for the same.

- In the meeting of oversight committee held on 15-17.03.2021Executive Engineer PWD, Raigarh has informed that main highway connecting Raigarh to Dharmajaygarh has now been shifted to NH Scheme. Stretch from Chhal mines to Gharghoda has been approved for two lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25Km) and stretch from Millupara to Lailunga not yet approved.

  Since the actual process of constructing the NH will take at least two years, EE PWD, Raigarh has been instructed to identify badly damaged patches in this stretch and prepare a budget for obtaining approval and act upon immediately (within three months). As far as construction of other stretches are concerned PWD shall take highest priority because these are stretches with heaviest traffic density.

  As EE, PWD, Raigarh was not present in the meeting on 23.08.21 the committee has instructed him to ensure his presence before committee on 26.08.2021.

- The representative form M/s Hindalco Industries Ltd. informed that drain leading to agriculture field from Gare Palma IV/4 has been closed and compliance report submitted to *CECB.*

We also interacted with stake holders present, on remedial measures on pollution, violation done in past and still continuing and on other related matters.

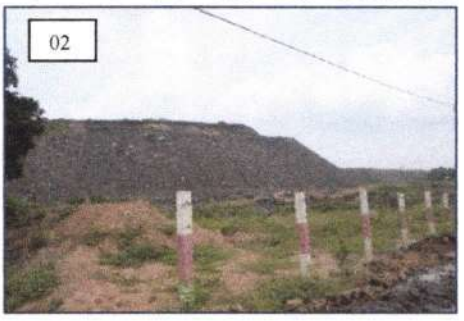
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2. Field Visit of Tamnar Area (24.08.2021)

2.1 Visit of CSPGCL Coal Mines (Gare Pelma Sector –III) - The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump on one side of the road was located at approximately 80m distance from road side but OB dump all along road was not within prescribed distance, even on many places it is adjacent to road. Dump process is still continuing. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Villagers assembled there and applicant's representatives have stated there that because of dump and traffic in road this place has been declared as accidental zone and within a year around 10 persons have been killed in accident. Road condition is very bad. Although in one side Provision of check drains have been seen but appears to be not having width of adequate size, the sludge or waste materials along with water is passing through the agricultural fields and is terminating in nallah. (O.B. Dump in CGSPGCL mine at Gare Palma sector 3 observed on field visit during 15-17 March 2021 on both sides of Public Road). This public road is within the mining area and as stated and shown by company officers present there as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009. Al though in one side Provision of check drains have been seen but in other side there appears no provision of check drains and garland drains have been made to ensure that the sludge or waste materials does not go into the nullah.



Pic-02



For environmental compensation and for remedial measure CGSPGCL, to be heard on Maintenance of Public Road, on illegal OB dump, nonuse of fly ash, non-construction of garland drains and proper settling tanks, Sludge and waste materials passing through agricultural field destroying crop production going to Nallah.

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The mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

2.2 Visit of M/s Ambuja Cement Coal Mines (Gare Pelma Sector- IV/8)- Mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit of the committee OB dumping was observed on both side of the road (Pic-03). This public road is passing through the mines area and utilized by public, Mines operator and coal transporters. No garland drains with proper settling tanks have been constructed. 25% of fly ash as required in 2009 notification for OB dump has not been done. We saw a number of coal loaded trucks passing through this road, Road condition is very bad. Ambuja Cement Ltd to be heard on Maintainance of Public Road, on illegal OB dump, no use of flyash, non-construction of drains and proper settling tanks. The mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.



2.3 M/s Hindalco Mine drain and water supply in Kondkhel Village- The committee during its meeting on 17.03.2021 has found discharge of water from mine of M/s Hindalco Mines (Gare Palma IV/4 & IV/5) leading to agriculture fields. The committee has recommended for inspection of treatment facility available with mine and collection of water sample to ensure that it meets discharge quality standards set in EC/Consent. CECB has inspected the mine and submitted the report. As no sample was collected during inspection, the oversight committee once again visited the site on 24.08.2021 and collected the water sample for analysis (PIC-04). The committee has instructed the Regional Officer, CECB to present the sample analysis report during hearing meeting at Bilaspur.



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In order to ensure and verify the adequate quality of drinking water supply in Village Kondkhel, the committee has also visited Kondkhel village on 24.08.2021 along with applicant, representative of PHED and M/s Hindalco Limited. In the visit, water availability in hand pump as well as taped water supply was found in order. (PIC-05 & 06). More over National Environmental Engineering Research Institute (NEERI) Nagpur has set up network of observation wells in Kondkhel village during 01-02 August 2021. These observation wells network consisting of India Mark II hand pump that are used to measure the ground water level. The ground water level from observation wells network is obtained using Electric Contact Gauze. The ground water level is obtained with respect to below ground level (BGL). The water level measured as below ground level has been converted to water level (above mean sea level) by subtracting the water level (BGL) from the reduced level (RL) of the well. The ground water extraction though hand pumps is used for domestic purposes only. The depths to ground water level (BGL-m) in the different observation wells varied between 5.24 m to 14.81 m during first week of August 2021.





2.4 Visit of Gare Palma IV/01 OC Mines- The captive power plant of M/s Jindal Steel & Power Limited, Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed near Nalah passing in mining lease area. (PIC- 07) The distance between disposal site and Nalah seems to be less than 500m and during rainy season fly ash may take a way to River Kelo through Nalah. The issue has been considered as negligence in selection of site



True Copy

and M/s JSPL has been directed to be present in hearing meeting on 15.09.2021 at Bilaspur with all documents EC, Consent and quantity of fly ash disposed and remediation proposal if any.

2.5 Visit of Sarasmal Village- The committee has also visited village Sarasmal near Gare Palma IV/02 & 03 Open cast mines of SECL as first applicant Sh. Shivpal Bhaghat belongs to this Village. Gare Palm IV/02 & 03 OC mines are not operational since long and also not found operational during visit. The committee has also visited the pond from where water is being used by villagers and for irrigation purpose. The applicants informed about presence of Arsenic and other metals in the water making it harmful for irrigation and for human body. The committee has instructed CECB for collection of onsite water samples for analysis by EPA approved laboratory and submit the report during hearing meeting at Bilaspur. (PIC-08)



2.6 Visit of JPL Ash Dyke- It was reported in over sight committee visit on 17.03.2021 about leakage of fly ash slurry from ash dyke of M/s Jindal Power Limited. The committee had suggested M/s JPL to conduct study through a research organization of national repute to determine the stability of the existing ash dyke and take measures required to strengthen as needed. In order to take the status, the oversight committee once again visited the sight on 24th August 2021. Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has directed M/S JPL to be present in hearing meeting at Bilaspur with stability report of ash dyke, relating to our earlier field visit directions. (PIC-09)



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3. Field Visit of Gharghoda Area (25.08.2021)

3.1 Visit of sites used for disposal of fly ash in low lying area- Unscientific disposal of fly ash in low lying areas of Gharghoda is one the major issues taken in the case. The committee has visited few sites of fly ash dumping where proper strengthening and compaction of fly ash has not been ensured by M/s TRN Energy Pvt Limited resulting flow of fly ash in to adjoining fields and drains leading to River. The location of fly ash dumping exits in village Bhengari, Nawapara, Tenda and Kantagdeeh. (PIC-10, 11, 12). Even on the side of State High way unscientific fly ash dump has been found, also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Fly ash dump adjoining to Forest and nalah in personal land of some villager have also been seen, due to cracks and land break from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since 1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda. The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoined field. To prevent the same no remedial measures has been taken by the PP. On current visit dated 25-08-2021 we find that some of the fields have become useless, in agricultural field flowing of fly ash was found. On road side we could see the flowing of fly ash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.





The committee has visited newly constructed ash dyke near the power plant in Nawapara and observed flow of water along with side of ash dyke leading in the fields of farmers. The chairman of the committee has instructed for collection of water samples and submit analysis report during hearing in matter at Bilaspur. The committee has also witnessed the breaching and damage, Fly ash flying over the ash dyke has also been seen. It appears that there is no system operating to keep the fly

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ash in wet condition. Construction also does not appears to be scientific. Adjoining to this dyke there is village, naturally fly ash flying will damage the environment.

3.2 Visit of Sites of Ash Disposal by M/s Mahaveer Energy & Coal Benefication-

M/s Mahaveer Energy & Coal Benefication Limited is Bio-mass based 12 MW power plant located in village Bhengari. The industry generates fly ash by burning of rice husk with coal and use to dump it unscientifically in village Bhengari. The committee has visited dumping sites on 25th August 2021 and found fly ash dumping in Bhengari village and also in the plant premises. (PIC-13 & 14) The unscientific disposal of fly ash leads air borne during summer season and washed out during rainy season leading towards surface water body. Near a temple there was a fly ash dump adjoining to Forest and River, due to erosion from various points' water along with fly ash flowing from there is clear. No guide lines as prescribed since1999 have been followed.


13


14

As per report of committee dated 11-10-2019 it has been found that M/S Mahaveer Energy is indulging in extensive and irresponsible disposal of fly ash in village Bhengari. In that report Fig. 3 Extent of fly ash dumping in agricultural land in Bhengari Village close to Bhengari Nala and Fig. 4. 40 feet height fly ash dump by M/s Mahaveer Energy in Bhengari village (in the name of low lying areas dump). On recent visit on 25-08-2021 we saw the spot (Fig.4 of that report) and found that earlier reporting still continues. We also saw evidence of flowing fly ash from upper portion to lower portion. On 15-17 March visit it has been noted that Mahaveer Energy has created an ash dump behind its premises the top of dump is at least 10 feet height above the ground level and does not confirm to the SOP for dumping in low lying area, even there is no proper retaining wall around the dump creating a public hazard. In present visit we still found the Dump present in open sky flying in environment. No representative of the industry was present hence Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh was instructed to inform the unit for coming in hearing at Bilaspur with necessary documents.

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3.3 Visit of Fluoride contaminated village- Saraitola, Tamnar- The applicant has informed about fluoride contamination in ground water in village Saraitola, District-Raigarh. The committee has accepted her request and visited village Saraitola which was found far away from core coal mining area. The Chairman of the Oversight Committee has instructed Regional Officer Chhattisgarh Environment Conservation Board, Raigarh to collect the ground water sample and get it analyzed for Fluoride from EPA certified laboratory and submit the report. Ground water sample was collected from house bore well of Sh. Muridhar Rathia, Village Saraitola. (PIC-15) The committee has also instructed Regional Officer Chhattisgarh Environment Conservation Board, Raigarh to call concerned officer from PHED to be present in meeting on 26th August 2021 at Circuit house, Raigarh.



4. Review Meeting of Committee (26.08.2021)-

The status of implementation of short term and long term action plan as per field observation was discussed in the meeting and compliance are as under-

1. Part-A Short term Action Plan:-

(1) Whether CECB amended the consent conditions of all TPP and Coal mines. **(Action by CECB)**

CECB has amended the consent conditions accordingly and submitted copy of the CTO issued to M/s Ambuja Cement Limited GP IV/8 and M/s Chhattisgarh State Power Generation Company Limited, GP Sector –III for satisfaction to committee.

(2) Whether SECL Chaal (OC), Monet Ispat, HINDALCO Limited, M/s Ambuja Cement are accepting fly ash for disposal through OB and back filling. **(Action by CECB)**

Not accepting the fly ash, CECB has asked to obtain permission from DGMS for fly ash backfilling on or before 31st August 2021.

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(3) Whether CECB constituted State level Committee to decide the mode and quantity of fly ash to be disposed in working/abandoned mines/ Quarries in the State. **(Action by CECB)**

CECB has submitted office order about constitution of state level committee comprising administrative members from Chhattisgarh Government designating MS CECB as member convener. Hence it has been decided to hear the view of State Level Committee on disposal of legacy fly ash in the state through its member convener on 16.09.2021 at 4.00 PM.

(4) Whether as per precondition of SOP Power plant/land owner / agency have obtained statutory permission from regulatory authority SPCB. **(Action by CECB)**

No

(5) Whether CECB has submitted list of the location of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB. **(Action by CECB and DC Raigarh- All gram sarpanch of the area in question may be called in stake holder meeting)**

CECB has provided list of locations of low lying areas used for unscientific disposal of fly ash without any detail about permission granted by local administration after getting NOC from CECB.

(6) Whether Hindalco is providing tap water in villages Kondkel in co-ordination with PHED. (Action by Hindalco and PHED.).

Representatives of M/s HINDALCO and PHED were present during meeting on 23.08.2021 and field visit on 24.08.2021. The committee has observed that M/s HINDALCO is providing tap water in village Kondkhel, hence PHED has been directed to regularly monitor quality of drinking water provided by M/s HINDALCO.

(7) Whether information has been collected regarding water recharge provided by coal mines while obtaining NOC from Central Ground Water authority. **(Action by CECB- Request has been sent to Regional Director, Central Ground Water Board (CGWB), Raipur on 18.06.2021. Response from CGWB is awaited. RD, CGWB, Raipur may be asked to be present in the meeting of committee with stakeholders.)**

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Representative of CGWB, Raipur Sh. Srinath Scientist "B" was present during meeting on 23.08.2021and assured the committee to provide the required document in the 1st week of September 2021.

(8) Whether CCTV has been installed by M/s HINDLCO Industries, SECL Gare Palma IV/2 & 3, SECL Chaal, SECL, Gare Palma IV/1. **(Action by CECB- CCTV installed in all mine except Gare Palma IV/1 which is not in production as on date)**

Accepted as complied based on the observation of the committee during field visit.

(9) Whether CAAQMS has been installed in all coal mines having its connectivity with CPCB/CECB servers. **(Action by CECB- CAAQMS purchase order placed by CECB)**

Not complied as on date of visit of the committee.

(10) Whether IRCON has completed work, 14 KM rail line from Gharghoda- Bhalumunda-Gare Palma and 5 number of coal siding in Tamnar and Gharghoda area. **(Action by IRCON and physical verification by CECB)**

The representative from IRCON International Limited present in the meeting on 23.08.2021 has informed extension of target date up to December 2021. The committee has asked M/s IRCON International Limited to submit the statement in writing.

(11) Whether proper repair and maintenance of Road have been done inside and outside the mine area by PWD and mining companies. **(Action by PWD for outside mining area)**

EE ,PWD, Raigarh has attended the meeting of Oversight committee on 26.08.2021and informed that proposal was submitted before one week and nothing was found on ground level. The committee has instructed the EE, PWD, Raigarh to submit action plan with pert chart endorsed by PS, PWD Chhattisgarh Government for completion of said roads by 5th September 2021.

(12) Whether proper and free health facilities with multispecialty treatment system have been provided in all coal mine adjacent villages. **(Action by DC Raigarh-Organization of health camps have been started.)**

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Free medical health facility was to be provided by State Government to villagers residing near to coal mining area. In this context it was informed that State Government has organized health check camp in August 2021 in all coal mine adjacent villages but applicants present in meeting on 23.08.2021 had reported it insufficient as it is not regularly organized. Hon'ble NGT in its order has given liberty to PS, Health, Chhattisgarh for issuing necessary directions to stake holders for providing essential health facility in all coal mine adjacent villages.

District Medical Health Officer of Raigarh has attended the meeting and submitted details of PHC & SHC of Tamnar and Gharghoda area. He could not provide number of medical officer and paramedical staff presently working in these PHCs and CHCs. On meeting dated 26-08-2021 Medical officer present was directed to furnish the names of medical and paramedical staff working in these area and to furnish details of various medical treatment schemes issued by State / Union applicable in this area and to file documents in support of compliance of Hon'ble NGT"s order.

(13) Whether MoEF & CC has submitted compiled response received from coal mines relating to Green Belt developments as per EC conditions. **(Action by MoEF&CC Nagpur)**

Member from MoEF&CC, IOR, Raipur has asked for time and assured to submit it in the meeting during 14-16th September 2021.

(14) Whether after September 2020 any UG mines has been converted to OC coalmines. **(Action by MoEF&CC Nagpur)**

Member from MoEF&CC, IOR, Raipur has asked for time and assured to submit it in the meeting during 14-16th September 2021.

(15) What progress has been made for commissioning a detailed and Comprehensive environmental load carrying capacity study **(Action by CECB- Offer called from NEERI. 1st round of technical meeting held on 02.08.2021)**

No progress reported by CECB.

(16) Whether in 2020-21 total transportation of coal to TPP have been made by coal mines through Rail or closed conveyor belt. **(Action by All Coal Mine – follow up by CECB)**

No

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(17) Whether strict monitoring and follow up action by MoEF & CC for green belt development compliance has been made, if so, its result. **(Action by MoEF&CC, Nagpur)**

Member from MoEF&CC, IOR, Raipur has asked for time and assured to submit it in the meeting during 14-16th September 2021..

(18) Whether CMD SECL issued any permission for utilization of abandoned mines for disposal of fly ash. **(Action by SECL- Yes copy of the letter to be provided by CECB)**

CECB vide its letter number 318 dated 10.05.2021 has made allotment of fly ash disposal in void of Domnara OC mine (Abandoned) of Raigarh area as below-

S.N.	Name of Thermal Power Plant	Allotted Quantity in M^3
01	M/s D B Limited, District- Janjgir Chanpa	20890.69
02	M/s S.K.S. Power Generation, Daramuda, Raigarh	10445.34
03	M/s TRN Energy Pvt. Ltd, Nawapara, Raigarh	10445.34
04	M/s SSP Steel & Power Limited, Jamgaon, Ragarh	765.99
05	M/s Singhal Enterprises, Taraimal, Raigarh	452.63

(19) Whether complete supply of coal from Palma IV/2&3(SECL) have been made to JPL and JSPL through existing closed conveyor belt in 2019 -20 and 2020-21.(**Action by CECB:CECB earlier has given the quantity of supply in 2019 -20 and 2020-21.)**

CECB has to report the production and supply through conveyor belt to ascertain the complete supply.

2. PART-B Long term Action Plan:-

Hon'ble NGT has directed that the Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law.

(1) Whether JSPL cleaned up the unauthorized dump. Whether JSPL complied the process of covering of fly ash with overburden /sweet soil and ensured daily watering or covering up the fly ash during back filling process. (GP IV/I) **(Action by CECB- reported complied on 23.06.21)**

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CECB reported that direction issued to JSPL has been complied and the same was also observed by the committee during its visit on 24.08.2021. PIC- 16



Whether JPL cleaned up the unauthorized dump and disposed the fly ash in the mine void through the back filling process (GP IV /2-3) **(Action by CECB- reported complied on 23.06.21)**

CECB reported that direction issued to JPL has been complied and the same was also observed by the committee during its visit on 24.08.2021. PIC-17



(2) Whether directions issued seeing condition of leakage of fly ash dyke IIA and IIB of JSPL have been complied with or not. **(Action by CECB- Dyke Stability report submitted)**

CECB reported that direction issued to JPL has been complied. In order to take the status, the oversight committee once again visited the sight on 24th August 2021.

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Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has directed M/S JPL to be present in hearing meeting at Bilaspur with stability report of ash dyke, relating to our earlier field visit directions along with detail technical report about mode of repairing of leakage.

(3) TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidences for breaching of mud wall leading to fly ash flowing into adjoined field even situation to fly ash into neighboring habitants. Whether further dumping is continuing, whether regular watering is done in mud dyke. Whether fly ash dumping caused injury to any personor any property. Whether fly ash dump was in his own land or in the land of others. **(Action by CECB-reported not complied on 23.06.21)**

See current field visit details. The industry has been provided opportunity of hearing during 14-16th September 2021 at Bilaspur.

(4) Mahaveer Bio Energy has created an ash dump behind its premises in violating the SOP and EC even creating a public hazard. Whether dump has been made in private land of villagers, whether improper dumping has been removed. **(Action by CECB-compliance awaited)**

See current field visit details. .The industry has been provided opportunity of hearing during 14-16th September 2021 at Bilaspur.

(5) Whether to save hazard from fire which took place in Gare Palma IV /2-3 (SECL), SECL arrested all fire within 500 m of Kusumpalli and Sarasmal Village. **(Action by- SECL & DGMS- Report is awaited.)**

Issues regarding raging fire in the Gare IV/2 and IV/3 is a part of OA No. 200/2018 (MA No. 615/2018) Dukalu Ram Vs Union of India in which CPCB has imposed Environmental Compensation on SECL and is under stay in Hon'ble Supreme Court of India.
During visit in one place we saw little smoke, member MoEF & CC stated that the same is result of extinguishing of fire.

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(6) M/s Hindalco Industries Ltd. violating EC condition have drained untreated water at Gare Palma IV/4 in to a drain leading to agriculture field, whether still continuous, it caused any damage to agricultural field. Whether any other way out has been made by the industry. **(Action by CECB)**

CECB reported that direction issued to HINDALCO has been complied and industry is now providing treated water only through drain for irrigation. PIC 18 (After)





(7) Whether OB dump by CSPGCE mine at Gare Palma sector 3 on both sides of public road was according to mining plan, if not what action has been taken by CECB and MoFF & CC. Whether any one suffered any loss from dump. **(Action by- CECB and MoEF&CC Nagpur)**

See details of visit .To be heard on environment compensation hearing during 14-17 Sept 2021.

(8) M/s Ambuja Cement Limited in adjoining area. Has also been visited by the committee on 24.08.2021.

See details of visit. To be heard on environment compensation hearing during 14-17 Sept 2021.

1. PART-C Agenda for Hearing during 14-17th September 2021 at Bilaspur-

In order to summaries the non-compliances, damage caused, feasible remedies and assessment of compensation, the committee has decided to conduct the hearing meeting at Bilaspur during 14-17th September 2021.

(1) To collect applications from claimant for damage reimbursement by 10th September 2021, to give copy to other party and inform each of them to be present in hearing during 14-

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16th September 2021(on any date) at Bilaspur. (Action By-CECB)

(2) All stakeholders and concerned departments are to be informed accordingly to take the opportunity of hearing on assessment of environmental compensation before Oversight Committee. (Action By-CECB)

(3) CECB, RO, Raigarh shall inform Member Secretary, CECB to join committee meeting on 16.09.2021 at 4.00 PM on behalf of State Level Committee for management of Fly ash in Chhattisgarh.

(4) Deputy Collector (DC) Raigarh will instruct concerned Patwaries of the area to be present in hearing with all related revenue documents required for agriculture damage assessment.

(5) Submission of water testing report for samples collected during field visit to decide related issues.

The meeting ended with thanks to Chairman.

(Shri. S.K.Verma)
Regional Officer, CECB, Raigarh

(Sh. P. K. Gupta)
Deputy Collector Raigarh

(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr. R. P. Mishra)
Scientist "D" CPCB, Bhopal

(Dr. P.R. Pujari)
Senior Principal Scientist,
NEERI, Nagpur

26.10.2021

(Justice V. K. Shrivastava)
(Chairman)

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(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr. R. P. Mishra)
Scientist "D" CPCB, Bhopal

(Dr. P.R. Pujari)
Senior Principal Scientist,
NEERI, Nagpur

26.10.2021

(Justice V. K. Shrivastava)
(Chairman)

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EXHIBIT-03

3rd Meeting
Date-14th – 17th September 2021

Minutes of the meeting of Oversight Committee

OA No. 104/2018 Shivpal Bhagat & Ors.Vs Union of India & Ors.

In accordance with decision taken in 2nd meeting held on 26th August 2021 at Raigarh, about providing opportunity of hearing to stakeholders, villagers and farmers, 3rd meeting was conducted during 14th – 17th September 2021 at Bilaspur. Sh. Sharach chandra Lele, ATREE, Bengaluru could not attend the meeting due to his prior engagements, which he could not shift. The meeting was attended by members as under-

1. Justice V. K. Shrivastava, Chairman
2. Dr.Paras Ranjan Pujari, Senior Principal Scientist, NEERI, Nagpur
3. Dr.R.P.Mishra, Scientist 'D' Central Pollution Control Board, Bhopal
4. Dr. Bhardwaj Adiraju Scientist 'C' MoEF & CC, IRO Raipur
5. Sh.P. K.Gupta, Dy.Collector, Raigarh
6. Sh. S. K. Verma, Regional Officer, CECB, Raigarh

Hearing on environmental compensation and for non compliance observed during field visit dated 24-08-2021 and 25-08-2021and matters connected there to, the committee has called the stakeholder to hear about the non-compliances observed during field visit of 24-08-2021 and 25-08-2021 and given the opportunity for explanation based on documents/ facts. The villager and farmers were also given opportunity to be heard ontheir claims of damage. Also afforded opportunity to concerned departments. The concerned departments of Chhattisgarh Government have been instructed to be present in hearing meeting for discussion on constraints and solution with role & involvement of authorities from State Government. PS Health or any of his representatives has not attended the meeting; however Chief Engineer PWD B/R Bilaspur Chhattisgarh attended the meeting accompanied with EE PWD Raigarh on 16th September 2021.

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1. Proceedings of 1st day hearing (14th September 2021)-

1.1 Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) -

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB Dump has been made on both sides of road even in some places adjacent to road. This public road is within the mining area and as stated and shown by companies officer present there, as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not comply the directions of notification 2009. For mining operation roads with the mines area is to be constructed by the lessee and lessee has to divert public roads, at his own cost to facilitate scientific mining. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee.Condition of the road is bad. The mine authorities were present in hearing meeting with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of CSPGCE presented the mining plan in which location of the OB dump is sited on the same place subject to diversion of PWD road passing between lease areas. They stated that CSPGCE has deposited required amount with PWD, Raigarh for diversion of the road. There is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start and complete the diversion. Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was in opinion that CSPGCE shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive

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emission.CSPGCE shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. CSPGCE shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance from road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

CECB is to issue direction to CSPGCE for the same.
Guidelines/ direction violated by the Coal Mine bring it under four corners for payment of Environmental compensation.

1.2 M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) -

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump was located very near to road side which was creating danger to public and transport moving on road. The mine authorities were present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of M/s Ambuja Cement Limited presented the mining plan in which location of the OB dump is sited at distance of minimum 45m from road side subject to diversion of PWD road passing between lease areas. Officials of M/s Ambuja Cement Limited stated that they have deposited required amount with PWD, Raigarh for diversion of the road but there is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start

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and complete the diversion . Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was in opinion that M/s Ambuja Cement Limited shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. M/s Ambuja Cement Limited shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. M/s Ambuja Cement Limited shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash in OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance form road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

CECB is to issue direction to M/s Ambuja Cement Limited for the same. Guidelines/ direction violated by the Coal Mine bring it under four corners for payment of Environmental compensation.

2. **Proceedings of 2nd day hearing (15th September 2021)-**

2.1 M/s TRN Energy Private Limited, Nawapara, Raigarh-

M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately 28,79,126 MT fly ash during January 2016 to March 2021, out of which 58% (16,65,007MT) has been disposed in low lying area of village Chote Gumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal of fly ash is approximately 17.378 Hectare.

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TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidencesfor breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash into neighboring habitants. Whether further dumping is continuing, whether regular watering is done in mud dyke. Whether fly ash dumping caused injury to any person or any property? Whether fly ash dump was in his own land or in the land of others. **(Action by CECB-reported not complied on 23.06.21)**

Reply submitted during hearing was not found satisfactory, hence not complied

On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and nalah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed sincen1999 have been followed.On earlier visit inMarch 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda .The top of Dump was atleast 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On current visit dated 25-08-2021 we find that some of the fields have become useless, in agricultural field flowing of fly ash was found. On road side flow we could see the flowing of flyash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat Fly ash dump have been made .

Although they brought some papers and made attempt to show that they have not violated the Environmental conditions. But could not produce permission / consent of State Pollution Control Board.The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which

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recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s TRN Energy Private Limited, Nawapara is also included in that list for Environmental Compensation of Rs. 1,48,80488 on which Hon'ble Supreme Court vide its order dated 04.11.2019 has directed deferment of the proceedings.

Chhattisgarh Environment Conservation Board has informed about issue of closure notice to the industry. TPP has submitted the reply of notice which is under consideration for decision. The representative of the industry have informed about construction of new ash dyke for which land has been acquired in 2017 and Environmental clearance obtained in year 2011.

Ash Dyke belonging to TRN Energy Ltd , on visit we find that at one place wall of the dyke is severely damaged and we apprehended that accident may took place, Shri R.P. Mishra inform the facts for repairs forthwith so as to avoid any unfortunate event. Underground water discharge from dyke is there and the discharged water is flowing to agriculture field. Water samples have been collected. Fly ash flying over the ash dyke has also been seen. Even some of the persons seen roaming over the dried fly ash lying in the dyke. It appears that there is no recycle water system operating. Construction does not appears to be scientific.

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Representatives of TRN does not dispute the damage but they contended that Railway has made dump of the soil in their outer wall and that dump has been eroded due to rain but could not show any evidence to support his contentions. They also stated that as per original permission accorded by MoEF&CC they have constructed this second Ash dyke and for perusal shown the permission letter. In this permission letter there is no sanction of more than one ash dyke even as per deliberation it could come to know that first ash dyke is inside the Plant and this ash dyke has been made outside the plant .Whether ash dyke should have been built in the vicinity of habitants, to reply this question they could not able to show any legal authority or any permission. So far as water discharge is concerned they stated that this water discharge belongs to Railway.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved . TRN is liable for environmental compensation.

2.2 M/s Mahaveer Energy & Coal Benification Limited -

M/s Mahaveer Energy & Coal Benification Limited is Biomass based 12MW Thermal Power Plant located in Village Bhengari, Gharghoda, Raigarh. The plant started its commercial production in 2014 with an average generation of fly ash 20000 MT per annum. The thermal power has generated approximately 139839 MT fly ash during April 2014 to March 2021, out of which 0.04% (56 MT) has been disposed in low lying area of village Bhengari. The industry during hearing has submitted documents related with agreement for fly ash use by Sh. Saroj Kumar S/o Sh. Prabhakar Kumar in Brick manufacturing. This agreement was done on 04.12.20 indicating that fly ash generated before 04.12.2020 have been disposed in low lying area. The industry has also provided copy of revenue records in support of ownership of the land.Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level. No consent has been obtained from CECB.

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The above said notification only permits for reclamation and compaction of fly ash in low lying area but do not give liberty to loose disposal of fly ash that's too above ground level. The oversight committee during its visit has observed heaps of disposed fly ash giving its way to become air borne or flow with rain water in drain leading to surface water contamination.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Mahaveer Bio Energy has created an ash dump behind its premises in violating theSOP and EC even creating a public hazard. Whether dump has been made in private land of villagers? Whether improper dumping has been removed ? **(Action by CECB-compliance awaited)**

Reply submitted during hearing was not found satisfactory, hence not complied

On field visit dated 25-08-2021 we found near a temple there was a fly ash dump adjoining to Forest and River, due to erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground and as per persons gathered there the land is govt. land recorded as ""Chote Jhad Ka Jungle". No guidelines as prescribed since1999 have been followed. As per report of committee dated 11-10-2019 it has been found that M/S Mahaveer Energy is indulging in extensive and irresponsible disposal of fly ash in village Bhengari. In that report Fig. 3 Éxtent of fly ash dumping in agricultural land in Bhengari Village close to Bhengari Nala and Fig. 4. 40 feet height fly ash dumps by M/s Mahaveer Energy in Bhengari village (in the name of low lying areas dump). On recent visit on 25-08-2021 we saw the spot (Fig.4 of that report) and found that earlier reporting still continues. We

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also saw evidence of flowing fly ash from upper portion to lower portion. On 15-17 March visit it has been noted that Mahaveer Energy has created an ash dump behind its premises the top of dump is atleast 10 feet height above the ground level and does not confirm to the SOP for dumping in low lying area, even there is no proper retaining wall around the dump creating a public hazard. In present visit we still found the Dump present in open sky flying ash in environment.

Representative from Mahaveer Bio Energy to defend their action have accepted all those dump but their contention is that because of demand of Mandir Samiti, dump near Mandir has been made, other dump are in their own land, they are using fly ash in making the bricks under their own kiln and also providing fly ash to other kiln holder but to support he could not produce land owner ship in his name or other documents regarding actual use of fly ash in making the bricks.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. M/s Mahaveer Energy & Coal Benefication Limited is liable for environmental compensation.

2.3 M/s Jindal Power Limited, Tamnar, Raigarh-

It was reported in over sight committee visit on 17.03.2021 about leakage of fly ash slurry from ash dyke of M/s Jindal Power Limited. The committee had suggested M/s JPL to conduct study through a research organization of national repute to determine the stability of the existing ash dyke and take measures required to strengthen as needed. In order to take the status, the oversight committee once again visited the site on 24th August 2021. Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has discussed in details about process adopted for repair of the leakage and directed M/s JPL to submit the authentic report about strength of repairing undertaken and the stability report of the existing ash dyke from research organization of national repute on or before 30-11-2021.

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2.4 M/s Jindal Steel Power Limited, Dongramau,Tamnar, Raigarh-

The captive power plant of M/s Jindal Steel & Power Limited, Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed neardrain/ Nala (a watercourse) passing in mining lease area. The distance between disposal site and drain seems to be less than 500m and during rainy season fly ash may take a way to River Kelo through drain/ Nala (a watercourse). The issue has been considered as negligence in selection of site and M/s JSPL has been directed to shift the same on or before 30.11.2021.

3.0 **Proceedings of 3rd day hearing (16th September 2021)-**

Intimation was sent to PS Health and PS PWD Chhattisgarh Government to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. PS Health Chhattisgarh Government could not ensure his presence in person/representative in the meeting. However Chief Engineer, Bilaspur and Executive Engineer Raigarh of PWD attended the meeting and briefed the progress as under-

1. An amount of Rs.6274.33 Laks is sanctioned on 08.09.2021 for 27.50 km CC road from Punjipatra to Tamnar.
2. Approval granted on 23.02.2021 for an amount of 2032.95 Lakhs for renovation work of 13.40 km road from Raigarh to Gharghoda.
3. Approval granted on 08.09.2021for an amount of 1797.25 Lakhs for renovation & Strengthening work of 10 km road from Chaal to Gharghoda.
4. So far as patch repair work is concerned, no documents or material could be produced even otherwise we could not see any repair work going on, on the roads.

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All above sanctions and approvals are subject to acquirement of land, Release of Loan and two years' time for completion. Till date there is no progress regarding acquisition of land, sanction of loan, etc. All these facts itself shows that matter has not been given any seriousness or to say in near future the road is not going to be made. The committee is not satisfied with submission.

Matter to be considered for imposition of environmental compensation.

Hearing to Health Department

Health Department did not furnish the information as called for from then in the last meeting. Earlier observations have also not been complied. Even Chief Secretary, Principle SEC. did not respond to Order dated 24-06-2021 passed by Hon'ble NGT therefore for environment compensation hearing, notice has been given to Department.

NEERI REPORT – Investigation of water sources(2018) and Study report on Health assessment and projection of health of people living in Tamnar Block, Raigarh by CMR- National Institute of Research in Tribal Health (2019-20) also exposes environmental health hazard.We have also seen that some of the area is FLORIDE affected.

None appeared. Presumptions would be that they are not taking any steps to protect health of inhabitant from health hazard caused by air / water pollution/ breach of environment condition.There is no material which may defend Health Departments liability for environmental compensation.

Matter to be considered for imposition of environmental compensation.

Member Secretary, Chhattisgarh Environment Conservation Board has represented the monitoring committee constituted by Chhattisgarh Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009. The paragraph 07 of above said notification is as-

- Para number 07*"No agency, person or organization shall within a*

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radius of hundred kilometers of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub-paragraph (1) of paragraph 3"'.

- Para number 8(i) – " *No person or agency shall within fifty kilometers (by road) from coal or lignite based thermal power plants, under take or approve stowing of mine mines without using at least 25% of fly ash on weight to weight basis, of total stowing material 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.*

  Chhattisgarh Environment Conservation Board shall provide status of utilization of fly ash in coalmines located in Raigarh.

Chhattisgarh Environment Conservation Board could not provide any guidelines issued to ensure reclamation and compaction of fly ash disposed in low lying area and any policy frame work for utilization of legacy fly ash. It was under stood during hearing with Thermal Power Plants that TPPs have obtained NOC from concerned gram Panchayat and concurrence letter from land owner but SPCB has not provided any consent/ permission.The recommendation of oversight committee for constitution of State Level committee to oversee the status of implementation of SOP was in accordance with office memorandum of MoEF&CC dated 28th August 2019. Fly ash utilization reports of since last 10 years submitted by industries of Raigarh indicates utilization of fly ash. It is revealed from fly ash utilization data submitted by industries of Raigarh that few industries has disposed up to 95% of fly ash in low lying area. Unscientific disposal of fly ash in low area will keep on adding the quantum of legacy fly ash.

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Member Secretary, CG Environment Conservation Board, Raipur, apprised us that State level committee has been constitute a long back and now has been reconstituted. They have taken the work of disposal of Fly ash. They also talk about MOU etc. and also about action taken against defaulting proponents.

Hearing to affected person for compensation against person or property.

We waited till 16th September but neither applicants nor any one of the claimant appeared to support their claim. Concerned Patwaris have been called who furnished relevant information.

As per damage claim submitted by villagers details of affected land as given by Patwari is as under-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare
01	Sh. Ghurauram Rathia Nawapara	381/01	0.076
02	Sh. Harcharan Rathia & Sh. Malik Ram Rathia Kantagdeeh	09/01 09/02	4.411 1.895
03	Sh. Karam Singh Rathia	401/01	0.101
Total Affected area			6.483

All above claims are against TRN, but TRN neither filed any reply.

Matter to be considered for imposition of environmental compensation.

4.0 **Proceedings of 4th day hearing (17th September 2021)-**

Review Meeting-

4.1 The applicants informed about presence of Arsenic and other metals in the pond water located in Sarasmal village making it harmful for irrigation. The

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committee has instructed CECB for collection of onsite water samples for analysis by EPA approved laboratory. The analysis results obtained from M/s Ultimate Envirolytical Solutions (Recognized by MoEF&CC under EP Act 1986) is as under-

Parameters (in mg/l)	Location of the sample		Limit in mg/l IS 10500:2012
	Sample 01	Sample 02	
Total Solid	209.6	108.8	
Total Dissolved Solid	190.8	154	2000
Total Suspended Solid	18.8	26.8	
Arsenic (as As)	Not Detectable	Not Detectable	0.05
Zinc (as Zn)	0.382	0.086	15
Nickel (as Ni)	Not Detectable	Not Detectable	0.02
Copper (As Cu)	Not Detectable	Not Detectable	1.5
Cobalt	Not Detectable	Not Detectable	
Magnesium (as Mg)	0.11	0.08	100

1. SECL Gare Palma IV/2&3 water from Agriculture field
2. SECL Gare Palma IV/2&3 water from Sarasmal Village

4.2 The applicant has informed about fluoride contamination inground water in village Saraitola, Tamnar, District- Raigarh. The committee has accepted the request and visited village Saraitola which was found far away from core coal mining area. The Chairman of the Oversight Committee has instructed Regional Officer Chhattisgarh Environment Conservation Board, Raigarh to collect the ground water sample and get it analyzed for Fluoride from EPA certified laboratory and submit the report. Ground water sample was collected from house bore well of Sh. Murlidhar Rathia, Village Saraitola. The analysis results obtained from M/s Ultimate Envirolytical

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Solutions (Recognized by MoEF&CC under EP Act 1986) reveals concentration of fluoride 0.899 mg/l. The permissible limit fluoride in drinking water as per IS 10500 : 2012 is 1.5 mg/l. (Report is placed at Annexure-01)

4.3 In the visit of the committee water samples were also collected near fly ash dyke of M/s TRN Energy found going to agricultural field. The samples were got analyzed from M/s Ultimate Envirolytical Solutions (Recognized by MoEF&CC under EP Act 1986) and results are as under-

Parameters (in mg/l)	Location of the sample		Limit in mg/l IS 10500:2012
	Sample 01	Sample 02	
Total Solid	417.7	403.1	
Total Dissolved Solid	402.8	394.5	2000
Total Suspended Solid	14.6	8.6	
Arsenic (as As)	Not Detectable	Not Detectable	0.05
Zinc (as Zn)	0.248	0.23	15
Nickel (as Ni)	Not Detectable	Not Detectable	0.02
Copper (As Cu)	Not Detectable	Not Detectable	1.5
Cobalt	Not Detectable	Not Detectable	
Magnesium (as Mg)	0.23	0.20	100

1. Water sample from Ash dyke side
2. Water sample from Agriculture field side

4.4 The committee has also collected water samples from hand pump and tap water of Kondkhel village to assess the water quality being supplied by M/s Hindalco Limited to villagers. The samples were got analyzed from M/s Ultimate Envirolytical Solutions (Recognized by MoEF&CC under EP Act

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1986) and results are as under-

Parameters (in mg/l)	Location of the sample		Limit in mg/l IS 10500:2012
	Sample 01	Sample 02	
Total Solid	120.4	501.6	
Total Dissolved Solid	118.4	496.8	2000
Total Suspended Solid	2.0	4.8	
Arsenic (as As)	Not Detectable	Not Detectable	0.05
Zinc (as Zn)	0.221	0.342	15
Nickel (as Ni)	Not Detectable	Not Detectable	0.02
Copper (As Cu)	Not Detectable	Not Detectable	1.5
Cobalt	Not Detectable	Not Detectable	
Magnesium (as Mg)	0.14	0.12	100

1. Tap Water sample from Kondkhel village
2. Hand pump Water sample from Kondkhel village

4.4 The committee has visited mining area M/s Hindalco Industries Limited and observed water discharge in to drain leading to agriculture fields. The representative of the mine has informed that water being discharged is fully treated and provided for irrigation to villagers. The Chairman of the committee has instructed for collection of water sample to assess the water quality as per irrigation standard. The samples were got analyzed from M/s Ultimate Envirolytical Solutions (Recognized by MoEF&CC under EP Act 1986) and results are as under-

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Parameters (in mg/l)	Location of the sample		Limit in mg/l IS 10500:2012
	Sample 01	Sample 02	
Total Solid	513.8	163.4	
Total Dissolved Solid	475.2	157.2	2000
Total Suspended Solid	38.6	6.2	
Arsenic (as As)	Not Detectable	Not Detectable	0.05
Zinc (as Zn)	0.428	0.164	15
Nickel (as Ni)	Not Detectable	Not Detectable	0.02
Copper (As Cu)	Not Detectable	Not Detectable	1.5
Cobalt	Not Detectable	Not Detectable	
Magnesium (as Mg)	0.38	0.06	100

1. Water sample from Dumernala, Banjhikhol village
2. Mine Treated Water Sample from Kondkhel village

The status of implementation of short term and long term action plan as per field observation was discussed in the meeting and compliance are as under-

1. Part-A Short term Action Plan:-

1. Whether MoEF&CC has submitted compiled response received from coalmines relating to Green Belt developments as per EC conditions. **(Action by MoEF&CC, Raipur)**

Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions Industry wise green belt data is as follows:-

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A. M/s. Hindalco Industries Limited *(Details as provided by the Project Proponent,*

(**EC Specific Condition IV of Gare Palma IV/4 -**Karanj should be deleted from the list of native species for plantation program. Environment Clearance Letter no. – J-11015/183/2010- IA –II. (M) Dated 16.04.2015)

(**EC Specific Condition IV of Gare Palma IV/5 -** A Green Belt of adequate width should be raised by planting the local species along the mine boundary, Waste rock dumps, ore stockpile, ventilation fan road and selected open areas in consultation with local DFO/ Agriculture Department. Density of tree should be at least 2500 plants per ha. Environment Clearance Letter no. – J-11015/8/1998- IA –II. (M) Dated 16.04.2015)

Industry	Project	Year wise	Plantation area(Ha)	Plantation Done	Survival Rate (%)	No. of plants survived
Hindalco	Gare Palma IV/4 OCM (Custodian)	Upto 2015	18.0	53000	85.00	45050
		2016	2.3	6500	90.00	5850
		2017	3.5	10000	87.00	8700
		2018	1.7	5000	87.00	4350
		2019	2.4	6600	90.00	5940
		2020	3.9	10200	93.83	9570
		2021	3.2	8521	95.00	8094
		Total	**35.0**	**99821**	**87.71**	**87554**
	Gare Palma IV/5 CM (Custodian)	Upto 2015	9.84	30000	82.00	24600
		2016	0.68	2000	85.00	1700
		2017	1.6	5000	80.00	4000
		2018	1.7	5000	85.00	4250
		2019	1.8	5000	90.00	4500
		2020	0.44	1100	100.00	1100
		2021	0.59	1504	98.00	1474
		Total	**16.6**	**49604**	**83.91**	**41624**

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- A project report on "Monitoring and evaluation of plantation" at Gare Palma IV/4 OCM (Milupara, Tamnar, Raigarh (C.G.) by Nav Aastha Jan Vikas Seva Samiti till 2017 has been submitted.
- A project report on "Monitoring and evaluation of plantation" at Gare Palma IV/5 CM (Under Ground) Milupara, Tamnar, Raigarh (C.G.) by Nav Aastha Jan Vikas Seva Samiti till 2017 has been submitted.

B. M/s Mahavir Energy & Coal Benefaction Limited

Industry	Project	Year wise	Plantation Target	Plantation Done	Survival Rate (%)	No. of plants survived
Mahavir	Mahavir Energy & Coal Benefication Ltd.	2008-09	500	270	54.07	146
		2009-10	750	560	75.00	420
		2010-11	2000	1510	76.03	1148
		2011-12	1000	910	71.98	655
		2012-13	1000	1680	70.00	1176
		2013-14	1000	750	68.27	512
		2014-15	500	70	80.00	56
		2015-16	2000	1069	75.77	810
		2016-17	1000	910	77.47	705
		2017-18	500	1500	100.00	1500
		2018-19	500	450	88.89	400
		Total	**10750**	**9679**	**76.13**	**7528**

- Layout of plantation at Mahavir Energy & Coal Beneficiation Ltd. plant has been provided by PA. Plantation details from 2019 to 2022 have not been provided.

C. M/s CSPGCL*(Details as provided by the Project Proponent)*

(EC Specific Condition XXIV and XXXV Gare Palma III - Extensive plantation should be done near agriculture area to avoid coal dust pollution which may affect the productivity of crop. Environment Clearance issued vide letter No. J-1 101 5/ 168/2009-IA.II (M), Dated 23.05.2013 and amendments issued vide letter No. J-11015/168/2009-IA.II (M) Dated 17.06.2014)

Industry	Project	Year wise	Plantation area(Ha)	Plantation Done	Survival Rate (%)	No. of plants survived

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M/s CSPGCL	Gare Palma III Coal Mines	2019-20	0.09	820	80	656
		2020-21	0.9	3480	85	2958
		2021-22	1.88	9310	85	7913
		Total	**2.87**	**13610**		**11527**

- Plantation layout at Gare Palma Sector III (CSPGCL) has been provided.
- Plantation area description along with the species planted has been provided by PA.

D. **SECL** ***(Details as provided by the Project Proponent)***

(EC Specific Condition 17 Gare Palma IV/I – Green belt shall be developed along the areas such as the washery unit, crushing unit and stock yard and at transfer point and in between mine operation and habitation. Environment Clearance issued vide letter No. J-11015/204/2005/IA.II (M) dated 06/12/2005 and J- 11015/81/2008/IA.II (M) dated 16/04/2015)

(EC Specific Condition 26 Gare Palma IV/2 and IV/3 – Green belt shall be developed along the areas such as the washery unit, crushing unit and stock yard and at transfer point and at transfer points. Environment Clearance issued vide letter No. J-11015/288/2007/IA.II (M) dated 12/06/2012 and Modified/ Exemption of EC dated 16/04/2015)

Industry	Project	Year wise	Plantation area(Ha)	Plantation Done
SECL	Gare Palma IV/1 OCM (Custodian)	2016-17	0	0
		2017-18	8	20000
		2018-19	10	25000
		2019-20	10	25000
		2020-21	8	20000
		Total	**36**	**90000**
	Gare Palma IV/2 &3 OCM (Custodian)	2016-17	4.2	10500
		2017-18	4.2	10500
		2018-19	0	0
		2019-20	10	25000
		2020-21	10	25000
		2021-22	10	25000
		Total	**38.4**	**96000**

E. **M/s Ambuja Cement***(Details as provided by the Project Proponent)*

(EC Specific Condition XXV Gare Palma IV/8 – Green Belt shall be developed all along the periphery of the site, along the area such as the washery unit, crushing unit, stock yard. A three tier avenue plantation would be developed along vacant areas, near washery, storage yard, loading points and transfer points and along internal roads and main approach roads and on the two kilometer road up to the railway siding and at the siding. Environment Clearance issued vide letter No. J-11015/276/2010/IA.II (M) dated 10/06/2013 EC transferred to M/s Ambuja Cement Ltd. MoEF&CC file no. J-11015/76/2010/IA.II (M) dated 01/04/2019. EC extended no. J-11015/76/2010/IA.II (M) dated 30/09/2020.

dustry	Project	Year wise	Plantation area(Ha)	Plantation Done	Survival Rate (%)	No. of plants survived
M/s Ambuja Cement	Gare Palma IV/8 Coal Mines	2018-19	1.8	4500	72	3240
		2019-20	2	5000	70	3500
		2020-21	1.2	3000	80	2400
		2021-22	1.7	4336	100	4336
		Total	**6.7**	**16836**		**13476**

- Plantation layout at Gare Palma Sector IV/8 (M/s Ambuja) has been provided by the PA.
- Details of plantation done to arrest soil erosion over the OB Dump and area planted outside the mining lease in pursuant to the Forest Clearance have been provided.

(2) Whether after September 2020 any UG mines has been converted to OC coalmines. **(Action by MoEF&CC Nagpur)**

Since, all the Court Cases pertaining to State of Chhattisgarh were earlier dealt by IRO, Nagpur, a letter, in this connection had been sent to Member Secretary (Coal Mining) by IRO, Nagpur vide letter no CC-174/RON/2018-NGP/7823 dated 17/02/2021

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A follow up email has also been sent to Ministry by IRO, Raipur vide email dated 09/09/2021 *(enclosed as annexure - VII)*. As per information received from the IA Coal Mining, no UG project has been converted to OC project in Tamnar and Gharghoda region.

However, M/s. Hindalco Industries Limited applied for expansion from 1 MTPA (0.56 MTPA from opencast and 0.44 MTPA from underground) to 1.5 MTPA on 25th July 2019 and TOR, in this connection, was granted on 08 January 2020. Thereafter no EAC meeting has been conducted as on date.

(3) What progress has been made for commissioning a detailed and Comprehensive environmental load carrying capacity study **(Action by CECB- Offer called from NEERI. 1st round of technical meeting held on 02.08.2021)**

No progress reported by CECB. – Not Complied

(4) Whether strict monitoring and follow up action by MoEF&CC for green belt development compliance has been made, if so, its result. **(Action by MoEF&CC, Nagpur)**

A follow up meeting has already been organized by IRO, Office by conducting meeting with all the Project Proponents vide letter no. CC-174/RON/2018-NGP/7823 dated 17/02/2021

The MoEF&CC has directed to the Project Proponents to submit the updated Plantation details on quarterly basis to IRO, Raipur office and the same will be verified where and when the Ministry Representative visits the concerned area.

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2. PART-B Long term Action Plan:-

Hon'ble NGT has directed that the Oversight Committee may make assessment ofcompensation for the violations on the basis of which the statutory State Board may takefurther action, following due process of law.

To be considered in next meeting in the light of facts and materials discussed above and conclusions made there in.

3. PART-C Agenda for meeting during 26-27th October 2021 at Bilaspur-

In order to summaries the non-compliances, damage caused, feasible remedies and assessment of compensation, the committee has decided to conduct the meeting at Bilaspur during 26-27th October 2021.

(1) Calculation of environmental compensation in those cases found not satisfied during hearing in last meeting.

(2) Calculation of property damage on application submitted by villager

(3) To discuss about carrying capacity study

(4) CECB, RO, Raigarh to follow up with

1. CGWB- for water recharging point report
2. DMHO- for providing CHC, PHC detail with staff strength and Government health scheme being implemented in rural area
3. PHED for detail about treatment of fluoride contaminated water in Saratola village

(5) Any other issue with permission to Chairman.

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The meeting ended with thanks to Chairman.

(Shri. S.K.Verma)
Regional Officer, CECB, Raigarh

(Sh. P. K. Gupta)
Deputy Collector Raigarh

(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr.R.P.Mishra)
Scientist "D" CPCB,
Bhopal

(Dr.P.R.Pujari)
Senior Principal Scientist,
NEERI, Nagpur

(Justice V. K. Shrivastava)
(Chairman)

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The meeting ended with thanks to Chairman.

(Shri. S.K.Verma)
Regional Officer, CECB, Raigarh

(Sh. P. K. Gupta)
Deputy Collector Raigarh

(Dr. Bhardwaj Adiraju)
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IRO- Raipur

(Dr.R.P.Mishra)
Scientist "D" CPCB,
Bhopal

(Dr.P.R.Pujari)
Senior Principal Scientist,
NEERI, Nagpur

(Justice V. K. Shrivastava)
(Chairman)

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4th Meeting
Date-26-27th October 2021

Minutes of the meeting of Oversight Committee

OA No.104/2018 Shivpal Bhagat & Ors.Vs Union of India & Ors.

In accordance with decision taken in 3rdmeeting held on 14th – 17th September 2021 at Bilaspur, 4thmeeting was conducted during 26-27th October 2021 at Bilaspur. Sh. Sharachchandra Lele, ATREE, Bengaluru could not attend the meeting due to health issue. Dr. Paras Ranjan Pujari, Senior Principal Scientist, NEERI, Nagpur could also not attend the meeting because of urgent official occupation. The meeting was attended by members as under-

1. Justice V.K. Shrivastava, Chairman
2. Dr. R.P.Mishra Scientist "D' Central Pollution Control Board, Bhopal
3. Dr. Bhardwaj Adiraju Scientist 'C' MoEF&CC, IRO Raipur
4. Sh. P. K.Gupta, DC, Raigarh
5. Sh. S.K.Verma, Regional Officer, CECB, Raigarh

Agenda for meeting during 26-27th October 2021 at Bilaspur-

(1) To summarize the non-compliances, damage caused feasible remedies and assessment of environmental compensation in those cases found not satisfied during hearing in last meeting. Calculation of property damage for awarding environmental compensation on application submitted by villagers.

(2) To discuss about carrying capacity study

(3) CECB, RO, Raigarh to follow up with

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(4) CGWB- for water recharging point report

(5) DMHO- for providing CHC, PHC detail with staff strength and Government health scheme being implemented in rural area

(6) PHED for detail about treatment of fluoride contaminated water in Saratola village

(7) Any other issue with permission to Chair

1. Supreme Court of India
M/S. Goel Ganga Developers India ... vs Union of India through Secretary ... on 10 August, 2018
2. Director General (Road Development) National Highways authorities of India V. Aam Aadmi Lokmanch and others AIR 2020Supreme Court 3471 .

(1) Calculation of environmental compensation against TPPs and Coal Mines incases found not satisfied during hearing in last meeting

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the

day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)

3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

(2) Calculation of property damage on application submitted by villager in favour of the applicant against TPPs

(3) Calculation of property/ crop damage was done on the basis of area and tentative loss to crop and rate per hector.

1. <u>M/s TRN Energy Private Limited, Nawapara, Raigarh-</u>

M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately 2879126 MT fly ash during January 2016 to March 2021, out of which 58% (1665007MT) has been disposed in low lying area of village ChoteGumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal of fly ash is approximately17.378 Hectare.

TRN power has created an ash dump violating EC conditions outside its ash dyke inthe village Nawapara Tenda. There are physical evidencesfor breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash intoneighboringhabitants.On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and

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nallah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village NawaparaTenda.The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On current visit dated 25-08-2021 we find that some of the fields have become useless, in agricultural field flowing of fly ash was found. On road side flow we could see the flowing of flyash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat Fly ash dump have been made .

Although they brought some papers and made attempt to show that they have not violated the Environmental conditions but could not produce permission / consent of State Pollution Control Board. The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines give liberty to loose disposal of fly ash that's too above ground level.

Chhattisgarh Environment Conservation Board has informed about issue

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of closure notice to the industry. TPP has submitted the reply of notice which is under consideration for decision. The representative of the industry have informed about construction of new ash dyke for which land has been acquired in 2017 and Environmental clearance obtained in year 2011.

Ash Dyke belonging to TRN Energy Ltd , on visit we find that at one place wall of the dyke is severely damaged and we apprehended that accident may took place, Shri R.P. Mishra inform the facts for repairs forthwith so as to avoid any unfortunate event. Underground water discharge from dyke is there and the discharged water is flowing to agriculture field. Water samples have been collected. Fly ash flying over the ash dyke has also been seen. Even some of the persons were seen roaming over the dried fly ash lying in the dyke. It appears that there is no recycle water system operating. Construction does not appear to be scientific.
Representatives of TRN does not dispute the damage but they contended that Railway has made dump of the soil in their outer wall and that dump has been eroded due to rain but could not show any evidence to support his contentions. They also stated that as per original permission accorded by MoEC&CC they have constructed this second Ash dyke and for perusal shown the permission letter. In this permission letter there is no sanction of more than one ash dyke even as per deliberation it could come to know that first ash dyke is inside the Plant and this ash dyke has been made outside the plant .Whether ash dyke should have been built in the vicinity of habitants, to reply this question they could not able to show any legal authority or any permission. So far as water discharge is concerned they stated that this water discharge belongs to Railway.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved . TRN is liable for environmental compensation.

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In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s TRN Energy Private Limited, Nawapara is also included in that list for Environmental Compensation of Rs. 1,48,80488 on which Hon'ble Supreme Court vide its order dated 04.11.2019 has directed deferment of the proceedings.

In addition to above and in view of a number of breaches of environmental conditions not earlier considered for compensation,independent Environmental Compensation for following period is calculated as under-

- Initial date of compensation- 01.04 .2020
- Last date of compensation- 30.11.2021
- Number of days- 608
- EC in Rs. 1,82,40,600/- (One Crore eighty two lakhs forty thousand and six hundred)

2. M/s Mahaveer Energy & Coal Benification Limited –

M/s Mahaveer Energy & Coal Benification Limited is Biomass based 12MW Thermal Power Plant located in Village Bhengari, Gharghoda, Raigarh. The plant started its commercial production in 2014 with an average generation of fly ash 20000 MT per annum. The thermal power has generated approximately 139839 MT fly ash during April 2014 to March 2021, out of which 0.04% (56MT) has been disposed in low lying area of village Bhengari. The industry during hearing have submitted documents related with agreement for fly ash use by Sh. Saroj Kumar S/o Sh. Prabhakar Kumar in Brick manufacturing. This agreement was done on 04.12.20 indicating that fly ash generated before 04.12.2020 have been disposed in low lying area. The industry has also provided

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copy of revenue records in support of ownership of the land. Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines give liberty to loose disposal of fly ash that's too above ground level. No consent has been obtained from CECB .

The above said notification only permits for reclamation and compaction of fly ash in low lying area but do not give liberty to loose disposal of fly ash that's too above ground level. The oversight committee during its visit have observed heaps of disposed fly ash giving its way to become air borne or flow with rain water in drain leading to surface water contamination.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Mahaveer Bio Energy has created an ash dump behind its premises in violating theSOP and EC even creating a public hazard.On field visit dated 25-08-2021 we found near a temple there was a fly ash dump adjoining to Forest and River, due to erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground and as per persons gathered there the land is

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govt. land recorded as “”ChoteJhad Ka Jungle”. No guidelines as prescribed since 1999 have been followed. As per report of committee dated 11-10-2019 it has been found that M/S Mahaveer Energy is indulging in extensive and irresponsible disposal of fly ash in village Bhengari. In that report Fig. 3 Éxtent of fly ash dumping in agricultural land in Bhengari Village close to Bhengari Nala and Fig. 4. 40 feet height flyash dump by M/s Mahaveer Energy in Bhengari village (in the name of low lying areas dump) . On recent visit on 25-08-2021 we saw the spot (Fig.4 of that report) and found that earlier reporting still continues. We also saw evidence of flowing flyash from upper portion to lower portion. On 15-17 March visit it has been noted that Mahaveer Energy has created an ash dump behind its premises the top of dump is at least 10 feet height above the ground level and does not confirm to the SOP for dumping in low lying area, even there is no proper retaining wall around the dump creating a public hazard. In present visit we still found the Dump present in open sky flying ash in environment.

Representative from Mahaveer Bio Energy to defend their action have accepted all those dump but their contention is that because of demand of Mandir Samiti , dump near Mandir has been made , other dump are in their own land , they are using fly ash in making the bricks under their own brick plant and also providing fly ash to other brick plant holder but to support he could not produce land ownership in his name or other documents regarding actual use of fly ash in making the bricks.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. M/s Mahaveer Energy & Coal Benification Limitedis liable for environmental compensation.

In compliance of Hon’ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of

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Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Environmental Compensation is calculated as under-

- Initial date of compensation- 01.01.2018
- Last date of compensation- 30.11.2021
- Number of days- 1429
- Operation factor considered- 0.5 (small scale- biomass plant)
- EC in Rs. 1,42,90,000/- (One crore forty two lakhs ninety thousand)

3. <u>Penalty/Fine on Principal Secretary Public Works Department, State of Chhattisgarh</u>.

<u>Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made therein were considered by the NGT vide order dated 27-02-2020</u>

<u>Short term measures</u>

4.1 f. Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

Long term measures

4.2 b) To reduce the pollution and other impacts caused by road transport of coal and mother minerals , direction may be issued that coal transport by road

from coal mines or thermal power plants in these two blocks will be permitted only for a year , after which transport must done by rail or closed conveyor belt only.

Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that ***"We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law.***

Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.

02. Long Term Measures

REVIEW STATUS AS ON 09-11-2020

As per report obtained from SECL it is evident 35%increase in daily average dispatch by rail in comparison to the FY 2019-20 after construction of new rail line between Kharsia – Gharghoda- Korichhapar , coal dispatch from Korichhapar railway siding commenced in FY 2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.

The Committee on field observation has made recommendation as below:-

1. *EE PWD was present before committee to apprise the status of PWD roads in the area .Committee has observed very bad road conditions in Tamnar and Gharghoda area which seems to be one of the measure factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to DharamjayGarh about 76 Km and Punjipathra to Milupara about 35n Km.)but due to budget constraint the work is pending since last several years. An amount of Rs. 335Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 Kms, 7m wide tar road from Gharghoda to Jampali in compliance of NGT order.*
2. *RECOMMENDATIOINS*
3. *2.Hon'ble NGT may like to direct Principal Secretary , PWD , Chhattisgarh Government to sanction budget of Rs. 335 Crore (@ Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7 m width (Raigarh to DharamjayGarh about 76 km and Punjipatra to Milupara about 35 km) and insure its execution before March 2021. In this context time bound action plan*

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with bank guarantee of Rs. 35 Crore may be obtained from PWD , Chhattisgarh to ensure timely execution of the work.

Hon'ble NGT passed order that Principal Secretary Health and the PWD Department , Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and considered by Hon'ble NGT vide their order dated 24-06-2021.

f). Proper repairing and maintenance of road outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

REVIEW STATUS AS ON 15-03-2021
EE PWD, Raigarh has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to DharamjayGarh about 76 Km and Punjipathra to Milupara about 35n Km.) but due to budget constraint the work is pending since last several years.
Letter issued to PS, PWD, S-1/03 Mahanadi Bhawan, Raipur by this office vide number RDB/NGTOA 104/2018/553 dated 07-09-2020 and 06-01-2021 to sanction Rs. 335 crore for construction of 111 km CC road. No response has been received from PS, PWD Chhattisgarh Government.

FIELD OBSERVATION S
5. EE PWD Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharamjaygarh about 76 Km and Punjipathra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20-11-2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under:-
> Main High way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme
>Stretch from Chhal Mines to Gharghoda has been approved for two lanes
>Stretch from Punjipathra to Milupara via Tamnar not yet approved

In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get the same approved so as to complete the work within three months. Stretch from Punjipathra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

RECOMMENDATIONS

4. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipathra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of work.

FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER DATED 24-06-2021.

5. Improve Road quality to reduce spillage and air pollution- Gharghoda and Tamnar area of Raigarh is extremely in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for existing industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. I order to ensure better ambient air quality and statistical balance is to be developed between road transport and rail transport. It was found satisfactory that developments of rail network with five coals siding the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only specially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.

EE PWD, Raigarh has informed the committee that main highway immediately connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chall mines to Gharghoda has been approved for two lane and its strengthening. Stretch fromPunjipathra to Milupara via Tamnar (25 km) and stretch from Milupara to Lailung not yet approved.

Action : Since the actual process of constructing the NH will take atleast two years , PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As for as constructions of other stretches are concern PWD

shall take highest priority because these are the stretches with heaviest traffic density.

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities , constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,……. In para 9 directed that "The Oversight Committee may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law."In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to performs their constitutional obligation to protect environment and public health. Pending taking coercive measures for such failure in due course , we direct the Chief Secretary , Chhattisgarh to ensure necessary action on the part of the concerned department , including PWD and Health on the subject of construction of road and providing Health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order against PWD and Health Department of State of CG finally apprised them towards penal consequences of disobedience but both these department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment compensation/ penalty has been provided.Intimation was sent to PS PWD Chhattisgarh Government to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. Chief Engineer, Bilaspur and Executive Engineer Raigarh of PWD attended the meeting and briefed the progress as under-

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1. An amount of Rs.6274.33 Laks is sanctioned on 08.09.2021 for 27.50 km CC road from Punjipathra to Tamnar.
2. Approval granted on 23.02.2021for an amount of 2032.95 Lakhs for renovation work of 13.40 km road from Raigarh to Gharghoda.
3. Approval granted on 08.09.2021for an amount of 1797.25 Lakhs for renovation & Strengthening work of 10 km road from Chaal to Gharghoda.
4. So far as patch repair work is concerned, no documents or material could be produced even otherwise we could not see any repair work going on, on the roads.

All above sanctions and approvals are subject to acquirement of land, Release of Loan and two years' time for completion. Till date there is no progress regarding acquisition of land, sanction of loan, etc. All these facts itself shows that matter has not been given any seriousness or to say in near future the road is not going to be made.

The committee is not satisfied with submission.

Matter to be considered for imposition of Penalty/Fine

From afore stated complete facts it is clear that dept.of PWD did not care to follow the directions of the committee and also did not complied the orders of the Hon'ble NGT even they misguided committee and NGT by informing that road main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme which appears to be not correct because no such document to show that NH has taken over the Road has been provided. Although they received amount from SECL despite that they did not took interest to construct road. Non Construction of road and lack in repair work is one of the reason for pollution caused by road transport even there is no surety that in near future the construction of road will be made by the department. In fact this is a case of deliberate disobedience of remedial measures by the PWD, therefore for environment breach Depart.of PWD is also responsible and therefore cannot escape its liability to pay Penalty / Fine ..

If environmental Compensation is to be levied as per calculation below-

- Start date non- compliance- 07.09.2020

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- Last date of compensation- 30.11.2021
- Number of days- 448
- Rate Rs. 30,000 per day
- EC comes to Rs- 1,34,40,000 (One Crore, thirty four lakhs, forty thousand)

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penaly / Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

4. Penalty/Fine on Principal Secretary, Health Department,CG Govt.

Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made there in were considered by the NGT vide order dated 27-02-2020

Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (4A 314/2014 CZ) case. (Action by respective coal mine companies).

Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that "We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law. In para 5 have made reference to applicants contentions and passed order in para 6. ***In para 6 have ordered that "Mitigation measures for heath issues may be over seen by the Principal Secretary , Health, Govt. of Chhattisgarh. For this purpose , the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary , Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."(NGT order dated 27-02-2020)***

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Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.

01. Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 09-11-2020

"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."

02. Long Term Measures

b) To reduce the pollution and other impacts caused by road transport of coal and other minerals, direction may be issued that coal transport by road from coal mines or thermal power plants in these two blocks will be permitted only for 1 year, after which transport must done by rail or closed conveyor belt only.

REVIEW STATUS AS ON 09-11-2020

The Committee on field observation has made recommendation as below:-

1.
2. *RECOMMENDATIOINS*
3. *1. In order to ensure development of health facilities in the village of mining affected area, Principal Secretary, Health, Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities'.*

Hon'ble NGT passed order that Principal Secretary Health and the PWD Department, Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and

considered by Hon'ble NGT vide their order dated 24-06-2021.

01. Short term measures

g). Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 15-03-2021

"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. Collector Raigarh has assured to arrange the required medical facility in the area by way arranging n health screening camps in all villages within next few months.

RECOMMENDATIONS

3. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.

FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER DATED 24-06-2021.

4. *Public health facilities and disease screening – The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area, Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis – JPL nultispecility hospital at Tamnar. Collector Raigarh has also assured to organize "health Camps" within the next three months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.*

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,……. In para 9 directed that "The Oversight Committee

may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law."In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to perforsm their constitutional obligation to protect environment and public health. Pending takingcoercive measures for such failure in due course , we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned department, including PWD and Health on the subject of construction of road and providing Health care facilities and drinkingwater to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order and finally apprised them towards penal consequences of disobedience but department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment Penalty/Fine has been provided to the department.

Intimation was sent to PS, Health, and Govt. of Chhattisgarh to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. PS Health Chhattisgarh Government could not ensure his presence in person/representative in the meeting.

The documents and information provided about infrastructure of health facilities reveals that health care facilities are insufficient and no serious efforts have been made to improve it even on the direction of Hon'ble NGT.

Hence the matter to be considered for imposition of environmental Penalty/Fine.

- The oversight committee in its report dated 14.10.2019 submitted to Hon'ble NGT had recommended proper and free health care

facilities with multispecialty treatment system may be provided in all coal mine adjacent villages. In this context Hon'ble NGT has given the liberty to PS Health Government of Chhattisgarh to oversee the mitigation measures for health issues. For this purpose the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.

- In its further order dated 20.11.2020 Hon'ble NGT has directed PS, Health Govt. of Chhattisgarh to keep informing the oversight committee about development made in health facility. In spite of the direction issued by Hon'ble NGT no progress was submitted PS, Health, Govt. of Chhattisgarh to the oversight committee.

- Hon'ble NGT in its order dated 27.02.2020 has directed that *mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.A copy of this order be sent to the CPCB, Principal Secretary, Health, Govt. of Chhattisgarh, Ministry of Coal as well as the MoEF&CC by e-mail.*

- Hon'ble NGT in order dated 24.06.2021 on point number 10 mentioned that
"*We regret to note failure of the concerned departments of the State of Chhattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment*

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and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries. "

Principal Secretary Health neither responded the above orders issued by Hon'ble NGT nor could done any work to protect environment and public health. He not only took all the orders passed by Hon'ble NGT in a very casual manner but also gave a deaf ear to those orders His non involvement in taking remedial measures is one of the reason to increase public health hazard which arose due to air and water pollution. Neither he took part in environmental Penalty/Fine hearing although noticed nor could show any ground to exempt him from levying the Penalty / Fine .

If environmental Compensation is to be levied as per calculation below-

- Start date non- compliance- 27.02.2020
- Last date of compensation- 30.11.2021
- Number of days- 641
- Rate Rs. 30,000 per day
- EC comes to Rs. 1,92,30,000 (One Crore, ninety two lakhs, thirty thousand)

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penaly / Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

Calculation of property damage on application submitted by villagers in favour of the applicant against TPPs

1. Applications were against TRN Energy Pvt.Ltd.and against M.s Mahaveer Energy & Coal Benification Ltd. Although copyof the application are been served on these TPPs but they did not file any reply. For hearing against these application, both the parties remained absent. For verification services of concerned Patwari have been taken. As per information provided by the Patwari only 4 persons were found entitled therefore for those persons compensation has been calculated and remaining applications have been rejected.

Calculation of property/ crop damage was done on the basis of area and tentative loss to crop and rate per Quintal

As per report of the area Patwari Govt. has fixed per hector crop 37 quintal and price including bonus Rs.2500/- per quintal of paddy.

The damage claims submitted by the affected villagers and farmers were scrutinized by officials of land revenue departments. They have given the affected area of claimant. Environmental compensation in the shape of damage has been calculated as below, damage claim submitted by villager details of affected land is as under-

-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare	Amount in Rs
01	Sh. Ghurauram Rathia Nawapara	381/01	0.076	7030
02	Sh. Harcharan Rathia & Sh. Malik Ram RathiaKantagdeeh	09/01 09/02	4.411 1.895	408017.5 allowe only Rs.1,11,000/- as claimed

				175287.5 allowed Rs.1,11,000/- as claimed
03	Sh. Karam Singh Rathia	401/01	0.101	9342.5
Total Affected area			6.483	599677.5

-
- Note- Damage calculated based on productions of 37 quintals per hectare considering rate of crop @ Rs. 2500 per quintal.
-
- The committee has decided that as environmental compensation /damage claim will be paid by M/s TRN Energy Private Limited to the affected villagers/ farmers as per above list accordingly.

2. To discuss about carrying capacity study:- Not yet finalized between NEERI and CECB

- CECB, RO, Raigarh to follow up with

3. CGWB- for water recharging point report:- Report not received .
4. DMHO- for providing CHC, PHC detail with staff strength and Government health scheme being implemented in rural area:-Not yet provided .
5. PHED for detail about treatment of fluoride contaminated water in Saratola village: Not yet provided.

Agenda for meeting during 24th-25th November 2021 at Raigarh & Bilaspur-

In order to summarize the assessment of compensation, the committee

has decided to conduct field visit at Raigarh on 24th November 2021 and the meeting at Bilaspur on 25th November 2021

A. Physical verification of progress as on 30.11.2021 and Environmental compensations.
B. Visit to M/s Hindalco Industries Limited -Coal Mines (Gare Pelma Sector- IV/4&5)
C. Hearing to M/s Hindalco Industries Limited on environmental compensation and assessment of environmental compensation.
D. Any other issue with permission to Chairman.

The meeting ended with thanks to Chairman.

(Shri. S.K.Verma)
Regional Officer,
CECB,Raigarh

(Sh. P. K. Gupta)
Deputy Collector,
Raigarh

(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr.R.P.Mishra)
Scientist "D"
CPCB,Bhopal

(Justice V.K. Shrivastava)
Chairman

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has decided to conduct field visit at Raigarh on 24th November 2021 and the meeting at Bilaspur on 25th November 2021

A. Physical verification of progress as on 30.11.2021 and Environmental compensations.
B. Visit to M/s Hindalco Industries Limited -Coal Mines (Gare Pelma Sector- IV/4&5)
C. Hearing to M/s Hindalco Industries Limited on environmental compensation and assessment of environmental compensation.
D. Any other issue with permission to Chairman.

The meeting ended with thanks to Chairman.

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Scientist 'C' MoEF&CC
IRO- Raipur

(Dr.R.P.Mishra)
Scientist "D"
CPCB,Bhopal

(Justice V.K. Shrivastava)
Chairman

EXHIBIT-05

5th Meeting
Date-24th and 25th November 2021

Minutes of the meeting of Oversight Committee
OA No.104/2018 Shivpal Bhagat & Ors. Vs Union of India & Ors.

In accordance with decision taken in 4th meeting held on 26-27th October 2021 at Bilaspur, 5th meeting was conducted during 24thand 25th November 2021 at Raigarh& Bilaspur. Sh. Sharachchandra Lele, ATREE,Bengaluru could not attend the field visit and meeting due to his pre-existing commitments (teaching, research and institution-related). The meeting was attended by members as under-

1. Justice V.K.Shrivastava, Chairman
2. Dr. Paras Ranjan Pujari, Senior Principal Scientist, NEERI, Nagpur
3. Dr. R.P.Mishra Scientist "D' Central Pollution Control Board, Bhopal
4. Dr. Bhardwaj Adiraju Scientist 'C' MoEF&CC, IRO Raipur
5. Sh. P. K.Gupta, DC, Raigarh
6. Sh. S.K.Verma, Regiona Officer, CECB, Raigarh

The agenda of the meeting was:-

A. Physical verification of progress as on 30.11.2021 and Environmental compensation.
B. Visit to M/s Hindalco Industries Limited -Coal Mines (Gare Pelma Sector- IV/4&5)
C. Hearing to M/s Hindalco Industries Limited on environmental compensation and assessment of environmental compensation.
D. Any other issue with permission to Chair.

1. <u>Physical verification of progress as on 30.11.2021 and Environmental</u>

Compensation

Visit of CSPGCL Coal Mines (GarePelma Sector –III) - The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump on one


01


02

side (Pic-02) of the road was located at approximately 80m distance from road side but OB dump all along road was not within prescribed distance, even on many places it is adjacent to road. Dump process is still continuing. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Villagers assembled there and applicant's representatives have stated there that because of dump and traffic in road this place has been declared as accidental zone and within a year around 10 persons have been killed in accident. Road condition is very bad.Although in one side Provision of check drains have been seen but appears to be not having width of adequate size, the sludge or waste materials along with water is passing through the agricultural fields and is terminating in nallah.(Subsequently we come to know that this is not a Nala but River)((O.B. Dump in CGSPGCL mine at Gare Palma sector 3 observed on field visit during 15-17 March 2021 on both sides of Public Road). This public road is within the mining area and as stated and shown by company officers present there as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009.Although in one side Provision of check drains have been seen but in other side there appears no provision of check drains and garland drains have been made to ensure that the sludge or waste materials does not go into the nullah. (Subsequently we come to know that this is not a Nala but River)

For environmental compensation and for remedial measure CGSPGCL,was required to be heard on Maintenance of Public Road, on illegal OB dump , non use of flyash , non construction of garland drains and proper settling tanks , Sludge and waste materials passing through agricultural field destroying crop production going to Nallah. (Subsequently we come to know that this is not a Nala but River) thereforethe mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission

from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

Environment compensation hearing dated 14th September 2021. Heard, Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) -

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB Dump has been made on both sides of road even in some places adjacent to road. This public road is within the mining area and as stated and shown by companies officer present there, as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009. For Mining operation roads with the mines area is to be constructed by the lessee and lessee has to divert public roads, at his own cost to facilitate scientific mining. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Condition of the road is bad. The mine authorities were present in hearing meeting with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of CSPGCL presented the mining plan in which location of the OB dump is sited on the same place subject to diversion of PWD road passing between lease areas. They stated that CSPGCL has deposited required amount with PWD, Raigarh for diversion of the road. There is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start and complete the diversion. Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was of the opinion that CSPGCL shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect

the public from accident as well as fugitive emission. CSPGCL shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. CSPGCL shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance from road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in progress. Mines authorities present there stated that further minimum 15 days time may take to complete the work. They also apprised that CSPGCL could not obtain necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash. M/s CSPGCL vide its letter dated 18.11.2021 requested to DGMS for obtaining permission to use fly ash in its OC mine Gare Pelma sector-III as per study report submitted by CIMFER. Director of Mine Safety, Raigarh vide its letter dated 23.11.2021 has restricted fly ash dumping in the opencast working till submission of clarification for factor of safety (FOS) and suitable geometry of in pit and external dump design by scientific agency.

Violations of environmental conditions and directions as noted above brings the Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs

PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

Environmental compensation is calculated as under-

- The CTO issued on 23.10.2020 has condition of fly ash utilization in stowing.
- Consent condition was amended on 22.06.2021 for utilization of fly ash in OB dump.
- Date of first observation of non-compliance- 17.03.2021
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 253 days

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

2. <u>Visit of M/s Ambuja Cement Coal Mines (GarePelma Sector- IV/8)-</u> The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit of the committee OB dumping was observed on both side of the road (Pic-03). This public road is passing through the mines area and



utilized by public, Mines operator and coal transporters. No garland drains with proper settling tanks have been constructed. 25% of fly ash as required in 2009 notification for OB dump has not been done. We saw number of coal loaded trucks passing through this road, Road condition is very bad.Ambuja Cement Ltd to be heard on Maintainance of Public Road, on illegal OB dump , non use of flyash , non construction of drains and proper settling tanks . The mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

Heard, M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector – IV/8) on Environment compensation on14th September 2021

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump was located very near to road side which was creating danger to public and transport moving on road. The mine authorities were present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of M/s Ambuja Cement Limited presented the mining plan in which location of the OB dump is sited at distance of minimum 45m from road side subject to diversion of PWD road passing between lease areas. Officials of M/s Ambuja Cement Limited stated that they have deposited required amount with PWD, Raigarh for diversion of the road but there is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start and complete the diversion . Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was in opinion that M/s Ambuja Cement Limited shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. M/s Ambuja Cement Limited shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. M/s Ambuja Cement

Limited shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash in OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance form road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in progress. Mines authorities present there stated that further minimum 15 days time may take to complete the work. They also apprised that they could not obtain necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash.

Violations of environmental conditions and directions as noted above brings the M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal

Mine & TPP in Red category of Industry

2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.
5. LF, has been taken 1.0 for population less than one million

Environmental compensation is calculated as under-

-
- The CTO issued on 23.10.2020 has condition of fly ash utilization in OB dump and stowing.
- Date of first observation of non-compliance- 17.03.2021
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 253 days

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

3. M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5)

The committee has also visited the site of M/s Hindalco Industries Limited coal mine on 24th November 2021 and found that The mines is divided in two parts. In both parts mines operation is continuing. Back filling was also being done without utilizing fly ash. OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GUL MOHAR, some fruit plant like mango, Guava etc. these plants are very small and their survival is under question. Trees to be planted in green belt or otherwise in mines area are not planted. We could not find garland drain along OB dump and settling ponds. From officials present we could come to know that coal



M/s Hindalco Limited Mines

extracted from here is supplied to their captive power plant situated in ORRISSA. When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in OB dump even they did not tell how they are disposing their own fly ash. M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) has been directed to be present to defend their liability to pay environmental compensation in environmental compensation hearing on 25.11.2021 at Bilaspur with all relevant documents.

HeardM/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) on 25-11-2021 on assessment of environmental compensation.

Representatives from M/s Hindalco Industries Limited –COAL MINES (Gare Pelma IV/4 & 5) appeared and contended that they have on mobile connectivity contacted DGM for permission and guidance for utilization of fly ash, who gave a date for their inspection. They stated that after getting permission from DGM they may take steps to utilize Fly ash in back filling and OB Dump.

The mine is found divided in two parts. In both parts mines operation was continuing. Back filling was also being done without utilizing fly ash. OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GUL MOHAR, some fruit plant like mango etc. these plants are very small and their survival is under question. We could not find garland drain along OB dump and settling ponds. From officials present we could come to know that coal extracted from here is supplied to their captive power plant situated in ORRISSA. When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in OB dump even they did not tell how they are disposing their own fly ash.

M/s Hindalco Industries Limited was to provide adequate garland drain along with OB dump with sufficient number of settling ponds to ensure suspended solid free discharge of storm water in rainy season. Hindalco Industries Limited was to comply with the provisions of notification 2009

for utilization of 25% of fly ash in OB and back filling. They were also required to developproper Green Belt.

In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale
5. LF, has been taken 1.0 for population less than one million

- The CTO issued on 02.01.2020 has condition of fly ash utilization in OB dump and stowing.
- Date of first observation of non-compliance- 02.01.2020
- Last date taken for assessment- 30.11.2021
- Number of days for non-compliance- 698 days

EC in Rs. 2,09,40,000/- (Two Crore, nine lakhs forty thousand)

4. **Visit of Gare Palma IV/01 OC Mines- The captive power plant of M/s Jindal Steel & Power Limited,** Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed near Nalah passing in mining lease area. (PIC- 07) The distance between disposal site and Nalah seems to be less than 500m and during rainy season fly ash may take a way to River kelo through Nalah. The issue has been considered as negligence in selection of site and M/s JSPL has been directed to be present in environmental compensation hearing meeting on 15.09.2021 at Bilaspur with all documents EC, Consent and quantity of fly ash disposed and remediation proposal if any.



On environmental compensation hearing representative from JSPL were present who have been heard and findings recorded that captive power plant of M/s Jindal Steel & Power Limited, Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area. The distance between disposal site and drain seems to be less than 500m and during rainy season fly ash may take a way to River Kelo through drain/ Nala (a watercourse). The issue has been considered as negligence in selection of site and M/s JSPL has been directed to shift the same on or before 30.11.2021.

On verification on 24-11-2021 we found that fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area has been removed.. M/s JSPL vide its letter dated 28.10.2021 addressed to Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh has informed about removal of OB on 24.10.2021. The committee has also visited the site on 24th November 2021 and found that all OB dump was removed from the site. In view of noncompliance from 24th August 2021 to 24th October 2021 (62 days) EC may be imposed.



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In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale
5. LF, has been taken 1.0 for population less than one million

Date of observation of noncompliance- 15.09.2021
Date of observation of compliance – 24.10.2021
Hence EC (in Rs) = 30,000 X 39 = 11,70,000/- (Eleven Lakhs seventy thousand Only)

5. <u>M/s Jindal Power Limited, Tamnar, Raigarh-</u>

It was reported in over sight committee visit on 17.03.2021 about leakage of fly ash slurry from ash dyke of M/s Jindal Power Limited. The committee had suggested M/s JPL to conduct study through a research organization of national repute to determine the stability of the existing

ash dyke and take measures required to strengthen as needed. In order to take the status, the oversight committee once again visited the sight on 24th August 2021. Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has discussed in details about process adopted for repair of the leakage and directed M/s JPL to submit the authentic report about strength of repairing undertaken and the stability report of the existing ash dyke from research organization of national repute on or before 30-11-2021.

JPL after complying the direction have submitted stability report conducted by NIT Raipur but did not file any documents to show details about process adopted for repair of the leakage or to establish repair conducted by competent person/ authority therefore is liable for Environmental compensation from 17-03-2021 to 24-08-2021

In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry
2. N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)
3. R, A factor in Rs is taken 250 only
4. S, Factor of scale of operation 1.5 as coal mines and TPP are

large units.scale

5. LF, has been taken 1.0 for population less than one million

- The Environmental condition has been violated from 17-03-2021
- Date of first observation of non-compliance- 17-03-2021
- Date of compliance taken for assessment-24-08-.2021
- Number of days for non-compliance- -161days
- Determination of Environmental Compensation (EC)
- Hence EC (in Rs) = 30,000 X161 = 48, 30,000/- (Forty Eight Lakhs Thirty thousand Only)

6. Shri Sharachchandra Lele, One of the member has vide postal communication dated 04-Aug2021 raised two points for consideration but after first meeting did not turn up to prosecute these points therefore in his absence we are constrained to take those points for considerations.

7. Shri (Dr.) Sharachchandra Lele's contention in brief is that "their recommendation regarding is continuing no further disposal of flyash in low lying area has been accepted by Hon'ble NGT in order dated 27-02-2020 but it appears that dumping is continuing and Hon'ble NGT's order dated 27-11-2020 inadvertently introduced some confusion by saying that "the applicant has given suggestion to the effect that flyash dumping in low- lying area should be insured . Hon'ble NGT in its order dated 27-02-2020 has considered the recommendations. In para 4 has mentioned that "We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law. In para 5 have made reference to applicants contentions and passed order in para 6. So far as Order dated 20-11-2020 passed by Hon'ble NGT is concerned Hon'ble NGT in para 6 stated that "Further the applicant has given suggestions by way of written submissions filed on 18-11-2020, inter alia to the effect that contaminated sites be seen, fly ash dumping in low – lying areas be ensured and such

dumping should not be in unscientific manner. The legacy fly ash dumps may be remediated. Hon'ble NGT after quoting submissions of the applicants have ordered that "The above suggestions may be duly considered by the concerned authorities and the committee which may be co-ordinated by CPCB. In view of the above we did not find any substance to revise our recommendation again.

8. Another grievance raised by Shri (Dr.)SharachchandraLele is that there was no discussion about the content of the new ToR during the March field visit or meeting in Collector's office nor any discussions regarding to whom to invite for the study. The 30th March letter to NEERI was issued without any decision to that effect having been taken by the committee. His further grievance is that NEERI is also represented on the Oversight Committee therefor there is an apparent conflict of interest in the Oversight Committee commissioning NEERI to carry out the study. After study when report is to be vetted again conflict of interest will take place. Further contentions is that the ToR sent to NEERI has not been framed by the Committee to cover clear picture of carrying capacity.

9. Shri (Dr.) Sharachchandra Lele, PhD himself has recognized National Environmental Engineering Research Institute an excellent nationally recognized research organization in this field. Recommendations made by the Committee from time to time and concurrence given to the same by Hon'ble NGT from time to time , does not require to made any further recommendation contrary to earlier given.

10. **EXECUTION APPLICATION FILED BY APPICANTS BEFORE HON'BLE NGT NO.11 OF 2021.** Shivpal Bhagat Applicant No. 1 in OA No. 104/2018has filed application seeking compliance and execution of order dated 27-02-2020 passed by Hon'ble NGT. On 20-10-2021 only one E-mail received having 2 letters. In one E-Mail learned counsel for the applicant has disclosed that "Albeit filed, EA 11/2021 was not on board on the said date. However, during the hearing, an oral submission on behalf of the applicant had been made with regard to submitting the attached application for considering by Ld.Committee.In furtherance to the submission, please find below the application that has been so filed.

We bring to your kind attention that the same had been forwarded on an earlier occasion as well. It is requested that the submission of the applicant be also considered by the Committee while formulating a report as per the orders of the Hon'ble NGT."In another letter they have written that "we had filed the above mentioned Execution application before the Hon'ble Tribunal seeking compliance and execution of order dated 27-02-2020passed by Hon'ble Tribunal in Original application. The contents of the Execution application were brought to the notice of the Hon'ble Tribunal and it was opined by the hon'ble Tribunal thatsince the committee has taken cognizance of the matter , it would be appropriate that the issue raised in the Execution Application be considered by the committee. In light of the above, you are requested to consider the Execution Application attached herein below as representation on behalf of Applicant No. 1.

11. This execution application is pending before Hon'ble the NGT for determination, consideration and decision. There is no order from the Hon'ble NGT, to consider this execution application as representation of applicant no. 1 and to consider while formulating a report. The matter is sub judice therefore we do not find it appropriate to consider while formulating our report. In view of the above, the prayer made by the applicant to consider this execution application as representation of applicant no. 1 and to consider while formulating a report stands disposed of.

12. **APPLICATIONS SAID TO BE FOR DAMAGES :-**RO Raigarh on 24-11-2021 shown some of the photocopies of villagers applications . He was asked to present those photocopies on 25-11-2021 for consideration in meeting and advised to call concerned patwari if available. On 25-11-2021 Patwari Parmeshwar Netam attended the meeting to whom those papers have been given for verification. Some of the application falling in his jurisdiction, he after verifying his record reported "not related to personal land". On scrutinizing all those application, they are not found in order and appear to be not related to environmental compensation , accordingly those applications stands disposed of.

Part-A Shortterm Action Plan:-

(1) Whether CECB amended the consent conditions of all TPP and Coal mines. –

Complied

(2) Whether M/s Ambuja Cement Coal Mines, M/s Hindalco Limited Coal Mine and M/s CSPGCL (Chhattisgarh State Power Generation Company Limited) Mines are accepting fly ash for disposal through OB and back filling.

Not accepting the fly ash, CECB has asked them to obtain permission from DGMS for fly ash backfilling on or before 31st August 2021. After due considerations and due hearing they have been assessed with Environmental compensation for violation of environment conditions,

(3) WhetherCECBconstitutedStatelevelCommitteetolook into Scientific Utilization of fly ash in the Chhattisgarh State? –

Oversight committee in its meeting dated 27.11.2020 has decided to write Chairman, CECB for constitution of State level Committee for permitting about utilization of fly ash for reclamation of low lying areas and in stowing of abandoned mines/queries only after ensuring the implementation of guidelines prepared by CPCB as per MoEF&CC notification No.SO 763(E) dated 14-09-1999. The decision was taken for giving effect to observations made by Hon'ble NGT in para 6 oftheir orders 20.11.2020.

"Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect ***that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated.*** *Air and land pollution due to*

fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis 13 and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes."

In this context Nodal Officer of the oversight committee has written a letter to Chairman, CECB on 26.02.2021(RD/BPL/NGT OA-104/2018/202) for constitution of State level committee for utilization of fly ash for reclamation of low lying area, and in stowing of abandoned mines/quarries.

In this context, Member Secretary, CG Environment Conservation Board, Raipur, appraised us that State level committee has been constituted a long back and now has been reconstituted on 24.01.2019. This reconstituted committee is termed as monitoring committee constituted by Chhattisgarh Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009. This committee is also responsible to ensure implementation of clauses 7, 8(i) & 8 (ii) of MoEF&CC notification SO 2804 (E) dated 03.11.2009 which reads as:-

"(7) No agency, person or organization shall within a radius of hundred kilometers of a coal or lignite based thermal power plant under take or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub-paragraph (1) of paragraph 3.
(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 die 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 subparagraph (10) for this purpose.
(ii) No person or agency shall within fifty kilometers (by road) from coal of 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 die guidance of the Director General of Mines Safety (DGMS);

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

When there is already one statutory committee for monitoring and facilitating implementation of notification at the respective State Government level, there appears no need for constitution of another committee for the same work in the same field.

(4) Whether as per precondition of SOP Power plant/land owner / agency have obtained statutory permission from regulatory authority SPCB.

After SOP 28-08-2019 issued by MoEF&CC. In compliance of guidelines issued by CPCB clause 5.2 in cases of Reclamation of low lying area using fly ash permission from regulatory authorities such as SPCB as per the requirement .If non compliance is reported, in that case competent authorities may take appropriate decision.

(5) Whether M/s Hindalco Limited is providing tap water in villages Kondkel in co-ordination with PHED.

Complied (M/s Hindalco Limited has started Giving water to Villagers of Kondkhel and more over NEERI, Nagpur in its report informed about normal depth of ground water level in the village)

(6) Whether CCTV has been installed by M/s HINDLCO Industries Limited, SECL Gare Palma IV/2 &3, M/s Ambuja Cement Coal Mines, M/s CSPGCL Coal Mines.

Complied. CCTV should have connectivity with CECB.

(7) Whether CAAQMS has been installed in all coal mines having its connectivity with CPCB/CECB servers.

M/s CSPGCL mine has installed two CAAQMS and remaining is not complied. May its installation takes time but on this excuse

concerned proponents are not entitled for excuse. CECB to issue directions to concerned proponents.

(8) Whether IRCON has completed work, 14 KM rail line from Gharghoda-Bhalumunda-Gare Palma and 5 number of coal siding in Tamnar and Gharghoda area.

To be Completed by December 2021.

(9) Whether proper repair and maintenance of Road have been done outside the mine area by PWD and mining companies.

Not Complied, Penalty/Fine levied on Principal Secretary,PWD, State of Chhattisgarh.

(10) Whetherproperandfreehealthfacilitieswithmultispecialtytreatmentsyste mhavebeenprovidedinallcoalmineadjacentvillages.

Not Complied, Penalty/Fine levied on Principal Secretary, Health Department, State of Chhattisgarh.

(11) Whether MoEF&CC has submitted compiled response received from coal mines relating to Green Belt developments as per EC conditions.

Yes. On Papers although Project Proponents have tried to show that they are doing the plantation work , but there is distinction between plantation and Green belt development therefore as per mining plan coal mines shall develop green belt and on OB dumps shall grow prescribed species of tree and as per CPCB guide lines 2019 TPP shall develop green belt.

(12) Whether CMD SECL issued any permission for utilization of abandoned mines for disposal of fly ash.

CECB vide its letter number 318 dated 10.05.2021 has made allotment of fly ash disposal in void of Domnara OC mine (Abandoned) of Raigarh but no progress observed on ground, Only one abandoned mine is there for filling of fly ash but the same has been allotted to five companies situated in different area and with different quantities. This allotment has been done in complete violation of "GUIDELINES OF CIL OFFERING MINES VOIDS FOR FLY ASH DISPOSAL The guidelines is a complete code and following that only mines was required to be allotted and compliance should have been made. CECB should ask Coal India Ltd to follow their own guidelines from inception of allotment of Mine void till disposal of fly ash and after closure of the site till reclamation.

(13) Whether Carrying Capacity Study in the area has been completed by Chhattisgarh Environment Conservation Board.

No. Negotiation between NEERI and CECB is in progress,

PART-B LongtermAction Plan:-

Shall be considered on next meeting.

PART -C ENVIRONMENTAL COMPENSATION

Hon'ble NGT has directed that the Oversight Committee may make assessment ofcompensation for the violations on the basis of which the statutory State Board may takefurther action, following due process of law.

Environmental Compensation ***Penalty/Fine*** have been calculated for non-complying industries and departments. The details are as under-

Sl.	Name of the industry / department	***Penalty/Fine***

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No		EC amount in Rs
01	Principal Secretary Public Works Department Chhattisgarh Government	1,00,00,000
02	Principal Secretary State Health Department Chhattisgarh Government	1,00,00,000
03	M/s TRN Energy Private Limited, NawaparaRaigarh	1,82,40,600/-
04	M/s Mahavir Energy and coal benefication Limited	1,42,90,000/-
05	M/s Hindalco Industries Limited Coal Mine	2,09,40,000/-
06	M/s Ambuja Cement Limited Coal Mine (GP IV/8)	75,90,000/-
07	M/s Jindal Steel & Power Limited, Dongramau, Tamnar	11, 70,000/-
08	M/s Chhattisgarh State Power Generation Company Limited	75,90,000/-
09.	M/s Jindal Power Ltd, Tamnar	48,30,000/-

Environmental Compensation against TRN Energy PVT. LTD. have been calculated for damage to property of individuals. The details are as under-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare	Amount in Rs
01	Sh. GhurauramRathiaNawapara	381/01	0.076	7030
02	Sh. HarcharanRathia &	09/01	4.411	4,08,017.5

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	Sh. Malik Ram Rathia Kantagdeeh	09/02	1.895	allowed only Rs.1,11,000/- as claimed. 175287.5 allowed Rs.1,11,000/- as claimed
03	Sh. Karam Singh Rathia	401/01	0.101	9342.5
Total Affected area			6.483	599677.5

Agenda for meeting during 6-7th December 2021 at Bilaspur-

In order to summaries the status as on 30.11.2021 in the matter, and to make recommendation on short term measure and long term measures and other matters, committee has decided to conduct the final meeting at Bilaspur during 6-7th December 2021.

The meeting ended with thanks to Chairman.

(Shri. S.K.Verma)
Regional Officer,
ECB, Raigarh

(Sh. P. K. Gupta)
Deputy Collector
Raigarh

(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr. R.P. Mishra)
Scientist "D"
CPCB, Bhopal

(Dr. P.R. Pujari)
Senior Principal Scientist,
NEERI,Nagpur

(JusticeV.K. Shrivastava)
Chairman

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(Dr. Bhardwaj Adiraju)
Scientist 'C' MoEF&CC
IRO- Raipur

(Dr. R.P. Mishra)
Scientist "D"
CPCB, Bhopal

(Dr. P.R. Pujari)
Senior Principal Scientist,
NEERI,Nagpur

(JusticeV.K. Shrivastava)
Chairman

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Item No. 04 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 104/2018
(I.A. No. 382/2020, I.A. No. 25/2021 & I.A. No. 97/2021)

(With report dated 17.03.2021 & 16.04.2021)

Shivpal Bhagat & Ors. Applicant(s)

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 24.06.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE M. SATHYANARAYANAN, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant: Ms. Kanika Agnihotri, Advocate for Applicant no. 1
Mr. Saurabh Sharma, Advocate for Applicants no. 2 to 6

Respondent: Mr. Raj Kumar, Advocate for CPCB
Mr. Ashish Kumar, Advocate for M/s Jindal Steel & Power Ltd.

ORDER

1. The issue for consideration is the remedial action against pollution caused by the Thermal Power Plants and Coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including M/s Jindal Power Limited, M/s Jindal Power and Steel Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s. Hindalco Industries Limited and M/s. Monet Energy Limited, SECL. Operation of said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants. Water and soil have toxic metals, having potential for health hazard, requiring

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monitoring of emissions, making the polluters accountable and regulating the polluting activities.

2. The matter has been considered earlier and under direction of this Tribunal, an Expert Committee furnished its report dated 14.10.2019 after visiting the sites and considering earlier reports on the subject. The Committee considered the mitigation measures required to be adopted by the Thermal Power Plants and the Coal washeries. The Committee found that the issue of ground water depletion, soil pollution, forest loss and livelihood loss were required to be addressed for which short term and long terms measures were suggested. The Tribunal directed remedial action for dealing with the deficiencies accordingly. Further direction was to review the existing arrangements and furnishing a further report. The operative part of directions in the order dated 27.02.2020 is as follows:

> *"3. Accordingly, a report dated 14.10.2019 has been filed by the CPCB on behalf of the Committee on 15.10.2019. The Committee visited various sites and considered the earlier reports, including maps and the data of air quality as well as water pollution. The Committee then considered the mitigation measures prescribed and their current status including installation of Electro-Static Precipitators (ESPs) and Fluidized Gas Desulfurizers (FGDs) in the Thermal Power Plants. The committee also considered ground water depletion, soil pollution, forest loss and livelihood loss and after detailed study of various aspects made following recommendations:*
>
> ***"4. RECOMMENDATIONS:***
>
> *Based on the above observations, the committee recommends a set of short-term and long-term measures.*
>
> *4.1* ***Short-term measures***
>
> a. *Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*
>
> b. *Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh*

district to be directed to stop issuing NOCs for the same.

c. *Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing* ***closed conveyor belts*** *and no such coal transport should be allowed via trucks. (Action by SECL).*

d. *Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically. the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*

e. *Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*

f. *Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*

g. *Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*

h. *Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.*

i. *We also recommend that* ***no further conversion of UG mines to Open Cast mines*** *be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost (rehabilitation).*

4.2 ***Long-term measures***

a) ***Based on evidence summarised above, the committee is of the opinion that the Tamnar-Gharghoda block region is close to exceeding its environmental carrying capacity.*** *However. the precise extent of current environmental load and the likely impacts of future mining and industrial activities has to be worked out through a detailed and comprehensive* ***environmental load carrying capacity study, to be carried out by a reputed environmental research institute or a consortium of such institutes over a 24-month period.***

i) The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.

ii) Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different subregions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.

iii) Mode of commissioning of this study may please be decided by the Hon'ble NGT, and necessary directions may please be issued accordingly.

b) ***To reduce the pollution and other impacts caused by road transport*** *of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.*

c) ***Condition of greenbelt development*** *may be incorporated at TOR stage of EC application to ensure that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer*

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between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.

d) *Ministry of Coal be directed to include the necessary provisions* ***to ensure the acceptance of fly ash*** *in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009."*

4. We find that the recommendations are based on relevant studies and need to be implemented by the concerned power plants and mines in the area for protection of environment and the public health and the environmental rule of law.

5. The applicants have, while broadly expressing satisfaction with the report, made certain suggestions. First suggestion of the applicants is that carrying capacity assessment must be expeditiously carried out and till such assessment is done, expansion and new projects should be only after thorough evaluation. Further suggestion is that there should be a mechanism to oversee the remedial measures, including oversight of health mitigation measures suggested by the Committee.

6. ***We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the 'Precautionary' and 'Sustainable Development' principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only and mechanism for remedial measures should be in place, including oversight of measures for health mitigation. The Committee already constituted in terms of order of this Tribunal dated 22.07.2019 will act as an Oversight Committee. The nodal agency for the purpose will be the CPCB. Meeting of the Committee may be held atleast once in two months or at such interval as may be decided by the Committee. Mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. The Committee may give a status report on the issue as on 30.06.2020 by 15.07.2020*** *by e-mail at judicial-ngt@gov.in. The Oversight Committee may issue appropriate directions to the project proponents for other remedial measures.*

7. ***The above report may be looked into and acted upon by the Ministry of Coal as well as MoEF&CC for such further action as may be necessary****."*

3. The matter was last considered on 20.11.2020 in the light of CPCB report dated 17.11.2020 giving the compliance status with reference to

directions of this Tribunal in a tabular form and also making further recommendations inter alia on the subjects of providing health facilities for the victims, construction of roads and availability of abandoned coal mines. Accordingly, the Tribunal issued directions to the Health and PWD Departments of Chhattisgarh Government and South Eastern Coal Fields. The Tribunal also directed consideration of suggestions of the applicants for taking due precautions in the course of dumping in low lying areas. The discussion and recommendations in the said order are reproduced below for ready reference:-

"3. Accordingly, report has been filed by the CPCB on 17.11.2020 giving the status of compliance of the recommendations in a tabular form as follows:

"

S. No.	***Orders of the Hon'ble NGT from recommendations in the report, November 2019***	***Compliance Review Status on 09.11.2020***
01	***Short term measures***	
a)	*Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*	*Three SECL mines are found complying. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. Process of allocation no of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage. Annexure-II*
b)	*Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP*	***District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash.***

	companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.	***During visit of the committee, disposal of fly ash in low lying area was not observed**. Annexure-III*
c)	*Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).*	*Based on the observation of CECB, RO, Raigarh, it seems to be complied.*
d)	*Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*	*The representative of PHED present during visit of the committee has informed that PHED established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. (Annexure-IV) The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers.* ***In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh**.*
e)	*Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*	*- As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 & 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.* *- In case of installation of CAAQMS all the mines have informed that as per mandatory conditions of EC and CTO fixed location ambient air Quality monitoring is being conducted by the units and reports are regularly submitted to MoEF&CC and CECB.*
f)	*Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load*	*- Letter issued to PS, PWD, S1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA-*

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	carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.	*104/2018/553 dated 07.09.2020. EE PWD was present before committee to appraise the status of PWD roads in the area.* ***Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.*** *- IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia-GharghodaKorichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghodabhalumuda- Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela-Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. (Annexure-V)* ***Compliance in Progress***

g)	*Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*	***Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements**. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.*
h)	*Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions*	*MoEF&CC has started close monitoring for green belt development in all coal mines. **Compliance in progress**.*
i)	*We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).*	*Letter has been issued to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh.*
02	***LONG TERM MEASURES***	
a)	*Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.*	*The matter was discussed with CPCB HO and got advised to include the project in State EC fund as defined by Hon'ble NGT. In order of this proposal for the same has been prepared by CECB and submitted to CPCB for compilation of all project and submission before Hon'ble NGT. Annexure-VI **Compliance in progress**.*
	Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly	
b)	*To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.*	*As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda-Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.*
c)	*Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC,*	*Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.*

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	which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.	
d)	*Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of 2009.*	*Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Process of allocation of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage.*

"

4. The Committee has also made field observations and recommendations as follows:

"FIELD OBSERVATIONS:

1. *Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Member Secretary CECB has informed about considering mine wise allocation of abandoned coal mines as declared by CEA vide its letter dated 14.02.2020. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*

2. *District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.*

3. *In compliance of letter issued by Nodal Officer of the committee on 07.09.2020 to PS, PHED, Raipur, it was informed that PHED has established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. PHED, Raigarh has also established 06 control rooms and circulated the contact numbers of the concern officers to manage any crisis of drinking water availability in Raigarh District. In order to provide proper treatment for removal of any geogenic contaminants PHED Raigarh has also provided 05 Electrolytic DE fluoridation (EDF) plants in 03 villages (Pata, Mudagaon, Saraitola) of Tamnar Block. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. In addition to above PHED, Raigarh has also*

proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tap water supply from mine in village and ensure quality of water in coordination with PHED Raigarh. M/s Hindalco Coal Mine shall also submit report on quantity of mine water generation from UG mines to make an assessment for water supply required from PHED.

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma.*

5. *EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.*

   IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and

made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. (AnnexureVII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.

6. *In reference to instruction on point 2 (a) (ii) regarding carrying capacity study, CPCB has advised CECB to include the project cost in EC fund sponsored project and proposal for same has been prepared by CECB and submitted to CPCB for further essential action.*

7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

In view of the above field observations, the recommendations of oversight committee are as under.

RECOMMENDATIONS :

1. ***In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities.***

2. ***Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 crore (@Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7m width (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) and ensure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.***

3. ***Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite allotment of abandoned coal mines in consultation with CECB and complete it before 31st December 2020."***

5. From the above, it does appear that action so far taken is not adequate and further steps need to be taken in the light of the recommendations made. ***The Principal Secretary, Health and the PWD Department, Chhattisgarh Government and the South Eastern Coalfields Limited (SECL) may act as per recommendations of the Committee. Coal transportation by rail be increased for abatement of air and dust pollution.***

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6. Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect that contaminated sites be seen, ***fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes.*** *The submission of the applicant are:*

" *… …*

…

5. That at the outset it is stated that the Committee did not meet with Applicants during their recent visit which was important as the Applicants would have shown the contaminated sites to the committee which are grossly missing in the present Report dated 17h November,2020. The Committee has only seen the sites which the CECB has shown to it. It is submitted that the Committee should plan an immediate visit after informing the Applicants so that the Applicants can help the Committee to identify the contaminated sites and resolve the environmentally problematic issues as mentioned in the Order dated27.02.2O2O of this Hon'ble Tribunal.

6. That Overall the report does not provide any evidence (in the form of photos, lists of sites visits, descriptions, who did they meet etc) to back up its conclusions. For example in places where the committee has come up with conclusion that fly ash dumping in low lying areas have been restricted. It is stated that no proof has been given for the same. There are no photographs that have been attached or list provided of which sites they have visited and what information they have noted by the Committee. Also the local community members have provided a list of sites and photo documentation of how new fly ash dumping sites have been created in various parts of the region in violation of the Hon'ble NGT's Order/s however till date no action has been taken in any of these cases. The Applicants are annexing the recent photographs showing that the fly ash dumping is still taking place and nothing has been done with respect to removal of legacy fly ash dumps. The non-clean up of legacy fly ash dumps would lead to leachate when it comes in contact with water and would further lead to water and soil pollution.

Photographs alongwith GPS location and date are annexed herewith showing the Fly ash dumps which are annexed herewith as ANNEXURE-B (Collectively).

7. That it is also important to point out that the Coal mines of Gare IV/2 and Gare IV/3 is also witnessing air and land pollution due to fire in Coal mines of Gare lV 12 and

Gare IV/3. Had the Committee contacted the local community members they would have shown the sites which are witnessing fire in Coal Mines. Recent Photographs showing the fire in Coal mines of Gare IV/2 and Gare IV/3 are annexed herewith as ANN EXURE-C (Collectively).

8. *That on the issue of coal transportation by trucks, the committee has given a vague response of "seems to be complied" which does not make any sense, either the condition is complied or not to be complied. However the committee has once again not provided any details of the transportation of coal via conveyor belts such as trip sheets or how much quantum of coal has been transported by a conveyor belt to provide proof that the condition is being complied with. Mere vague statement of the committee in this regard cannot be accepted as proof.*

9. *That the direction about CAAQMS has NOT BEEN COMPLIED WITH. What is even more shocking that, the committee which has been appointed to oversee the implementation of the direction is justifying the non-compliance by advancing the industry's faulty logic in this regard, It is stated that EC and CTO condition is to provide regular monitoring data which is not the same as a24X7 and 365 day monitoring through OAAQMS.*

l0. *That the committee itself observes bad road in the region hence it is clear that road maintenance direction has NOT been complied with.*

11. *That Directions regarding the mitigation measures of health issues in the region HAVE NOT been complied with. The Principal Secretary-Health, GoW. of Chhattisgarh has not been implementing any health related measures and local community health is in a very precarious situation which fact is observed in a recent Health Assessment RepoG 2019-2020 titled "HEALTH ASSESSMENT OF VILLAGERS OF TAMNAR BLOCK, DISTRICT RAIGARH (C.G.)" submitted to Indian Council of Medical Research, New Delhi, Year 2019-2020. Copy of relevant pages of this study is annexed herewith as ANNEXURE-D.*

12. *That on the issue of green belt development, the committee has pushed the responsibility on MoEF&CC. It is not clear in describing the actual status on the ground. there is no actual evidence provided by the committee to support their "compliance in progress" remark. The committee's vague remark without any submission of documents of the mine wise status of greenbelt development is nothing but mere bald assertions without any proof.*

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13. *That regarding the water testing laboratories at Gharghoda and Raigarh for testing of drinking water quality there is no evidence on record that the same are in fit working condition. Similarly, on the issue of water testing, the Applicants state that in Saraitola area the water contains high fluoride content and there is no evidence on record to show that Electrolytic DE fluoridation(EDF) Plants in 3 villages (Pata, Mudgaon, Saraitola are in fit working condition). The Committee has failed to provide any testing results from the area as to what was found in the drinking water and whether the same was in usable condition by the local villagers. There is no evidence or proof filed by committee regarding the sites where the drinking water is potable and where the same is not potable and need further treatment for the villagers to be used. There should be a timeline provided by the Committee to test the water quality in the Tamnar and Gharghoda blocks and a study regarding the sites of potable water needs to be done in coordination with PHED and the local villagers.*

14. *That the Committee has agreed that there is a problem of frequent lowering of ground water table due to mining activity at page 7 of the Report.*

15. *Inspite of acknowledging the problem of frequent lowering of ground water table due to mining there are no plans or action taken proposed for replenishing the fast depleting water table or curbing the future mining activity.*

16. *It also states that M/s Hindalco has been told to provide Tap water supply from the mine in the village and ensure quality of water in co-ordination with PHED Raigarh. It is stated that the same should be done for Neelupara and adjoining area where there are very few drinking water facilities. The Report is silent on new sites where drinking water facility has been provided.*

17. *That in the long term compliance section the details provided in Annexure VI for the carrying capacity study is grossly insufficient. The proposal of CECB is to just conduct a source apportionment study. A source apportionment study cannot be considered as a carrying capacity study. Source Apportionment (SA) is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels. The concept of carrying capacity describes the relationship between resources, environment and human activities to ensure sustainability. Carrying capacity is also defined as "the growth limits an area can accommodate without violating environmental capacity goals". The carrying capacity study will assess the maximum number of individuals/ industrial activities that an area's resources can sustain indefinitely without significantly depleting or degrading those resources or*

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causing environmental or public health depletion. It is re-iterated that a proper detailed proposal on carrying capacity study has to be done and shared with the community before progressing with the compliance."

The above suggestions may be duly considered by the concerned authorities and the Committee which may be coordinated by the CPCB. *We also direct the Collector, Raigarh will stand inducted as Member of the Committee. The applicant has also filed IA No. 382/2020 for a direction that expansion of the project be allowed only after carrying capacity assessment is done. This aspect may be gone into by the Expert Appraisal Committee (EAC).*

7. A further status report may be furnished after four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF."

4. In pursuance of above, a further report has been filed by CPCB on 16.04.2021. The Committee held meetings during 15th-17th March, 2021 and also conducted field visit. The status of compliance as on 15.03.2021 has been given in a tabular form. Field observations and recommendations have also been mentioned. Relevant extracts from the report are reproduced below:-

"In compliance of Hon'ble NGT order dated 20.11.2020 (Annexure-I), the 3rd virtual meeting of over sight committee was conducted on 27.11.2020. Copy of the minutes of this meeting is placed at Annexure-II.

As decided in the meeting, 3 rd field visit of Gharghoda and Tamnar area in Raigarh was conducted during 15-17th March 2021 to address the suggestions given by the applicant by way of written submission filed on 18.11.2020 and to assess progress on the ground in terms of compliance with short term recommendations. The Oversight committee has conducted meeting with applicant on 15.03.2021 in the meeting hall of Collector Raigarh. Sh. Bhim Singh, IAS, Collector Raigarh was also with other members of the Oversight Committee. As decided in the meeting on 27.1.2020 Sh. Shivpal Bhagat, (Applicant) was informed about schedule of the meeting through e-mail on 12.03.2021 and through phone on 15.03.2021. Copy of the mail is placed at Annexure-III. Three applicants out of six have attended the meeting viz Sh. Sriram Gupta S/O Mansha Ram Gupta (Applicant 4), Ms. Rinchin D/O Bina (Applicant 5) and Janki Sidar W/o Bharat Sidar (Applicant 6).

All three applicants were then invited to join the Oversight Committee in its field visit on 15th and 16th March 2021. ***Contaminated sites and fly ash disposal sites shown by the applicant were listed and course of action decided / recommended by the committee has also been recorded in field visit report.*** *Copy of the field visit report is placed at Annexure-IV.*

The compliance status of short term and long term measures are presented as under-

S. No	***ORDERS OF THE HON'BLE NGT FROM RECOMMENDATIONS IN THE REPORT, NOVEMBER 2019***	***COMPLIANCE REVIEW STATUS AS ON 15.03.2021***
01	***Short term measures***	
	Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).	*Two SECL mines (IV/2,3) and one JPL mine (IV/1) are accepting fly ash. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. MoEF &CC vide its notification dated 28th August 2019 has modified the conditions stipulated in the EC of TPP and coal mines in line with the fly ash notification and subsequent amendment. It has been mentioned in point no 7 that ministry has stipulated the conditions which prohibited the use of fly ash in abandoned mines/low lying area/ soil conditioner in agriculture following the guide lines prepared by CPCB.* ***Accordingly CECB shall amend the consent conditions of all TPP and Coal Mine.*** *More over CEA vide its letter dated 14.02.2020 has informed about*

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		declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority. Copy of the letter issued to Chairman, CECB, Raipur, is placed at Annexure-V. ***Action from CECB is awaited.***
b)	*Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.*	*District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash. During visit of the committee, disposal of fly ash in low lying area was observed but seems to be disposed before issue of the order by the collector.* ***As per preconditions of SOP Power plant/ land owner/agency shall obtain statutory permission from regulatory authorities such as SPCB as per requirement.*** *CECB is to submit list of the locations of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB.*
c)	*Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and*	*It was informed by Regional officer CECB, Raigarh that Jindal Power limited (JPL) has received 44,25,66*

	no such coal transport should be allowed via trucks. (Action by SECL).	*MT coal in 2019-20 and 40,24,274 MT coal in 2020-21 through conveyor belt.*
d)	*Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*	*PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area.* ***The residents of the village has informed about frequent lowering of ground water table due to UG mining activity****. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has* ***directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh.*** *M/s Hindalco has submitted detail of mine quantity generation and its mode of treatment to committee. PHED is to submit the quantity of water required for kondkhel village. The committee has also suggested to obtain details from Central Ground Water Authority about water recharge points provided by the coal mines at the time of obtaining NOC.*
e)	*Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*	*As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 & 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.* *In case of installation of CAAQMS committee has instructed Member Secretary, Chhattisgarh Environment Conservation Board to* ***issue directions to all coal mines for***

		installation of CAAQMS and its connectivity with CPCB/CECB server. *Copy of the letter is placed at Annexure-VI. Status of the same is awaited from MS, CECB, Raipur*
f)	*Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*	*EE PWD, Raigarh Sh R K Kharma has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but* ***due to budget constraint the work is pending since last several years.*** *Letter issued to PS, PWD, S-1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA104/2018/553 dated 07.09.2020 and 6.01.2021 to sanction Rs. 335 crore for construction of 111 km CC road.* ***No response has been received from PS, PWD, Chhattisgarh Government.*** *IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from KharsiaGharghoda- Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda- bhalumuda-Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation.* ***Compliance in Progress.***
g)	*Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu*	*Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the*

	Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).	*requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.* ***Collector Raigarh has assured to arrange the required medical facility in the area by way arranging health screening camps in all villages within next few months****.*
h)	*Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions*	*MoEF&CC has issued letters to all coal mines for submitting updated status of green belt developed. Responses received are being compiled and submitted in next meeting of the committee.*
i)	*We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).*	*Letter was issued in September 2020 to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh. MoEF&CC representative in the committee has now sent follow-up e-mails to IA division reiterating these recommendations.*
02	***LONG TERM MEASURES***	
a)	*Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.*	*CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*
	Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly	
b)	*To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by*	*As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new*

	road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.	*rail line between Kharsia-Gharghoda-Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20.* ***SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.***
c)	*Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.*	*Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.* *Continued non-compliance of green belt conditions from EAC of coal is observed. Strict monitoring and follow up action by MoEFF&CC is required.*
d)	*Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of2009.*	*Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh had been submitted to be used for filling of fly ash generated from TPP including 3 in Gare Palma Block. Of these 3 only 01 is actually feasible.* ***No progress reported from CECB for constitution of the State Level Committee as proposed.*** ***No progress reported by CMD, SECL, Bilaspur in spite of several communications from CECB, CPCB and Collector, Raigarh.***

FIELD OBSERVATIONS

1. *Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. The committee has written to Chairman, CECB, Raipur for constitution of State Level Committee for management of fly ash disposal in the state with implementation of SOP notified by CPCB. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*

2. *District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit unscientific disposal of fly ash were observed at 1) Outside TRN Power ash dyke (By TRN Energy Private Limited) , 2) In Tenda village (By TRN Energy Private Limited) , 3) Outside the Mahaveer Energy (By Mahavir Energy & Coal beneficiation Limited). Onsite observations reveal it as legacy fly ash dump.*

3. *PHED, Raigarh has proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. Hence it has been decided by the committee to obtain data of ground water recharge system in Gharghoda and Tamnar area, from central ground water authority, Raipur along with data of annual ground water level in the area.*

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma. RO CECB Raigarh was requested to physically verify the status of transport of coal in properly covered manner.*

5. *EE PWD, Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharmjaigarh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20.11.2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under-*

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- *Main high way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme*
- *Stretch from Chhal mines to Gharghoda has been approved for two lane*
- *Stretch from Punjipatra to Milupara via Tamnar not yet approved.*

In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get same approved so as to complete the work within three months. Stretch from Punjipatra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

IRCON International Limited, has informed that work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 04 coal siding and made 01 siding operational. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019- 2020. (Annexure-VII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport after completion of the project

SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.

6. *CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*

7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

8. *In order to make information of the Oversight Committee's work public domain, Collector Raigarh agreed to host a webpage on the Raigarh District website and directed the District information officer (Raigarh) to coordinate with the committee regarding the same.*

In view of the above field observations, the recommendations of Oversight Committee are as under

RECOMMENDATIONS –

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1. *Chhattisgarh Environment Conservation Board shall prepare list of areas where unscientific disposal of fly ash has occurred with specific remark of status about permission granted.*

2. *Chhattisgarh Environment Conservation Board shall also generate data about total quantity of coal mined in Raigarh, total quantity of coal being used by the industries in Raigarh and quantity of locally mined coal available for TPPs and other industries of Raigarh.*

3. *In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.*

4. *Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipatra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of the work*

5. *Directions from Hon'ble NGT may also be issued to Chhattisgarh Environment Conservation Board, Raipur for constitution of State Level Committee to look in to Scientific Utilization of fly ash in the Chhattisgarh State.*

6. *Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite disposal of fly ash in abandoned coal mines declared by Central Electricity Authority, Ministry of Power, Government of India vide letter no. 1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020 in consultation with CECB and complete within three months."*

5. From the report dated 17.03.2021 annexed to the main report as Annexure-IV, violations have been found on the part of JPL, JSPL, M/s HINDALCO Industries Limited, Mahaveer Bio-Energy Premises and CSPGCL. The observations are quoted below:-

"FIELD OBSERVATIONS

1. ***Unscientific dumping of fly ash****- The committee has observed unscientific dumping of fly ash at several places, out of these few are temporary/ intermittent and few old dumping of legacy in nature.*

   - ***Within GP IV/1, outside mine void****: Only fly ash dumping as part of backfilling of mine void along with overburden is*

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permitted. No dumping is permitted in open areas; such dumping is leading to ash flying away into human habitation and ecosystems.

Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process. The process of covering fly ash with overburden/ sweet soil appears to be very slow. JSPL shall ensure that fly ash is covered within 07 days to extent possible and also to ensure daily watering or covering up the flu ash during backfilling process.*

- ***Within GP IV/2-3 outside mine void:*** *Only fly ash dumping as part of mine void covered with overburden is permitted. No dumping without cover by overburden is permitted in open area as such dumping may lead to ash flying away into human habitation and ecosystem. (Pics5-6)*

  Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process.*

- ***Leakage of fly ash slurry from JPL ash dyke:*** *The ash dyke IIA and IIB of JSPL was observed full and representative of the industry has informed that application for permission to raise the ash dyke height is submitted in MoEF&CC. At the time of visit leakage in the exiting ash dyke was observed and ash laden water was found up to toe drain. Hence possibility of ash dyke breach in future cannot be ruled out. (Pics-07) Action: In compliance of direction from Oversight Committee CECB has inspected the site and directions to the industry is being issued under section 33 of water act. Furthermore, JPL to conduct study through a research organisation of national repute to determine the stability of the exiting ash dyke and take measures required to strengthen as needed. No permission for raising of ash dyke shall be given till safety of the dyke is assured.*

- ***Outside TRN Power Ash dyke****: TRN power has created an ash dump outside its ash dyke in the village of Nawapara Tenda(Pic- 08). The top of dump is at least 10 feet above the GL. This is not as per definition of dumping in low lying area. Moreover, fly ash utilisation report April 2020 – Jan 2021 provided by TRN Power shows that they have continued to dump fly ash in low lying areas during May, June and July 2020. There are physical evidences for breaching of mud wall leading to fly ash flowing in to adjoined fields (Pic-9). More over the situation to ash flying into neighbouring habitants and ecosystem could not be ruled out. The dumping of fly ash in Tenda Village is seems to be a legacy dump (Pre-February 2020). This unscientific dumping is*

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visibly eroding in the rain and may flow in to nearby fields and water streams. (Pic-10)

***Action**: CECB to instruct TRN power to desist from any further dumping, to strengthen the mud dykes, to regularly watering the dump to prevent fly ash dispersal by wind, to prevent any erosion by covering the dump with soil. Actions for the long term remediation of this legacy dump will be determined once mine voids are made available for fly ash disposal.*

- ***Outside Mahaveer Bio Energy Premises**: Mahaveer Bio energy has created an ash dump behind its premises. (Pics- 11) The top of the dump is at least 10 feet above the GL and does not confirm to the SOP for dumping in low lying area. More over there is not even a proper retaining wall around the dump creating a public hazard.*

  ***Action:** CECB shall issue show cause notice for improper disposal of fly ash and instruct for removal of the fly ash within 07 days*

- ***Fire in coal mine/coal dump:** The committee observed smoke in gare Palma IV/2-3 (SECL). (Pic-12) SECL assured the committee that they have followed instructions provided by CIMPHER but measure advised as covering with clay have not worked. Fires/ smoke is constant hazard in coal mining. Nevertheless, fires close to human habitation need to be immediately put on to prevent pollution and health hazard.*

  ***Action:** CECB to direct SECL to arrest all fire within 500 m of kausampalli and Sarasmal village within 7 days and approach DGMS immediately for obtaining better solution to deal with issues*

- ***Discharge of untreated waste water**- The committee has observed discharge of untreated water from mine of M/s HINDALCO Industries Limited at Gare Palma IV/4 in to a drain leading to agriculture fields (Pic-13). The mine owner has also not demarcated mining lease area that OB dump activity could be assessed.*

  ***Action:** As this constitutes a violation of EC conditions, CECB shall direct M/s Hindalco to immediately stop the discharge of effluents, and to install necessary wastewater treatment facilities and have them inspected by CECB within 1 month, show that it meets discharge quality standards set in the EC, and seek approval of neighboring village Gram Sabha before releasing any further (treated) wastewater out of its mine lease area*

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The committee also received public representation in field to the effect that the captive coal washery with in the JPL premises was releasing untreated effluents in to the Kelo River that adjoins it. The committee could not visit the visit the site to examine the situation.

Action: *CECB has visited the site and reported non-operational status of coal washery, however water samples from River Kelo has been collected and final report will be submitted after completion of sample analysis.*

2. ***Green belt and safe distance from public road/settlement****- The committee has found green belt issue and indiscriminate storage of OB dump in CSPGCL (Chhattisgarh State Power Generation Company limited) mine at Gare Palma sector 3. It was observed that dumping of OB was done on both sides of public road without safe distance.*

Action: *Committee has instructed CECB to inspect the GP III mine and verify the actual location of OB dump as per mining plan. In case of any deviation found strict action shall be initiated in consultation with state mining department as well as Director General of Safety and Mines (DGMS). Regarding Gare Palma IV/5 MoEF&CC to verify and issue appropriate direction.*

3. ***Making abandoned mines available for disposal of fly ash****- Update: Ministry of power has identified 3 mines for fly ash dumping in Tamnar-Gharghoda region. Chhaal mine is actually not available because it is being worked. Mand mine is an UG mine has already been decommissioned. It is not easy to reuse it for fly ash dumping. DGMS will be requested to suggest ways in which it can be made available for fly ash dumping. OCP mine at Domnara is found suitable for disposal fly ash available for which SECL, Raigarh has moved the letter to its HO at Bilaspur office seeking permission. In case of permission granted for Domnara mine preference shall be given to TRN Energy Private Limited and some other power producers that generate fly ash and have limited area for fly ash disposal.*

Action: *Collector Raigarh shall pursue the matter with CMD, SECL, Bilaspur for an early outcome.*

4. ***Public health facilities and disease screening****- The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area. Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis-JPL multispeciality hospital at Tamnar. Collector Raigarh has also assured to organise 'health camps' within the next 3 months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.*

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Action: *CECB RO Raigarh with DC, Raigarh to reconfirm that JPL hospital is open to all villagers for free of cost treatment.*

5. ***Improve Road quality to reduce spillage and air pollution***- *Gharghoda and Tamnar area of Raigarh is extremely rich in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for exiting industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. In order to ensure better ambient air quality an statistical balance is to be developed between road transport and rail transport. It was found satisfactory that development of rail network with five coal siding in the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only especially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.*

   EE, PWD, Raigarh has informed the committee that main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chhal mines to Gharghoda has been approved for two-lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and Stretch from Milupara to Lailung not yet approved.

   Action: *Since the actual process of constructing the NH will take at least two years, PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As far as constructions of other stretches are concerned PWD shall take highest priority because these are the stretches with heaviest traffic density.*

6. ***Inadequate quality of drinking water supply to Kondkhel village***- *This could not be verified in this visit, but Hindalco was already instructed to stop providing water from Bendra nala, and to provide water from coal mine after proper filtration and treatment. Hindalco has yet to comply.*

   Action: *Direction from collector Raigarh may be issued to M/s HINDALCO and PHED, Raigarh for compliance within three months."*

6. Before discussing the report and issuing further directions, we may dispose of IAs which have been filed. I.A. No. 97/2021 has been filed on behalf of M/s Jindal Steel and Power Limited (JSPL) seeking direction for short term measures for transportation of coal. The Expert Committee having already gone into the matter, we do not find any scope for piecemeal direction in isolation when the matter is being dealt with holistically based

on recommendations of a credible committee, which are not shown in any manner to be erroneous. I.A. No. 97/2021 is disposed of accordingly. I.A. No. 25/2021 was filed by the applicant for modification of the constitution of the Committee. We do not find any merit in the said application as report has already been submitted which is being considered. The IA stands disposed of. I.A. No. 382/2021 is for direction to the MoEF&CC not to permit expansion of Hindalco Industrial Limited project for underground mine being converted to Opencast mine. We are of the view that instead of granting the injunction sought, the concerned authorities may look into desirability or otherwise of such expansion, in the first instance and if the applicant is aggrieved, he will be at liberty to take remedies against the permission if so taken. I.A. No. 382/2021 stands disposed of accordingly.

7. We may also note the response of the applicants to the report of the Committee. It is submitted that dumping of fly ash in low lying areas needs to be avoided in view of earlier order of this Tribunal dated 27.02.2020, based on the recommendations of the Committee as required monitoring is not viable. Further, any such unscientific dumping which may have already taken place needs to be remedied. It is further submitted that no timeline has been provided in the recommendations of the Committee for remedying long pending and continuing problems. Actions suggested on behalf of the applicants under different heads are reproduced below:-

> *"A. Dumping in low lying areas:*
>
> *(i) The Applicants reiterate that there should be No dumping of fly ash in low lying area as has been accepted by this Hon'ble Tribunal vide it's Order dated 27.02.2020 and the Order dated 20.12.2020 be clarified in this regard and directions be issued to the Oversight Committee in this regard.*
>
> *(ii) CECB be directed to amend the consent conditions of all TPP and Coal Mine as per MoEF&CC's notification dated 28th*

August 2019 as mentioned in the Report of the Oversight Committee

(iii) The Hon'ble NGT should direct for a clean up of the Fly Ash, since the monsoon rains will start soon and again the legacy ash dump sites will pollute the river and agricultural land."

B Repairing and Maintenance of roads inside and outside the mine area:

Committee had also visited the new operations at Gare Pelma Sector 3 which is under the Chhattisgarh State Power Generation limited and there too the trucks are using the said road, which the Hon'ble NGT had directed to be made form Raigarh to Milupara, but no mention of such violations have been made in the Report. It is suggested that there should be proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles"

C. Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case.

D. MoEF&CC be directed to forthwith submit the data on Green Belt development before the Hon'ble Tribunal with respect to District Raigarh.

E. Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages.

F. Installation of adequate number of CCTV and CAAQM stations in coal mining area.

G. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks.

H. Comments on the field observations:

a. *Impose Environmental damages on the units found in violation of EC conditions as several EC violations have been recorded by the committee but no action has been proposed /recommended by the Committee against the violators*
b. *Address the issue of fires in the overburden dumps in all operations, which has been left unaddressed.*
c. *Committee be directed to present plan for water recharge*
d. *Effluents and coal discharge was noticed in the river and nallas. No measure and punitive action has been suggested for that. This issue may kindly be addressed.*
e. *The field visit reports of the Oversight Committee should be cross verified with the actual action taken and compliance of the recommendations.*
f. *The field visits should be more regular and the report of the Oversight Committee should be placed in Public Domain so that the work done so far and the status of action taken is made public."*

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8. We have given due considerations to the report of the Committee as well as suggestions made on behalf of the applicants. The recommendations of the Committee need to be accepted. The State Board should prepare list of areas where unscientific disposal of fly ash has taken place and generate data about the quantity of the coal mined, used in the industries and available for TPPs. Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara, disposal of fly ash in abandoned coal mines and constitution of State Level Committee to look into scientific utilization of the fly ash. Taking such steps is undoubtedly necessary for protection of the environment. The suggestions of the applicants reproduced above also need to be considered by the Oversight Committee.

9. The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The Committee may continue to oversee remedial measures in terms of directions of this Tribunal. The Committee may undertake field visit and also interact with all the stakeholders. The Committee will be at liberty to take assistance from any other Expert/Institution.

10. We regret to note failure of the concerned departments of the State of Chattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the

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subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries.

11. Having regard to the seriousness of the issues involved and their impact on the environment and public health, we direct that the Oversight Committee will now be headed by Justice V.K. Shrivastava, former Judge of Chhattisgarh High Court, available at Bilaspur. He will be entitled to honorarium at the rate of Rs. 2 lakhs per month, apart from logistic support for the purpose of work of the Committee. His tenure will be for six months from the date he joins the first meeting of the Committee, which may be done within one month from today. The amount will be payable by the State PCB - Chhattisgarh Environment Conservation Board.

12. The report about the compliance status as on 30.11.2021 may be furnished to this Tribunal on or before 15.12.2021 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. A copy of the report may also be provided to the authorities who are required to implement the recommendations of the Committee to enable such authorities to file their response, if any, before the next date.

List for further consideration on 11.01.2022.

A copy of this order be forwarded to Chief Secretary, Chhattisgarh, MoEF&CC, NEERI, CPCB, State PCB, the Collector, Raigarh and Justice

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V.K. Shrivastava, former Judge of Chhattisgarh High Court by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

June 24, 2021
Original Application No. 104/2018
(I.A. No. 382/2020, I.A. No. 25/2021 & I.A. No. 97/2021)
SN

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ANNEXURE - B

Item No. 01 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 104/2018
(with I.A. Nos. 37/2022 & 40/2022)

Shivpal Bhagat & Ors. Applicant(s)

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 15.02.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant: Mr. Devashish Chauhan, Advocate for Applicant No. 1
Mr. Saurabh Sharma, Advocate for Applicants No. 2 to 6
Mr. Amir Singh Pasrich, Advocate in I.A 40/2022

For Respondent(s): Mr. Raj Kumar, Advocate for CPCB
Mr. Raunak Jain, Advocate for MECBL

ORDER

1. The issue for consideration is the remedial action against pollution caused by the Thermal Power Plants and Coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including M/s Ambuja Cement Limited Coal Mine (GP IV/8) and M/s Mahavir Energy and Coal Benefication Limited, M/s TRN Energy Private Limited, Nawapara Raigarh, M/s Hindalco Industries Limited Coal Mine, , M/s Jindal Steel & Power Limited, Dongramau, Tamnar, M/s Chhattisgarh State Power Generation Company Limited and M/s Jindal Power Ltd., Tamnar. Operation of said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants. Water and soil have toxic metals, having potential for health hazard, requiring monitoring of emissions, making the polluters

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accountable and regulating the polluting activities. Further, in view of dust pollution due to absence/insufficient roads, PWD has to take remedial action. In view of damage caused to the health, Health Department of the State is to hold health camps and provide health facilities to the victims. The Chief Secretary, Chattisgarh is to oversee. The matter has been dealt with earlier in the last more than three years and factual reports have been submitted by statutory regulators based on which the Tribunal has directed remedial action. Adequacy of such action and further directions are to be considered. We may refer to the earlier proceedings and after considering current status pass further order.

Procedural History

2. Under directions of this Tribunal in the light of facts pleaded, an Expert Committee was required to verify fats and furnish a report. Accordingly, the Committee furnished its report dated 14.10.2019, after visiting the sites and considering earlier reports on the subject. The Committee considered the mitigation measures required to be adopted by the Thermal Power Plants and the Coal washeries. The Committee dealt with the issues of ground water depletion, soil pollution, forest loss and livelihood loss were required to be addressed for which short term and long terms measures were suggested. The Tribunal directed remedial action for dealing with the deficiencies accordingly. Further direction was to review the existing arrangements and furnishing a further report.

3. The matter was further considered on 20.11.2020 in the light of CPCB report dated 17.11.2020 giving the compliance status with reference to directions of this Tribunal in a tabular form and also making further recommendations inter alia on the subjects of providing health facilities for the victims, construction of roads and availability of abandoned coal

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mines. The Tribunal also issued directions to the Health and PWD Departments of Chhattisgarh Government and South Eastern Coal Fields. The Tribunal also directed consideration of suggestions of the applicants for taking due precautions in the course of dumping in low lying areas.

Last order dated 24.6.2021 noticing the compliance status and directions for remedial action

4. The matter was last considered on 24.06.2021 in the light of further report by CPCB dated 16.04.2021 after conducting the field visit. The report gave status of compliance as on 15.03.2021. The Tribunal accepted the recommendations of the Committee which were based on objective consideration of the material on record. Directions were also issued to the State Board to prepare list of the areas where unscientific disposal of fly ash had taken place and for remedial action in the matter of providing health facilities, construction of necessary road to prevent further pollution, scientific disposal of the fly ash and assessment of compensation for the past violations. Having regard to the continued violation of serious nature, the Tribunal directed that Oversight Committee will now be headed by a former Judge of High Court for a period of six months from the date he joins the first meeting of the Committee. The operative part of the order dated 24.06.2021 is as follows:-

> *"1to3…xxx……xxx……xxx*
>
> *4. In pursuance of above, a further report has been filed by CPCB on 16.04.2021. The Committee held meetings during 15th-17th March, 2021 and also conducted field visit. The status of compliance as on 15.03.2021 has been given in a tabular form. Field observations and recommendations have also been mentioned. Relevant extracts from the report are reproduced below:-*
>
> > *"In compliance of Hon'ble NGT order dated 20.11.2020 (Annexure-I), the 3rd virtual meeting of over sight committee was conducted on 27.11.2020. Copy of the minutes of this meeting is placed at Annexure-II.*
> >
> > *As decided in the meeting, 3 rd field visit of Gharghoda and Tamnar area in Raigarh was conducted during 15-17th March 2021 to*

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address the suggestions given by the applicant by way of written submission filed on 18.11.2020 and to assess progress on the ground in terms of compliance with short term recommendations. The Oversight committee has conducted meeting with applicant on 15.03.2021 in the meeting hall of Collector Raigarh. Sh. Bhim Singh, IAS, Collector Raigarh was also with other members of the Oversight Committee. As decided in the meeting on 27.1.2020 Sh. Shivpal Bhagat, (Applicant) was informed about schedule of the meeting through e-mail on 12.03.2021 and through phone on 15.03.2021. Copy of the mail is placed at Annexure-III. Three applicants out of six have attended the meeting viz Sh. Sriram Gupta S/O Mansha Ram Gupta (Applicant 4), Ms. Rinchin D/O Bina (Applicant 5) and Janki Sidar W/o Bharat Sidar (Applicant 6).

All three applicants were then invited to join the Oversight Committee in its field visit on 15th and 16th March 2021. ***Contaminated sites and fly ash disposal sites shown by the applicant were listed and course of action decided / recommended by the committee has also been recorded in field visit report.*** *Copy of the field visit report is placed at Annexure-IV.*

The compliance status of short term and long term measures are presented as under-

S. No	***ORDERS OF THE HON'BLE NGT FROM RECOMMENDATIONS IN THE REPORT, NOVEMBER 2019***	***COMPLIANCE REVIEW STATUS AS ON 15.03.2021***
01	***Short term measures***	
	Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).	*Two SECL mines (IV/2,3) and one JPL mine (IV/1) are accepting fly ash. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. MoEF &CC vide its notification dated 28th August 2019 has modified the conditions stipulated in the EC of TPP and coal mines in line with the fly ash notification and subsequent amendment. It has been mentioned in point no 7 that ministry has stipulated the conditions which prohibited the*

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		use of fly ash in abandoned mines/low lying area/ soil conditioner in agriculture following the guide lines prepared by CPCB. ***Accordingly CECB shall amend the consent conditions of all TPP and Coal Mine.*** *More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority. Copy of the letter issued to Chairman, CECB, Raipur, is placed at Annexure-V.* ***Action from CECB is awaited.***
b)	*Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.*	*District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash. During visit of the committee, disposal of fly ash in low lying area was observed but seems to be disposed before issue of the order by the collector.* ***As per preconditions of SOP Power plant/ land owner/agency shall obtain statutory permission from regulatory authorities such as SPCB as per requirement.***

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		CECB is to submit list of the locations of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB.
c)	*Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).*	*It was informed by Regional officer CECB, Raigarh that Jindal Power limited (JPL) has received 44,25,66 MT coal in 2019-20 and 40,24,274 MT coal in 2020-21 through conveyor belt.*
d)	*Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*	*PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area.* ***The residents of the village has informed about frequent lowering of ground water table due to UG mining activity****. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has* ***directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh.*** *M/s Hindalco has submitted detail of mine quantity generation and its mode of treatment to committee. PHED is to submit the quantity of water required for kondkhel village. The committee has also suggested to obtain details from Central Ground Water Authority about water recharge points provided by the coal mines at the time of obtaining NOC.*
e)	*Installation of adequate number of CCTV and CAAQM stations in coal*	*As per field report by CECB, RO, Raigarh it seems that CCTV has been*

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	mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).	*installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 & 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.* *In case of installation of CAAQMS committee has instructed Member Secretary, Chhattisgarh Environment Conservation Board to* ***issue directions to all coal mines for installation of CAAQMS and its connectivity with CPCB/CECB server****. Copy of the letter is placed at Annexure-VI. Status of the same is awaited from MS, CECB, Raipur*
f)	*Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*	*EE PWD, Raigarh Sh R K Kharma has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but* ***due to budget constraint the work is pending since last several years.*** *Letter issued to PS, PWD, S-1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA104/2018/553 dated 07.09.2020 and 6.01.2021 to sanction Rs. 335 crore for construction of 111 km CC road.* ***No response has been received from PS, PWD, Chhattisgarh Government.*** *IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from KharsiaGharghoda- Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda- bhalumuda-Gare Palma will be completed by June*

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		2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. ***Compliance in Progress.***
g)	*Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*	*Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.* ***Collector Raigarh has assured to arrange the required medical facility in the area by way arranging health screening camps in all villages within next few months****.*
h)	*Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions*	*MoEF&CC has issued letters to all coal mines for submitting updated status of green belt developed. Responses received are being compiled and submitted in next meeting of the committee.*
i)	*We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).*	*Letter was issued in September 2020 to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh. MoEF&CC representative in the committee has now sent follow-up e-mails to IA division reiterating these recommendations.*
02	***LONG TERM MEASURES***	
a)	*Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed*	*CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh.*

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	environmental research institute over a 24 month period.	*The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*
	Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly	
b)	*To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.*	*As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda-Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20.* ***SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.***
c)	*Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.*	*Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.* *Continued non-compliance of green belt conditions from EAC of coal is observed. Strict monitoring and follow up action by MoEFF&CC is required.*
d)	*Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of2009.*	*Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh had been submitted to be used for filling of fly ash generated from TPP including 3 in Gare Palma Block. Of these 3 only 01 is actually feasible.*

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		No progress reported from CECB for constitution of the State Level Committee as proposed. ***No progress reported by CMD, SECL, Bilaspur in spite of several communications from CECB, CPCB and Collector, Raigarh.***

FIELD OBSERVATIONS

1. *Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. The committee has written to Chairman, CECB, Raipur for constitution of State Level Committee for management of fly ash disposal in the state with implementation of SOP notified by CPCB. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*

2. *District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit unscientific disposal of fly ash were observed at 1) Outside TRN Power ash dyke (By TRN Energy Private Limited) , 2) In Tenda village (By TRN Energy Private Limited) , 3) Outside the Mahaveer Energy (By Mahavir Energy & Coal beneficiation Limited). Onsite observations reveal it as legacy fly ash dump.*

3. *PHED, Raigarh has proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. Hence it has been decided by the committee to obtain data of ground water recharge system in Gharghoda and Tamnar area, from central ground water authority, Raipur along with data of annual ground water level in the area.*

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma. RO CECB Raigarh was requested to physically verify the status of transport of coal in properly covered manner.*

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5. *EE PWD, Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharmjaigarh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20.11.2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under-*

   - *Main high way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme*
   - *Stretch from Chhal mines to Gharghoda has been approved for two lane*
   - *Stretch from Punjipatra to Milupara via Tamnar not yet approved.*

   In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get same approved so as to complete the work within three months. Stretch from Punjipatra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

   IRCON International Limited, has informed that work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 04 coal siding and made 01 siding operational. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019- 2020. (Annexure-VII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport after completion of the project

   SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.

6. *CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*

7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

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8. *In order to make information of the Oversight Committee's work public domain, Collector Raigarh agreed to host a webpage on the Raigarh District website and directed the District information officer (Raigarh) to coordinate with the committee regarding the same.*

In view of the above field observations, the recommendations of Oversight Committee are as under

RECOMMENDATIONS –

1. *Chhattisgarh Environment Conservation Board shall prepare list of areas where unscientific disposal of fly ash has occurred with specific remark of status about permission granted.*

2. *Chhattisgarh Environment Conservation Board shall also generate data about total quantity of coal mined in Raigarh, total quantity of coal being used by the industries in Raigarh and quantity of locally mined coal available for TPPs and other industries of Raigarh.*

3. *In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.*

4. *Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipatra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of the work*

5. *Directions from Hon'ble NGT may also be issued to Chhattisgarh Environment Conservation Board, Raipur for constitution of State Level Committee to look in to Scientific Utilization of fly ash in the Chhattisgarh State.*

6. *Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite disposal of fly ash in abandoned coal mines declared by Central Electricity Authority, Ministry of Power, Government of India vide letter no. 1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020 in consultation with CECB and complete within three months."*

5. From the report dated 17.03.2021 annexed to the main report as Annexure-IV, violations have been found on the part of JPL, JSPL, M/s HINDALCO Industries Limited, Mahaveer Bio-Energy Premises and CSPGCL. The observations are quoted below:-

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"FIELD OBSERVATIONS

1. ***Unscientific dumping of fly ash****- The committee has observed unscientific dumping of fly ash at several places, out of these few are temporary/ intermittent and few old dumping of legacy in nature.*

- ***Within GP IV/1, outside mine void****: Only fly ash dumping as part of backfilling of mine void along with overburden is permitted. No dumping is permitted in open areas; such dumping is leading to ash flying away into human habitation and ecosystems.*

  Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process. The process of covering fly ash with overburden/ sweet soil appears to be very slow. JSPL shall ensure that fly ash is covered within 07 days to extent possible and also to ensure daily watering or covering up the flu ash during backfilling process.*

- ***Within GP IV/2-3 outside mine void:*** *Only fly ash dumping as part of mine void covered with overburden is permitted. No dumping without cover by overburden is permitted in open area as such dumping may lead to ash flying away into human habitation and ecosystem. (Pics5-6)*

  Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process.*

- ***Leakage of fly ash slurry from JPL ash dyke:*** *The ash dyke IIA and IIB of JSPL was observed full and representative of the industry has informed that application for permission to raise the ash dyke height is submitted in MoEF&CC. At the time of visit leakage in the exiting ash dyke was observed and ash laden water was found up to toe drain. Hence possibility of ash dyke breach in future cannot be ruled out. (Pics-07) Action: In compliance of direction from Oversight Committee CECB has inspected the site and directions to the industry is being issued under section 33 of water act. Furthermore, JPL to conduct study through a research organisation of national repute to determine the stability of the exiting ash dyke and take measures required to strengthen as needed. No permission for raising of ash dyke shall be given till safety of the dyke is assured.*

- ***Outside TRN Power Ash dyke****: TRN power has created an ash dump outside its ash dyke in the village of Nawapara Tenda(Pic- 08). The top of dump is at least 10 feet above the GL. This is not as per definition of dumping in low lying area. Moreover, fly ash utilisation report April 2020 – Jan 2021 provided by TRN*

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Power shows that they have continued to dump fly ash in low lying areas during May, June and July 2020. There are physical evidences for breaching of mud wall leading to fly ash flowing in to adjoined fields (Pic-9). More over the situation to ash flying into neighbouring habitants and ecosystem could not be ruled out. The dumping of fly ash in Tenda Village is seems to be a legacy dump (Pre-February 2020). This unscientific dumping is visibly eroding in the rain and may flow in to nearby fields and water streams. (Pic-10)

***Action**: CECB to instruct TRN power to desist from any further dumping, to strengthen the mud dykes, to regularly watering the dump to prevent fly ash dispersal by wind, to prevent any erosion by covering the dump with soil. Actions for the long term remediation of this legacy dump will be determined once mine voids are made available for fly ash disposal.*

- ***Outside Mahaveer Bio Energy Premises**: Mahaveer Bio energy has created an ash dump behind its premises. (Pics- 11) The top of the dump is at least 10 feet above the GL and does not confirm to the SOP for dumping in low lying area. More over there is not even a proper retaining wall around the dump creating a public hazard.*

  ***Action:** CECB shall issue show cause notice for improper disposal of fly ash and instruct for removal of the fly ash within 07 days*

- ***Fire in coal mine/coal dump:** The committee observed smoke in gare Palma IV/2-3 (SECL). (Pic-12) SECL assured the committee that they have followed instructions provided by CIMPHER but measure advised as covering with clay have not worked. Fires/ smoke is constant hazard in coal mining. Nevertheless, fires close to human habitation need to be immediately put on to prevent pollution and health hazard.*

  ***Action:** CECB to direct SECL to arrest all fire within 500 m of kausampalli and Sarasmal village within 7 days and approach DGMS immediately for obtaining better solution to deal with issues*

- ***Discharge of untreated waste water**- The committee has observed discharge of untreated water from mine of M/s HINDALCO Industries Limited at Gare Palma IV/4 in to a drain leading to agriculture fields (Pic-13). The mine owner has also not demarcated mining lease area that OB dump activity could be assessed.*

  ***Action:** As this constitutes a violation of EC conditions, CECB shall direct M/s Hindalco to immediately stop the discharge of effluents, and to install necessary wastewater treatment facilities and have them inspected by CECB within 1 month, show that it meets discharge quality standards set in the EC,*

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and seek approval of neighboring village Gram Sabha before releasing any further (treated) wastewater out of its mine lease area

The committee also received public representation in field to the effect that the captive coal washery with in the JPL premises was releasing untreated effluents in to the Kelo River that adjoins it. The committee could not visit the visit the site to examine the situation.

Action: *CECB has visited the site and reported non-operational status of coal washery, however water samples from River Kelo has been collected and final report will be submitted after completion of sample analysis.*

2. ***Green belt and safe distance from public road/settlement****- The committee has found green belt issue and indiscriminate storage of OB dump in CSPGCL (Chhattisgarh State Power Generation Company limited) mine at Gare Palma sector 3. It was observed that dumping of OB was done on both sides of public road without safe distance.*

Action: *Committee has instructed CECB to inspect the GP III mine and verify the actual location of OB dump as per mining plan. In case of any deviation found strict action shall be initiated in consultation with state mining department as well as Director General of Safety and Mines (DGMS). Regarding Gare Palma IV/5 MoEF&CC to verify and issue appropriate direction.*

3. ***Making abandoned mines available for disposal of fly ash****- Update: Ministry of power has identified 3 mines for fly ash dumping in Tamnar-Gharghoda region. Chhaal mine is actually not available because it is being worked. Mand mine is an UG mine has already been decommissioned. It is not easy to reuse it for fly ash dumping. DGMS will be requested to suggest ways in which it can be made available for fly ash dumping. OCP mine at Domnara is found suitable for disposal fly ash available for which SECL, Raigarh has moved the letter to its HO at Bilaspur office seeking permission. In case of permission granted for Domnara mine preference shall be given to TRN Energy Private Limited and some other power producers that generate fly ash and have limited area for fly ash disposal.*

Action: *Collector Raigarh shall pursue the matter with CMD, SECL, Bilaspur for an early outcome.*

4. ***Public health facilities and disease screening****- The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area. Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis-JPL multispeciality hospital at Tamnar. Collector*

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Raigarh has also assured to organise 'health camps' within the next 3 months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.

Action: *CECB RO Raigarh with DC, Raigarh to reconfirm that JPL hospital is open to all villagers for free of cost treatment.*

5. ***Improve Road quality to reduce spillage and air pollution****- Gharghoda and Tamnar area of Raigarh is extremely rich in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for exiting industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. In order to ensure better ambient air quality an statistical balance is to be developed between road transport and rail transport. It was found satisfactory that development of rail network with five coal siding in the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only especially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.*

EE, PWD, Raigarh has informed the committee that main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chhal mines to Gharghoda has been approved for two-lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and Stretch from Milupara to Lailung not yet approved.

Action: *Since the actual process of constructing the NH will take at least two years, PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As far as constructions of other stretches are concerned PWD shall take highest priority because these are the stretches with heaviest traffic density.*

6. ***Inadequate quality of drinking water supply to Kondkhel village****- This could not be verified in this visit, but Hindalco was already instructed to stop providing water from Bendra nala, and to provide water from coal mine after proper filtration and treatment. Hindalco has yet to comply.*

Action: *Direction from collector Raigarh may be issued to M/s HINDALCO and PHED, Raigarh for compliance within three months."*

6. Before discussing the report and issuing further directions, we may dispose of IAs which have been filed. I.A. No. 97/2021 has been filed on behalf of M/s Jindal Steel and Power Limited (JSPL) seeking direction for short term measures for transportation of coal. The Expert

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Committee having already gone into the matter, we do not find any scope for piecemeal direction in isolation when the matter is being dealt with holistically based on recommendations of a credible committee, which are not shown in any manner to be erroneous. I.A. No. 97/2021 is disposed of accordingly. I.A. No. 25/2021 was filed by the applicant for modification of the constitution of the Committee. We do not find any merit in the said application as report has already been submitted which is being considered. The IA stands disposed of. I.A. No. 382/2021 is for direction to the MoEF&CC not to permit expansion of Hindalco Industrial Limited project for underground mine being converted to Opencast mine. We are of the view that instead of granting the injunction sought, the concerned authorities may look into desirability or otherwise of such expansion, in the first instance and if the applicant is aggrieved, he will be at liberty to take remedies against the permission if so taken. I.A. No. 382/2021 stands disposed of accordingly.

7. We may also note the response of the applicants to the report of the Committee. It is submitted that dumping of fly ash in low lying areas needs to be avoided in view of earlier order of this Tribunal dated 27.02.2020, based on the recommendations of the Committee as required monitoring is not viable. Further, any such unscientific dumping which may have already taken place needs to be remedied. It is further submitted that no timeline has been provided in the recommendations of the Committee for remedying long pending and continuing problems. Actions suggested on behalf of the applicants under different heads are reproduced below:-

"A. Dumping in low lying areas:

(i) The Applicants reiterate that there should be No dumping of fly ash in low lying area as has been accepted by this Hon'ble Tribunal vide it's Order dated 27.02.2020 and the Order dated 20.12.2020 be clarified in this regard and directions be issued to the Oversight Committee in this regard.

(ii) CECB be directed to amend the consent conditions of all TPP and Coal Mine as per MoEF&CC's notification dated 28th August 2019 as mentioned in the Report of the Oversight Committee

(iii) The Hon'ble NGT should direct for a clean up of the Fly Ash, since the monsoon rains will start soon and again the legacy ash dump sites will pollute the river and agricultural land."

B Repairing and Maintenance of roads inside and outside the mine area:

Committee had also visited the new operations at Gare Pelma Sector 3 which is under the Chhattisgarh State Power Generation limited and there too the trucks are using the said road, which the Hon'ble NGT had directed to be made form Raigarh to Milupara, but no mention of such violations have been made in the Report. It is suggested that there should be proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles"

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C. Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case.

D. MoEF&CC be directed to forthwith submit the data on Green Belt development before the Hon'ble Tribunal with respect to District Raigarh.

E. Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages.

F. Installation of adequate number of CCTV and CAAQM stations in coal mining area.

G. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks.

H. Comments on the field observations:

a. *Impose Environmental damages on the units found in violation of EC conditions as several EC violations have been recorded by the committee but no action has been proposed /recommended by the Committee against the violators*
b. *Address the issue of fires in the overburden dumps in all operations, which has been left unaddressed.*
c. *Committee be directed to present plan for water recharge*
d. *Effluents and coal discharge was noticed in the river and nallas. No measure and punitive action has been suggested for that. This issue may kindly be addressed.*
e. *The field visit reports of the Oversight Committee should be cross verified with the actual action taken and compliance of the recommendations.*
f. *The field visits should be more regular and the report of the Oversight Committee should be placed in Public Domain so that the work done so far and the status of action taken is made public."*

8. ***We have given due considerations to the report of the Committee as well as suggestions made on behalf of the applicants. The recommendations of the Committee need to be accepted. The State Board should prepare list of areas where unscientific disposal of fly ash has taken place and generate data about the quantity of the coal mined, used in the industries and available for TPPs. Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara, disposal of fly ash in abandoned coal mines and constitution of State Level Committee to look into scientific utilization of the fly ash. Taking such steps is undoubtedly necessary for protection of the environment. The suggestions of the applicants reproduced above also need to be considered by the Oversight Committee.***

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9. The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The Committee may continue to oversee remedial measures in terms of directions of this Tribunal. The Committee may undertake field visit and also interact with all the stakeholders. The Committee will be at liberty to take assistance from any other Expert/Institution.

10. We regret to note failure of the concerned departments of the State of Chattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries.

11. Having regard to the seriousness of the issues involved and their impact on the environment and public health, we direct that the Oversight Committee will now be headed by Justice V.K. Shrivastava, former Judge of Chhattisgarh High Court, available at Bilaspur. He will be entitled to honorarium at the rate of Rs. 2 lakhs per month, apart from logistic support for the purpose of work of the Committee. His tenure will be for six months from the date he joins the first meeting of the Committee, which may be done within one month from today. The amount will be payable by the State PCB - Chhattisgarh Environment Conservation Board.

12. The report about the compliance status as on 30.11.2021 may be furnished to this Tribunal on or before 15.12.2021 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. A copy of the report may also be provided to the authorities who are required to implement the recommendations of the Committee to enable such authorities to file their response, if any, before the next date."

Report of the oversight Committee dated 16.1.2022 – status of compliance and remedial action

5. In pursuance of above, the Oversight Committee has filed its report on 16.01.2022 through the CPCB. It is stated that the first meeting of the Committee was held on 19.07.2021 and compliance status was discussed.

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Claims were invited from the affected villagers and stake holders were heard. Compensation were assessed, after hearing the affected parties, including PWD, Chhattisgarh, Health Department, Chhattisgarh and the erring industries. The compensation assessed by joint Committee against the concerned Departments of Chhattisgarh Government and erring the industries is as follows:-

Sl. No	*Name of the industry / department*	*EC/Penalty/Fine amount in Rs*
01	*Principal Secretary, Public Works Department Chhattisgarh Government*	*1,00,00,000/-*
02	*Principal Secretary, State Health Department Chhattisgarh Government*	*1,00,00,000/-*
03	*M/s TRN Energy Private Limited, Nawapara Raigarh*	*1,82,40,600/-*
04	*M/s Mahavir Energy and coal benefication Limited*	*1,42,90,000/-*
05	*M/s Hindalco Industries Limited Coal Mine*	*2,09,40,000/-*
06	*M/s Ambuja Cement Limited Coal Mine (GP IV/8)*	*75,90,000/-*
07	*M/s Jindal Steel & Power Limited, Dongramau, Tamnar*	*11,70,000/-*
08	*M/s Chhattisgarh State Power Generation Company Limited*	*75,90,000/-*
09.	*M/s Jindal Power Ltd, Tamnar*	*48,30,000/-*

6. Out of the above, individuals found entitled to compensation are as follows:-

S. No.	***Name & address of claimant***	***Affected khasra No***	***Affected area Hectare***	***Amount in Rs***
01	*Sh. Ghurauram Rathia Nawapara*	*381/01*	*0.076*	*7030*

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02	*Sh. Harcharan Rathia &* *Sh. Malik Ram Rathia Kantagdeeh*	*09/01* *09/02*	*4.411* *1.895*	*408017.5 allowe d only Rs.1,11,000/- as claimed* *175287.5 allowed Rs.1,11,000/- as claimed*
03	*Sh. Karam Singh Rathia*	*401/01*	*0.101*	*9342.5*
Total Affected area			*6.483*	*599677.5*

7. As already noted, the compensation has been determined after opportunity to the concerned parties based on the violations found as follows:-

"1. <u>M/s TRN Energy Private Limited, Nawapara, Raigarh-</u>

M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately 28,79,126 MT fly ash during January 2016 to March 2021, out of which 58% (1665007MT) has been disposed in low lying area of village Chote Gumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal of fly ash is approximately17.378 Hectare.

TRN power has created an ash dump violating EC conditions outside its ash dyke in the village Nawapara Tenda. ***There are physical evidences for breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash into neighboring habitants. On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and nalah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda. The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On current visit dated 2508-2021 we find that some of the fields have become useless, in agricultural***

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field flowing of fly ash was found. On road side flow we could see the flowing of fly ash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat Fly ash dump have been made.

Although they brought some papers and made attempt to show that they have not violated the Environmental conditions. but could not produce permission / consent of State Pollution Control Board. The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level.

Chhattisgarh Environment Conservation Board has informed about issue of closure notice to the industry. TPP has submitted the reply of notice which is under consideration for decision. The representative of the industry have informed about construction of new ash dyke for which land has been acquired in 2017 and Environmental clearance obtained in year 2011.

Ash Dyke belonging to TRN Energy Ltd, on visit we find that at one place wall of the dyke is severely damaged and we apprehended that accident may took place, Nodal Officer informed the facts for repairs forthwith so as to avoid any unfortunate event. Underground water discharge from dyke is there and the discharged water is flowing to agriculture field. Water samples have been collected. Fly ash flying over the ash dyke has also been seen. Even some of the persons were seen roaming over the dried fly ash lying in the dyke. It appears that there is no recycle water system operating. Construction does not appear to be scientific.

Representatives of TRN does not dispute the damage but they contended that Railway has made dump of the soil in their outer wall and that dump has been eroded due to rain but could not show any evidence to support his contentions. They also stated that as per original permission accorded by MoEC&CC they have constructed this second Ash dyke and for perusal shown the permission letter. In this permission letter there is no sanction of more than one ash dyke even as per deliberation it could come to know that first ash dyke is inside the Plant and this ash dyke has been made outside the plant. Whether ash dyke should have been built in the vicinity of habitants, to reply this question they could not able to show

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any legal authority or any permission. So far as water discharge is concerned they stated that this water discharge belongs to Railway.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. TRN is liable for environmental compensation.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s TRN Energy Private Limited, Nawapara is also included in that list for Environmental Compensation of Rs. 1,48,80,488 on which Hon'ble Supreme Court vide its order dated 04.11.2019 has directed deferment of the proceedings.

In addition to above and in view of a number of breaches of environmental conditions not earlier considered for compensation, independent Environmental Compensation for following period is calculated as under-

- ***Initial date of compensation- 01.04 .2020***
- ***Last date of compensation- 30.11.2021***
- ***Number of days- 608***
- *EC in Rs. 1,82,40,600/- (One Crore eighty two lakhs forty thousand and six hundred)*

2. M/s Mahaveer Energy & Coal Benification Limited –

M/s Mahaveer Energy & Coal Benification Limited is Biomass based 12MW Thermal Power Plant located in Village Bhengari, Gharghoda, Raigarh. The plant started its commercial production in 2014 with an average generation of fly ash 20,000 MT per annum. The thermal power has generated approximately 1,39,839 MT fly ash during April 2014 to March 2021, out of which 0.04% (56MT) has been disposed in low lying area of village Bhengari. The industries during hearing have submitted documents related with agreement for fly ash use by Sh. Saroj Kumar S/o Sh. Prabhakar Kumar in Brick manufacturing. This agreement was done on 04.12.20 indicating that fly ash generated before 04.12.2020 have been disposed in low lying area. The industry has also provided copy of revenue records in support of ownership of the land. Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. ***None of the notifications or guidelines gives liberty to loose disposal of fly ash that's too above ground level. No consent has been obtained from CECB.***

The above said notification only permits for reclamation and compaction of fly ash in low lying area but do not give liberty to loose disposal of fly ash that's too above ground level. ***The oversight***

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committees during its visit have observed heaps of disposed fly ash giving its way to become air borne or flow with rain water in drain leading to surface water contamination.

In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Mahaveer Bio Energy has created an ash dump behind its premises in violating the SOP and EC even creating a public hazard. On field visit dated 25-08-2021 we found near a temple there was a fly ash dump adjoining to Forest and River, due to erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground and as per persons gathered there the land is govt. land recorded as "Chote Jhad Ka Jungle". No guidelines as prescribed since 1999 have been followed. As per report of committee dated 11-10-2019 it has been found that M/S Mahaveer Energy is indulging in extensive and irresponsible disposal of fly ash in village Bhengari. In that report Fig. 3 Éxtent of fly ash dumping in agricultural land in Bhengari Village close to Bhengari Nala and Fig. 4. 40 feet height flyash dump by M/s Mahaveer Energy in Bhengari village (in the name of low lying areas dump). On recent visit on 25-08-2021 we saw the spot (Fig.4 of that report) and found that earlier reporting still continues. We also saw evidence of flowing fly ash from upper portion to lower portion. On 15-17 March visit it has been noted that Mahaveer Energy has created an ash dump behind its premises the top of dump is at least 10 feet height above the ground level and does not confirm to the SOP for dumping in low lying area, even there is no proper retaining wall around the dump creating a public hazard. In present visit we still found the Dump present in open sky flying ash in environment.

Representative from Mahaveer Bio Energy to defend their action have accepted all those dump but their contention is that because of demand of Mandir Samiti, dump near Mandir has been made, other dump are in their own land, they are using fly ash in making the bricks under their own kiln and also providing fly ash to other kiln holder but to support he could not produce land owner ship in his name or other documents regarding actual use of fly ash in making the bricks.

For non compliance of the environmental standard/ violations of legal direction for which there is no rebuttal on the other hand has been open and as disclosed above is proved. M/s Mahaveer Energy & Coal Benification Limited is liable for environmental compensation.

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In compliance of Hon'ble NGT, Principal Bench order dated 12.02.2020 in OA No.117/2014, CPCB has computed the amount of Environment Compensation for individual TPPs for non-utilization of 100% fly ash in year 2018 (2018-19) and 2019 (2019-20) respectively. M/s Mahaveer Energy & Coal Benification Limited is not included in that list for Environmental Compensation because the industry has submitted report of 100% utilization in manufacturing of fly ash brick to Chhattisgarh Environment Conservation Board which seems to be misleading information given to statuary authority.

Environmental Compensation is calculated as under-

- *Initial date of compensation- 01.01.2018*
- *Last date of compensation- 30.11.2021*
- *Number of days- 1429*
- *Operation factor considered- 0.5 (small scale- biomass plant)*
- *EC in Rs. 1,42,90,000/- (One crore forty two lakhs ninety thousand)*

3. Penalty/Fine on Principal Secretary Public Works Department, State of Chhattisgarh.

Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made therein were considered by the NGT vide order dated 27-02-2020

Short term measures

4.1 f. Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.
Long term measures

4.2 b) To reduce the pollution and other impacts caused by road transport of coal and mother minerals , direction may be issued that coal transport by road from coal mines or thermal power plants in these two blocks will be permitted only for a year, after which transport must done by rail or closed conveyor belt only.

Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that ***"We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law.***

Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.

02. Long Term Measures

REVIEW STATUS AS ON 09-11-2020

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As per report obtained from SECL it is evident 35%increase in daily average dispatch by rail in comparison to the FY 2019-20 after construction of new rail line between Kharsia – Gharghoda-Korichhapar, coal dispatch from Korichhapar railway siding commenced in FY 201920. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.

The Committee on field observation has made recommendation as below:-

EE PWD was present before committee to apprise the status of PWD roads in the area .Committee has observed very bad road conditions in Tamnar and Gharghoda area which seems to be one of the measure factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to Dharamjay Garh about 76 Km and Punjipathra to Milupara about 35n Km.) ***but due to budget constraint the work is pending since last several years. An amount of Rs. 335Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda****. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 Kms, 7m wide tar road from Gharghoda to Jampali in compliance of NGT order.*

RECOMMENDATIOINS

2.Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 Crore (@ Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7 m width (Raigarh to Dharamjay Garh about 76 km and Punjipatra to Milupara about 35 km) and insure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.

Hon'ble NGT passed order that Principal Secretary Health and the PWD Department, Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and considered by Hon'ble NGT vide their order dated 24-06-2021.

f). Proper repairing and maintenance of road outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

REVIEW STATUS AS ON 15-03-2021

EE PWD, Raigarh has informed the committee about requirement of immediate construction of approximate 111 KM CC road (Raigarh to Dharamjay Garh about 76 Km and Punjipathra to Milupara about 35n Km.) but due to budget constraint the work is pending since last several years.

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Letter issued to PS, PWD, S-1/03 Mahanadi Bhawan, Raipur by this office vide number RDB/NGTOA 104/2018/553 dated 07-09-2020 and 06-012021 to sanction Rs. 335 crore for construction of 111 km CC road. No response has been received from PS, PWD Chhattisgarh Government.

FIELD OBSERVATION S

5. EE PWD Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharamjaygarh about 76 Km and Punjipathra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20-112020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under:-

> *Main High way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme*
> *Stretch from Chhal Mines to Gharghoda has been approved for two lanes*
> *Stretch from Punjipathra to Milupara via Tamnar not yet approved*

In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get the same approved so as to complete the work within three months. Stretch from Punjipathra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.
RECOMMENDATIONS

4. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipathra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of work.

FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER DATED 24-06-2021.

5. Improve Road quality to reduce spillage and air pollution- Gharghoda and Tamnar area of Raigarh is extremely in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for existing industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. I order to ensure better ambient air quality and statistical balance is to be developed between road transport and rail transport. It was found satisfactory that developments of rail network with five coals siding the area are at the

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stage of completion. Hence it is required to decide a time line for transportation of coal by rail only specially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.

EE PWD, Raigarh has informed the committee that main highway immediately connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chall mines to Gharghoda has been approved for two lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and stretch from Milupara to Lailung not yet approved.

Action : Since the actual process of constructing the NH will take atleast two years , PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As for as constructions of other stretches are concern PWD shall take highest priority because these are the stretches with heaviest traffic density.

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities , constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,…… In para 9 directed that "The Oversight Committee may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law." In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to performs their constitutional obligation to protect environment and public health. Pending taking coercive measures for such failure in due course , we direct the Chief Secretary , Chhattisgarh to ensure necessary action on the part of the concerned department , including PWD and Health on the subject of construction of road and providing Health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order against PWD and Health Department of State of CG finally apprised them towards penal consequences of disobedience but both these department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment compensation/ penalty has been provided. Intimation was sent to PS PWD Chhattisgarh Government to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. Chief Engineer, Bilaspur and Executive Engineer Raigarh of PWD attended the meeting and briefed the progress as under-

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1. *An amount of Rs.6274.33 Laks is sanctioned on 08.09.2021 for 27.50 km CC road from Punjipathra to Tamnar.*
2. *Approval granted on 23.02.2021for an amount of 2032.95 Lakhs for renovation work of 13.40 km road from Raigarh to Gharghoda.*
3. *Approval granted on 08.09.2021for an amount of 1797.25 Lakhs for renovation & Strengthening work of 10 km road from Chaal to Gharghoda.*
4. *So far as patch repair work is concerned, no documents or material could be produced even otherwise we could not see any repair work going on, on the roads.*

All above sanctions and approvals are subject to acquirement of land, Release of Loan and two years' time for completion. ***Till date there is no progress regarding acquisition of land, sanction of loan, etc. All these facts itself shows that matter has not been given any seriousness or to say in near future the road is not going to be made****.*

The committee is not satisfied with submission.

Matter to be considered for imposition of Penalty/Fine

From afore stated complete facts it is clear that dept. of PWD did not care to follow the directions of the committee and also did not complied the orders of the Hon'ble NGT even they misguided committee and NGT by informing that road main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme which appears to be not correct because no such document to show that NH has taken over the Road has been provided. Although they received amount from SECL despite that they did not took interest to construct road. Non Construction of road and lack in repair work is one of the reason for pollution caused by road transport even there is no surety that in near future the construction of road will be made by the department. In fact this is a case of deliberate disobedience of remedial measures by the PWD, therefore for environment breach Depart. of PWD is also responsible and therefore cannot escape its liability to pay Penalty / Fine.

If environmental Compensation is to be levied as per calculation below-

- *Start date non- compliance- 07.09.2020*
- *Last date of compensation- 30.11.2021*
- *Number of days- 448*
- *Rate Rs. 30,000 per day*
- *EC comes to Rs- 1,34,40,000 (One Crore, thirty four lakhs, forty thousand)*

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penalty/Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

Penalty/Fine on Principal Secretary, Health Department, CG Govt.

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Committee constituted vide order dated 22-07-2019 after due consideration including field visit submitted its report and the recommendations made there in were considered by the NGT vide order dated 27-02-2020

Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (4A 314/2014 CZ) case. (Action by respective coal mine companies). Hon'ble the NGT in order dated 27-02-2020 in para 4 has mentioned that "We find that the recommendations are based on relevant studies and need to be considered by the power plants and mines in the area for protection of environment and public health and environmental rule of law. In para 5 have made reference to applicants contentions and passed order in para 6. ***In para 6 have ordered that "Mitigation measures for heath issues may be over seen by the Principal Secretary , Health, Govt. of Chhattisgarh. For this purpose , the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary , Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."(NGT order dated 27-02-2020)***

Further compliance review status as on 09-11-2020 has been filed and considered by Hon'ble NGT vide their order dated 20-11-2020.

01. Short term measures

g. Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 09-11-2020

"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds."

02. Long Term Measures

b) To reduce the pollution and other impacts caused by road transport of coal and other minerals, direction may be issued that coal transport by road from coal mines or thermal power plants in these two blocks will be permitted only for 1 year, after which transport must done by rail or closed conveyor belt only.

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REVIEW STATUS AS ON 09-11-2020

The Committee on field observation has made recommendation as below:-

RECOMMENDATIOINS

1. *In order to ensure development of health facilities in the village of mining affected area, Principal Secretary, Health, Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities'.*

Hon'ble NGT passed order that Principal Secretary Health and the PWD Department, Chhattisgarh Government may act as per recommendations of the committee. (NGT order dated 20-11-2020)

Further compliance review status as on 15-03-2021 has been filed and considered by Hon'ble NGT vide their order dated 24-06-2021.

01. Short term measures

g). Proper and free heath care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendation of the committee report of 14-06-2019 in Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies)

REVIEW STATUS AS ON 15-03-2021

"Mitigation measures for heath issues may be over seen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. Collector Raigarh has assured to arrange the required medical facility in the area by way arranging n health screening camps in all villages within next few months.

RECOMMENDATIONS

3. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.

FIELD OBSERVATIONS AS NOTED IN PARA 5 OF THE ORDER DATED 24-06-2021.

4. Public health facilities and disease screening – The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area, Collector Raigarh has informed the committee that there are adequate facilities

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available at Tamnar CHC and at the Fortis – JPL multispecility hospital at Tamnar. Collector Raigarh has also assured to organize "health Camps" within the next three months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.

Hon'ble the NGT in para 8 have observed that Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipathra to Milupara,……In para 9 directed that "The Oversight Committee may make assessment of compensation for the violation on the basis of which the statutory Board may take further action, following due process of law." In para 10 passed order that "We regret to note failure of the concerned departments of the state of Chhattisgarh to respond the Committee and to perform their constitutional obligation to protect environment and public health. Pending taking coercive measures for such failure in due course , we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned department, including PWD and Health on the subject of construction of road and providing Health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries"

Thrice Hon'ble NGT passed order and finally apprised them to wards penal consequences of disobedience but department took the said orders in a very casual manner and even gave a deaf ear to those orders.

Opportunity of hearing for consideration of environment Penalty/Fine has been provided to the department.

Intimation was sent to PS, Health, Govt. of Chhattisgarh to join the committee meeting on 16th September 2021 for hearing about progress/ constraint observed in delivering the target defined in action plan submitted to Hon'ble NGT. PS Health Chhattisgarh Government could not ensure his presence in person/representative in the meeting.

The documents and information provided about infrastructure of health facilities reveals that health care facilities are insufficient and no serious efforts have been made to improve it even on the direction of Hon'ble NGT.

Hence the matter to be considered for imposition of environmental Penalty/Fine.

- *The oversight committee in its report dated 14.10.2019 submitted to Hon'ble NGT had recommended proper and free health care facilities with multispecialty treatment system may be provided in all coal mine adjacent villages.*

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In this context Hon'ble NGT has given the liberty to PS Health Government of Chhattisgarh to oversee the mitigation measures for health issues. For this purpose the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.

- *In its further order dated 20.11.2020 Hon'ble NGT has directed PS, Health Govt. of Chhattisgarh to keep informing the oversight committee about development made in health facility. In spite of the direction issued by Hon'ble NGT no progress was submitted PS, Health, Govt. of Chhattisgarh to the oversight committee.*

- *Hon'ble NGT in its order dated 27.02.2020 has directed that mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. A copy of this order be sent to the CPCB, Principal Secretary, Health, Govt. of Chhattisgarh, Ministry of Coal as well as the MoEF&CC by e-mail.*

- *Hon'ble NGT in order dated 24.06.2021 on point number 10 mentioned that*
  "We regret to note failure of the concerned departments of the State of Chhattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries."

Principal Secretary Health neither responded the above orders issued by Hon'ble NGT nor could do any work to protect environment and public health. He not only took all the orders passed by Hon'ble NGT in a very casual manner but also gave a deaf ear to those orders. His non involvement in taking remedial measures is one of the reason to increase public health hazard which arose due to air and water pollution. Neither he took part in environmental Penalty/Fine hearing although noticed nor could show any ground to exempt him from levying the Penalty / Fine.

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If environmental Compensation is to be levied as per calculation below-

- *Start date non- compliance- 27.02.2020*
- *Last date of compensation- 30.11.2021*
- *Number of days- 641*
- *Rate Rs. 30,000 per day*
- *EC comes to Rs. 1,92,30,000 (One Crore, ninety two lakhs, thirty thousand)*

But we are of the opinion that Penalty/ fine should be imposed , therefore after due consideration we assess/propose Penalty / Fine imposed on Principal Secretary PWD, State of CG Rs.1,00,00,000/-(Rs. One Crore)

5. Physical verification of progress as on 30.11.2021 and Environmental Compensation

Visit of CSPGCL Coal Mines (Gare Pelma Sector –III) *- The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump on one side Pic-02 of the road was located at approximately 80m distance from road side but OB dump all along road was not within prescribed distance, even on many places it is adjacent to road. Dump process is still continuing .We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Villagers assembled there and applicant's representatives have stated there that because of dump and traffic in road this place has been declared as accidental zone and within a year around 10 persons have been killed in accident. Road condition is very bad. Although in one side Provision of check drains have been seen but appears to be not having width of adequate size, the sludge or waste materials along with water is passing through the agricultural fields and is terminating in nallah.(Subsequently we come to know that this is not a Nala but River)((O.B. Dump in CGSPGCL mine at Gare Palma sector 3 observed on field visit during 15-17 March 2021 on both sides of Public Road). This public road is within the mining area and as stated and shown by company officers present there as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009.Although in one side Provision of check drains have been seen but in other side there appears no provision of check drains and garland drains have been made to ensure that the sludge or waste materials does not go into the nullah. (Subsequently we come to know that this is not a Nala but River).*

For environmental compensation and for remedial measure CGSPGCL , was required to be heard on Maintenance of Public Road, on illegal OB dump , non use of fly ash , non construction of garland drains and proper settling tanks , Sludge and waste materials passing through agricultural field destroying crop production going to Nallah. (Subsequently we come to know that this is not a Nala but River) therefore the mine authorities were instructed to present in hearing

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meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur. ***Environment compensation hearing dated 14th September 2021. Heard, Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) –***

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB Dump has been made on both sides of road even in some places adjacent to road. This public road is within the mining area and as stated and shown by companies officer present there, as per mining plan road is to be diverted. For OB dump use of 25% of fly ash is compulsory but lessee did not complied the directions of notification 2009. For Mining operation roads with the mines area is to be constructed by the lessee and lessee has to divert public roads, at his own cost to facilitate scientific mining. We saw a number of coal loaded trucks passing through this road and also this road is under use of the lessee. Condition of the road is bad. The mine authorities were present in hearing meeting with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of CSPGCL presented the mining plan in which location of the OB dump is sited on the same place subject to diversion of PWD road passing between lease area. They stated that CSPGCL has deposited required amount with PWD, Raigarh for diversion of the road. There is no material to know whether PWD is diverting the road or not and if they intend to divert the road, by which time they may start and complete the diversion. Hence storage of OB dump near to public road may create danger to public passing through the road. ***In this context committee was of the opinion that CSPGCL shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. CSPGCL shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. CSPGCL shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash OB dump shall be followed.***

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron structure up to a height of minimum 3m at 50m distance from road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in

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progress. Mines authorities present there stated the further minimum 15 days time may take to complete the work. They also apprised that CSPGCL obtained necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash. M/s CSPGCL vide its letter dated 18.11.2021 requested to DGMS for obtaining permission to use fly ash in its OC mine Gare Pelma sector-III as per study report submitted by CIMFER. Director of Mine Safety, Raigarh vide its letter dated 23.11.2021 has restricted fly ash dumping in the opencast working till submission of clarification for factor of safety (FOS) and suitable geometry of inpit and external dump design by scientific agency.

Violations of environmental conditions and directions as noted above brings the Chhattisgarh State Power Generation Company Limited Coal Mines (Gare Pelma Sector –III) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF
Where,
EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. *Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry*
2. *N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)*
3. *R, A factor in Rs is taken 250 only*
4. *S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.*
5. *LF, has been taken 1.0 for population less than one million Environmental compensation is calculated as under-*

   - *The CTO issued on 23.10.2020 has condition of fly ash utilization in stowing.*
   - *Consent condition was amended on 22.06.2021 for utilization of fly ash in OB dump.*
   - *Date of first observation of non-compliance- 17.03.2021*
   - *Last date taken for assessment- 30.11.2021*
   - *Number of days for non-compliance- 253 days*

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

6. ***Visit of M/s Ambuja Cement Coal Mines (Gare Pelma Sector-IV/8)-***

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The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. *In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit of the committee OB dumping was observed on both side of the road (Pic-03). This public road is passing through the mines area and utilized by public, Mines operator and coal transporters.* ***No garland drains with proper settling tanks have been constructed. 25% of fly ash as required in 2009 notification for OB dump has not been done****. We saw a number of coal loaded trucks passing through this road, Road condition is very bad. Ambuja Cement Ltd to be heard on Maintenance of Public Road, on illegal OB dump, non use of fly ash, non construction of drains and proper settling tanks . The mine authorities were instructed to present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.*

Heard, M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) on Environment compensation on14th September 2021

The field visit of oversight committee dated 17.03.2021 has observed dumping of OB on both sides of public road. In accordance with recommendation of the report mine site was visited on 24.08.2021 by Chairman and members of the new committee. During visit it was found that OB dump was located very near to road side which was creating danger to public and transport moving on road. The mine authorities were present in hearing meeting on 14th September 2021 at Bilaspur with approved mining plan/ copy of EC/ permission from DGMS and CTE / CTO issued by Chhattisgarh Environment Conservation Board, Raipur.

The representatives of M/s Ambuja Cement Limited presented the mining plan in which location of the OB dump is sited at distance of minimum 45m from road side subject to diversion of PWD road passing between lease area. Officials of M/s Ambuja Cement Limited stated that they have deposited required amount with PWD, Raigarh for diversion of the road but there is no material to know whether PWD is diverting the road or not and if they intend to divert the road , by which time they may start and complete the diversion . Hence storage of OB dump near to public road may create danger to public passing through the road. In this context committee was in opinion that M/s Ambuja Cement Limited shall maintain minimum distance of 50 meters on both side the road and provide physical barrier all along the road in lease area to protect the public interest from accident as well as fugitive emission. M/s Ambuja Cement Limited shall also provide adequate garland drain along with OB dump with sufficient number of settling ponds. M/s Ambuja Cement Limited shall obtain necessary permission from DGMS and CECB and see that as per notification 2009 utilization of 25% of fly ash in OB dump shall be followed.

The mine authorities has accepted the suggestion and assured for construction of physical barrier of steel sheet mounted on iron

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structure up to a height of minimum 3m at 50m distance form road on both side of road along full road length in leased area. The said construction has to be completed on or before 30th November 2021. The mine authority shall also maintain PWD road to a length falling in their mining lease area.

On verification visit dated 24-11-2021 we found that construction of physical barrier of steel sheet mounted on iron structure was in progress. Mines authorities present there stated that further minimum 15 days time may take to complete the work. They also apprised that they could not obtain necessary permission from DGMS for compliance of notification 2009 utilization of 25% of fly ash.

Violations of environmental conditions and directions as noted above brings the M/s Ambuja Cement Limited Coal Mines (Gare Pelma Sector –IV/8) under four corners for payment of Environmental compensation.

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. *Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry*
2. *N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)*
3. *R, A factor in Rs is taken 250 only*
4. *S, Factor of scale of operation 1.5 as coal mines and TPP are large scale units.*
5. *LF, has been taken 1.0 for population less than one million*

Environmental compensation is calculated as under-

- *The CTO issued on 23.10.2020 has condition of fly ash utilization in OB dump and stowing.*
- *Date of first observation of non-compliance- 17.03.2021*
- *Last date taken for assessment- 30.11.2021*
- *Number of days for non-compliance- 253 days*

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)(30,000x253)

EC in Rs. 75,90,000/- (Seventy five lakhs ninety thousand)

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7. <u>M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5)</u>

The committee has also visited the site of M/s Hindalco Industries Limited coal mine on 24th November 2021 and found that the mine is divided in two parts. In both parts mines operation is continuing. Back filling was also being done without utilizing fly ash. ***OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GUL MOHAR, some fruit plant like mango, Guava etc. these plants are very small and their survival is under question. Trees to be planted in green belt or otherwise in mines area are not planted. We could not find garland drain along OB dump and settling ponds. From officials present we could come to know that coal extracted from here is supplied to their captive power plant situated in ORRISSA. When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in OB dump even they did not tell how they are disposing their own fly ash. M/s <u>Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5)</u> has been directed to be present to defend their liability to pay environmental compensation in environmental compensation hearing on 25.11.2021 at Bilaspur with all relevant documents.***

<u>Heard M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) on 25-11-2021 on assessment of environmental compensation.</u>

Representatives from M/s Hindalco Industries Limited – COAL MINES (Gare Pelma IV/4 & 5) appeared and contended that they have on mobile connectivity contacted DGM for permission and guidance for utilization of fly ash ,who gave a date for their inspection. They stated that after getting permission from DGM they may take steps to utilize Fly ash in back filling and OB Dump.

The mines is found divided in two parts . In both parts mines operation was continuing. Back filling was also being done without utilizing fly ash. OB Dump has also been created without utilizing fly ash. Green belt has not been developed, however in OB dump they have planted some ornamental plant like GULMOHAR, some fruit plant like mango etc. these plants are very small and their survival is under question. We could not find garland drain along OB dump and settling ponds. From officials present we could come to know that coal extracted from here is supplied to their captive power plant situated in ORRISSA . When they have their own power plant, they are also producing fly ash but are not utilizing their fly ash here in their mines in back filing or in OB dump even they did not tell how they are disposing their own fly ash.

M/s Hindalco Industries Limited was to provide adequate garland drain along with OB dump with sufficient number of settling ponds to ensure suspended solid free discharge of storm water in rainy season. Hindalco Industries Limited was to comply with the

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provisions of notification 2009 for utilization of 25% of fly ash in OB and back filling. They were also required to develop proper Green Belt. In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF
Where,
EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. *Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry*
2. *N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)*
3. *R, A factor in Rs is taken 250 only*
4. *S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale*
5. *LF, has been taken 1.0 for population less than one million*

- *The CTO issued on 02.01.2020 has condition of fly ash utilization in OB dump and stowing.*
- *Date of first observation of non-compliance- 02.01.2020*
- *Last date taken for assessment- 30.11.2021*
- *Number of days for non-compliance- 698 days*

EC in Rs. 2,09,40,000/- (Two Crore, nine lakhs forty thousand) (30,000/-x698)

8. ***Visit of Gare Palma IV/01 OC Mines- The captive power plant of M/s Jindal Steel & Power Limited,***

Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open cast mines. During visit of the committee on 24th August 2021 it was observed that ***fly ash mixed with OB being disposed near Nalah passing in mining lease area****. (PIC- 07) The distance between disposal site and Nalah seems to be less than 500m and during rainy season fly ash may take a way to River kelo through Nalah. The issue has been considered as negligence in selection of site and M/s JSPL has been directed to be present in environmental compensation hearing meeting on 15.09.2021 at Bilaspur with all documents EC, Consent and quantity of fly ash disposed and remediation proposal if any.*

On environmental compensation hearing representative from JSPL were present who have been heard and findings recorded that captive power plant of M/s Jindal Steel & Power Limited, Dongramau has permission for disposal of its fly ash in Gare Palma IV/01 open

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cast mines. During visit of the committee on 24th August 2021 it was observed that ***fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area. The distance between disposal site and drain seems to be less than 500m and during rainy season fly ash may take a way to River Kelo through drain/ Nala (a watercourse).*** *The issue has been considered as negligence in selection of site and M/s JSPL has been directed to shift the same on or before 30.11.2021.*

On verification on 24-11-2021 we found that fly ash mixed with OB being disposed near drain/ Nala (a watercourse) passing in mining lease area has been removed. M/s JSPL vide its letter dated 28.10.2021 addressed to Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh has informed about removal of OB on 24.10.2021. The committee has also visited the site on 24th November 2021 and found that all OB dump was removed from the site. In view of noncompliance from 24th August 2021 to 24th October 2021 (62 days) EC may be imposed. In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. *Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry*
2. *N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)*
3. *R, A factor in Rs is taken 250 only*
4. *S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale*
5. *LF, has been taken 1.0 for population less than one million*

Date of observation of noncompliance- 15.09.2021
Date of observation of compliance – 24.10.2021
Hence EC (in Rs) = 30,000 X 39 = 11,70,000/- (Eleven Lakhs seventy thousand Only)

9. M/s Jindal Power Limited, Tamnar, Raigarh-

It was reported in over sight committee visit on 17.03.2021 about leakage of fly ash slurry from ash dyke of M/s Jindal Power Limited. The committee had suggested M/s JPL to conduct study through a research organization of national repute to determine the stability of the existing ash dyke and take measures required to strengthen as needed. In order to take the status, the oversight committee once

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again visited the site on 24th August 2021. Although spot shown by the officials of the JPL we could not observe leakage on that area from the dyke but we are not sure about other part of the dyke. The committee has discussed in details about process adopted for repair of the leakage and directed M/s JPL to submit the authentic report about strength of repairing undertaken and the stability report of the existing ash dyke from research organization of national repute on or before 30-11-2021.

JPL after complying the direction have submitted stability report conducted by NIT Raipur but did not file any documents to show details about process adopted for repair of the leakage or to establish repair conducted by competent person/ authority therefore is liable for Environmental compensation from 17-03-2021 to 24-08-2021

In view of the above non-compliance Environmental compensation is calculated as under-

The environmental compensation (EC) is based on the following formula-

EC=PI x N x R x S x LF

Where,

EC= Environmental Compensation in Rs
PI= Pollution Index of Industrial Sector
N= Number of days of violation took place
R= A factor in Rs
S= Factor for scale of operation
LF= Location Factor

Note-

1. *Average Pollution Index (PI) 80 has been taken considering Coal Mine & TPP in Red category of Industry*
2. *N, Number of days for which violation took place is period between the day violation observed and due date of compliance is taken as 30.11.2021 (As the status report is up to 30.11.2021)*
3. *R, A factor in Rs is taken 250 only*
4. *S, Factor of scale of operation 1.5 as coal mines and TPP are large units. scale*
5. *LF, has been taken 1.0 for population less than one million*

- *The Environmental condition has been violated from 1703-2021*
- *Date of first observation of non-compliance- 17-03-2021*
- *Date of compliance taken for assessment-24-08-.2021*
- *Number of days for non-compliance- -161days*
- *Determination of Environmental Compensation (EC)*
- *Hence EC (in Rs) = 30,000 X161 = 48, 30,000/- (Forty Eight Lakhs Thirty thousand Only)*

10. <u>Calculation of property damage on application submitted by villagers in favour of the applicant against TPPs</u>

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Applications were against TRN Energy Pvt.Ltd. and against M.s Mahaveer Energy& Coal Benification Ltd. Although copy of the application are been served on these TPPs but they did not file any reply.

For hearing against these applications, both the parties remained absent. For verification services of concerned Patwari have been taken. As per information provided by the Patwari only 4 persons were found entitled therefore for those persons compensation has been calculated and remaining applications have been rejected.

Calculation of property/ crop damage was done on the basis of area and tentative loss to crop and rate per Quintal

As per report of the area Patwari Govt. has fixed per hector crop 37 quintal and price including bonus Rs.2500/- per quintal of paddy.

The damage claims submitted by the affected villagers and farmers were scrutinized by officials of land revenue departments. They have given the affected area of claimant. Environmental compensation in the shape of damage has been calculated as below damage claim submitted by villager details of affected land is as under-

S.No.	Name & address of claimant	Affected khasra No	Affected area Hectare	Amount in Rs
01	Sh. Ghurauram Rathia Nawapara	381/01	0.076	7030
02	Sh. Harcharan Rathia & Sh. Malik Ram Rathia Kantagdeeh	09/01 09/02	4.411 1.895	408017.5 allowed only Rs.1,11,000/ -as claimed 175287.5 allowed Rs.1,11,000/ -as claimed
03	Sh. Karam Singh Rathia	401/01	0.101	9342.5
Total Affected area			6.483	599677.5

- *Note- Damage*

  Note damage calculated based on productions of 37 quintals per hectare considering rate of crop @ Rs. 2500 per quintal.
- *The committee has decided that as environmental compensation /damage claim will be paid by M/s TRN Energy Private Limited to the affected villagers/ farmers as per above list accordingly.*

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At a glance

Environmental Compensation/ Penalty/Fine have been calculated for non-complying industries and departments. The details are as under-

Sl. No	*Name of the industry / department*	*EC/Penalty/Fine amount in Rs*
01	*Principal Secretary, Public Works Department Chhattisgarh Government*	*1,00,00,000/-*
02	*Principal Secretary, State Health Department Chhattisgarh Government*	*1,00,00,000/-*
03	*M/s TRN Energy Private Limited, Nawapara Raigarh*	*1,82,40,600/-*
04	*M/s Mahavir Energy and coal benefication Limited*	*1,42,90,000/-*
05	*M/s Hindalco Industries Limited Coal Mine*	*2,09,40,000/-*
06	*M/s Ambuja Cement Limited Coal Mine (GP IV/8)*	*75,90,000/-*
07	*M/s Jindal Steel & Power Limited, Dongramau, Tamnar*	*11,70,000/-*
08	*M/s Chhattisgarh State Power Generation Company Limited*	*75,90,000/-*
09.	*M/s Jindal Power Ltd, Tamnar*	*48,30,000/-*

Environmental Compensation against TRN Energy PVT. LTD. have been calculated for damage to property of individuals. The details are as under-

S.No.	***Name & address of claimant***	***Affected khasra No***	***Affected area Hectare***	***Amount in Rs***
01	*Sh. Ghurauram Rathia Nawapara*	*381/01*	*0.076*	*7030*

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02	*Sh. Harcharan Rathia &* *Sh. Malik Ram Rathia Kantagdeeh*	*09/01* *09/02*	*4.411* *1.895*	*408017.5 allowed only Rs.1,11,000/- as claimed* *175287.5 allowed Rs.1,11,000/- as claimed*
03	*Sh. Karam Singh Rathia*	*401/01*	*0.101*	*9342.5*
Total Affected area			*6.483*	*599677.5*

8. Final compliance status on 30.11.2021 and recommendations of the Committee are reproduced below:-

"FINAL COMPLIANCE REVIEW STATUS AS ON 30-11-2021

1. Short-term measures

1.1 Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling.

As per compliance report submitted on 07.04.2021 and accepted by Hon'ble NGT in its order dated 24.06.2021 Two SECL mines (IV/2,3) and one JPL mine (IV/1) only are accepting fly ash for disposal in OB dump. Other coal mines in Tamnar and Gharghoda area are not accepting fly ash for disposal in OB dump.

Although Environmental compensation has been assessed but for future they are not exonerated and shall be liable to assessment of Environment Compensation and other legal actions.

CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. ***The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority.***

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Oversight committee in its meeting dated 27.11.2020 has decided to write Chairman, CECB for constitution of State level Committee for permitting about utilization of fly ash for reclamation of low lying areas and in stowing of abandoned mines/queries only after ensuring the implementation of guidelines prepared by CPCB as per MoEF&CC notification No.SO 763(E) dated 14-091999. The decision was taken for giving effect to observations made by Hon'ble NGT in para 6 of their order 20.11.2020.

> *"Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect* ***that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated.*** *Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis 13 and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes."*

In this context Nodal Officer of the oversight committee has written a letter to Chairman, CECB on 26.02.2021(RD/BPL/NGT OA-104/2018/202) for constitution of State level committee for utilization of fly ash for reclamation of low lying area, and in stowing of abandoned mines/quarries.

In this context, Member Secretary, CG Environment Conservation Board, Raipur, apprised us that State level committee has been constituted a long back and now has been reconstituted on 24.01.2019. This reconstituted committee is termed as monitoring committee constituted by Chhattisgarh Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009. This committee is also responsible to ensure implementation of clauses 7, 8(i) & 8 (ii) of MoEF&CC notification SO 2804 (E) dated 03.11.2009 which reads as:-

> *"(7) No agency, person or organization shall within a radius of hundred kilometers of a coal or lignite based thermal power plant under take or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with*

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the specifications and guidelines laid down by the authorities mentioned in sub-paragraph (1) of paragraph 3.

(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 die 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 subparagraph (10) for this purpose.

(ii) No person or agency shall within fifty kilometers (by road) from coal of 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 die guidance of the Director General of Mines Safety (DGMS);

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

When there is already one statutory committee for monitoring and facilitating implementation of notification at the respective State Government level, there appears no need for constitution of another committee for the same work in the same field,

CECB vide its letter number 318 dated 10.05.2021 has made allotment of fly ash disposal in void of Domnara OC mine (Abandoned) of Raigarh but no progress observed on ground, Only one abandoned mine is there for filling of fly ash but the same has been allotted to five companies situated in different area and with different quantities. This allotment has been done in complete violation of "GUIDELINES OF CIL OFFERING MINES VOIDS FOR FLY ASH DISPOSAL The guidelines is a complete code and following that only mines was required to be allotted and compliance should have been made. ***CECB should have asked Coal India Ltd to follow their own guidelines from inception of allotment of Mine void till disposal of fly ash and after closure of the site till reclamation.***

1.2 Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously

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monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.

District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.

Hon'ble NGT in its order dated 20.11.2020 directed that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. In this context Nodal Officer of the oversight committee has written a letter to Chairman, CECB on 26.02.2021 (RD/BPL/NGT OA-104/2018/202) for constitution of State level committee for utilization of fly ash for reclamation of low lying area, and in stowing of abandoned mines/quarries.

The committee has also directed Regional officer CECB for providing list of locations where fly ash have been disposed unscientifically and creating threat to environment and agricultural fields. In accordance with list provided by CECB, committee has visited Gharghoda area on 25.08.2021. Unscientific disposal of fly ash in low lying areas of Gharghoda is one the major issues taken in the case. The committee has visited few sites of fly ash dumping where proper strengthening and compaction of fly ash has not been ensured by M/s TRN Energy Pvt Limited resulting flow of fly ash in to adjoining fields and drains leading to River. The location of fly ash dumping exits in village Bhengari, Nawapara, Tenda and Kantagdeeh. The committee has visited newly constructed ash dyke near the power plant in Nawapara and observed flow of water along with side of ash dyke leading in the fields of farmers. The committee has also witnessed the breaching and damage, then accordingly instructed the villagers & farmers to submit damage claim application in the office of Regional Officer, Chhattisgarh Environment Conservation Board, Raigarh. The format of application for submitting damage claim has also been provided to villagers/farmers with request to be present during hearing at Bilaspur. M/s TRN Energy Private Limited (2x300MW) thermal power plant is located in village Bhengari, Nawapara (Tenda), Gharghoda, Raigarh. The plant started its commercial production in 2016 with an average generation of fly ash 4000 MT per day. The thermal power has generated approximately

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2879126 MT fly ash during January 2016 to March 2021, out of which 58% (16,65,007 MT) has been disposed in low lying area of village Chote Gumda, Bade Gumda, Nawapara, Tenda and Baansmuda. As per detail submitted by the TPP the area used for disposal of fly ash is approximately17.378 Hectare.

TRN power has created an ash dump as non-compliance of EC conditions outside its ash dyke in the village Nawapara Tenda. There are physical evidences for breaching of mudwall leading to fly ash flowing into adjoined field even situation to fly ash in to neighboring habitants.
On field visit on 24-25.08.2021 we have seen that by the side of State High way unscientific fly ash dump has been found , also adjoining fields have been covered under fly ash dump causing utility loss of those fields. Erosion of the land due to fly ash is clear. Another fly ash dump adjoining to Forest and nalah in personal land of some villager have been seen, due to cracks and land break /erosion from various points water along with fly ash flowing from there is clear the dump is not in low lying area but is on plane ground by the sides of Bargad tree. No guide lines as prescribed since1999 have been followed. On earlier visit in March 2021 committee found that TRN power has created an ash dump outside its ash dyke in the village Nawapara Tenda .The top of Dump was at least 10 feet above the ground level. It was also observed that because of breaking of mud wall fly ash was flowing into adjoining field. To prevent the same no remedial measures has been taken by the PP. On road side flow we could see the flowing of fly ash in heavy quantity. A pretty big area has been covered under flowing of fly ash from this Dump.

Representative from TRN admits all these OB dumps and contended that after obtaining the permission from land owner and Gram Panchayat, Fly ash dump have been made. Although they brought some papers and made attempt to show that they have not violated the Environmental conditions. But could not produce permission / consent of State Pollution Control Board. The thermal power plant has also submitted copy of study report conducted in 2018 by ISM Dhanbad which recommends about no metal contamination in ground water due to leaching from fly ash disposed in low lying area.

Ministry of Environment and Forests Notification No. S.O. 763 (E) dated 14th September 1999 only permits for reclamation and compaction of fly ash in low lying area in accordance with specifications and guidelines laid down by the authorities as mentioned in clause 3 of that notification. None of the notifications or guidelines give liberty to loose disposal of fly ash that's too above ground level.

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The committee has also visited the Sites of Ash Disposal by M/ s Mahaveer Energy & Coal Benefication Limited, Biomass based 12 MW power plant located in village Bhengari. The industry generates fly ash by burning of rice husk with coal and use to dump it unscientifically at two locations in village Bhengari. The committee has visited dumping sites on 25th August 2021 and found fly ash dumping in Bhengari village and also in the plant premises. The unscientific disposal of fly ash leads air borne during summer season and washed out during rainy season leading towards surface water body.

Although Environmental compensation has assessed but that will not exonerate these companies from their illegal activities. We relying on judgment rendered by Hon'ble the SUPREME COURT OF INDIA *in the matter NIDHI KAIM Vs. STATE OF MADHYA PRADESH, Civil Appeal No. 1727 of 2016, Decided on : 13-02-2017 in which Hon'ble SC has observed that :-*

> *"There is a saying – when wealth is lost, nothing is lost; when health is lost, something is lost; but when character is lost, everything is lost. This is attributed to Billy Graham, an American clergyman, born on 7.1.1918. One cannot be certain, about the above attribution, because the same lesson has been taught in India, since time immemorial, by parents and teachers. The issue in hand, has an infinitely vast dimension. If we were to keep in mind immediate social or societal gains, the perspective of consideration would be different. The submission canvassed, needs to be considered in the proper perspective. We shall venture to derive home the point by an illustration. We may well not have won our freedom, if freedom fighters had not languished in jails ... and if valuable lives had not been sacrificed. Depending on the situation, even civil liberty or life itself, may be too trivial a sacrifice, when national interest is involved. It all depends on the desired goal. The preamble of the Indian Constitution rests on the foundation of governance, on the touchstone of justice. The basic fundamental right, of equality before law and equal protection of the laws, is extended to citizens and noncitizens alike, through Article 14 of the Constitution, on the fountainhead of fairness. The actions of the appellants, are founded on unacceptable behavior, and in complete breach of the rule of law. Their actions, constitute acts of deceit, invading into a righteous social order. National character, in our considered view, cannot be sacrificed for benefits – individual or societal. If, we desire to build*

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a nation, on the touchstone of ethics and character, and if our determined goal is to build a nation where only the rule of law prevails, then we cannot accept the claim of the appellants, for the suggested societal gains. Viewed in the aforesaid perspective, we have no difficulty whatsoever, in concluding, in favour of the rule of law."

We recommend that M/s TRN Energy Private Limited and M/s Mahaveer Energy & Coal Benefication Limited shall remove the fly ash dump as seen by the committee during their field visit within 4 months else those dumps shall be removed on the cost of those companies ,by State PCB and removed mataerial shall be given to the concerned company for proper disposal as per law.

1.3. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks.

Representative from JPL present in stake holders meeting has informed that 44,25,66 MT coal was transported in 2019-2020 &40,24,274in2020-2021 through conveyor belt to JPL. The quantity provided is about 70 % of total coal mined from GPIV/2&3, however coal quantity received for GP IV/2&3 is only satisfies its 25% requirement. Rest of the requirement is met from other coal mines of Chhattisgarh and Orissa. ***State PCB shall verify correctness of the declaration by examining companies coal transportation records.***

1.4 Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms. PHED should do the analysis (major cations/anions/trace elements) of the inlet and outlet sample of the Defluoridation plant installed in the region.

PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also

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in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water in village and ensure quality of water in coordination with PHED Raigarh.

In order to ensure and verify the adequate quality of drinking water supply in Village Kondkhel, the committee has also visited Kondkhel village on 24.08.2021 along with applicant, representative of PHED and M/s Hindalco Limited. In the visit, water availability in hand pump as well as taped water supply was found in order. More over National Environmental Engineering Research Institute (NEERI) Nagpur set up network of observation wells in Kondkhel village during 01-02 August 2021. These observation wells network consisting of India Mark II hand pump that are used to measure the ground water level. The ground water level from observation wells network was obtained using Electric Contact Gauze. The ground water level is obtained with respect to below ground level (BGL). The ground water extraction though hand pumps is used for domestic purposes only. The depths to ground water level (BGL-m) in the different observation wells varied between 5.24 m to 14.81 m during first week of August 2021.

Installation of Piezometers and monitoring: *All the Coal Mine operators in the region need to install the Piezo meters as per the EC conditions. The installation need to be based on scientific lines and should take into account the depth up to which the mining is envisaged. Monthly monitoring of ground water level should be done by the mine operators.*

1.5 Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information.

The committee during its field visits has observed installation of CCTV in coal mines and found its satisfactory operation its connectivity with CPCB and CECB should be made. M/s CSPGCL mines have installed two CAAQMS as per instruction and its connectivity with CPCB and CECB is in progress. CECB has also placed order for purchase and installation three CAAQMS in the area but as on 30.11.2021 no station was found operational.

M/s CSPGCL mine has installed two CAAQMS and remaining is not complied. May its installation takes time but on this excuse concerned proponents are not entitled for excuse. CECB to issue directions to concerned

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proponents for installation of CAAQMS and for CCTV connectivity with CPCB and CECB.

1.6 Proper repairing and maintenance of roads outside the mine area to ensure smooth movement of trucks and other load carrying vehicles.

Although Environmental Penalty / Fine has been assessed on Principal Secretary, PWD State of CG but he is not exonerated from complying earlier directions. He should comply those directions else shall be liable again for Penalty/Fine and other legal coercive measures.

1.7 Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case.

Although Environmental Penalty / Fine has been assessed on Principal Secretary, Health, State of CG but he is not exonerated from complying earlier directions. He should comply those directions else shall be liable again for Penalty/Fine and other legal coercive measures.

1.8 Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.

Yes. On Papers although Project Proponents have tried to show that they are doing the plantation work, but there is distinction between plantation and Green belt development therefore as per mining plan coal mines shall develop green belt and on OB dumps shall grow prescribed species of tree and as per CPCB guide lines 2019 TPP shall develop green belt.

1.9 We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major 4 noncompliance in pollution control and social cost (rehabilitation).

Nodal officer of the committee has informed accordingly to Member Secretary (IA-Coal) Ministry of Environment Forests &CC vide letter number RD/BPL/NGT OA 104/2018/72 dated 18th September 2020. However Honorable NGT Order dated 27-02-2020 in Para 6 have observed; We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the 'Precautionary' and 'Sustainable Development' principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only

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and mechanism for remedial measures should be in place, including oversight of measures for health mitigation.

2.0 Long-term measures

2.1 Commissioning a detailed and comprehensive environmental load carrying capacity study to be carried out by a reputed environmental research institute over a 24 month period. Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued.

In the meeting of the oversight committee held on 16.10.2020, CPCB has advised CECB to include the project cost in EC fund sponsored project. CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal was submitted by NEERI, Nagpur which is still under consideration in CECB.

2.1.1 The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.

Action by CECB to ensure its incorporation during finalization of proposal submitted by NEERI, Nagpur for carrying capacity study.

2.1.2 Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different sub regions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.

Action by CECB to ensure its incorporation during finalization of proposal submitted by NEERI, Nagpur for carrying capacity study.

2.1.3 CECB shall ensure that within 4 month the studied for environmental load carrying capacity pending with it shall be allotted according to legal process and allottee should ensure that after allotment study should be

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completed and report submitted within 24 months. Both of them should keep in mind that default if caused then defaulter shall be liable under legal consequences.

2.2 To reduce the pollution and other impacts caused by road transport of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.

IRCON International Limited, that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2021.

2.3 Condition of greenbelt development may be incorporated at TOR stage of EC application to ensure that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.

Copy of Hon'ble NGT order has been provided to MoEF&CC through its representative of the committee.

2.4 Ministry of Coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009.

In this context, Member Secretary, CG Environment Conservation Board, Raipur, apprised us that State level committee has been constituted a long back and now has been reconstituted on 24.01.2019. This reconstituted committee is termed as monitoring committee constituted by Chhattisgarh

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Government to monitor the utilization of Fly ash in accordance to MoEF&CC notification SO 2804 (E) dated 03.11.2009.

The committee seems to be responsible for obtaining specification of quality of fly ash from expert committee referred in sub paragraph (10) for this purpose. As per sub paragraph (10) ministry of coal for this purpose shall constitute an expert committee comprising of representative from fly ash unit, Department of Science and Technology, Ministry of Science and Technology, Director General of Mines (DGMS), Central Mine Planning and Design Institute Limited (CMPDIL), Ministry of Environment Forests & CC, Ministry of Power, Ministry of Mines and Central Institute of Mining and Fuel research (CIMFR).

Hon'ble NGT in its order dated 24.06.2021 on point no 6 has considered the field observations made in report dated 17.03.2021 about violation found on the JPL, JSPL, Hindalco Industries Limited, Mahaveer Energy and coal Benefication and M/s Ambuja Cement and M/s CSPGCL coal mines. The committee has addressed all issues during its site visit on 24th and 25th August 2021 and concerns were given opportunity of hearing on 14th and 15th September 2021.

1. *The following observations made in the report dated 17.03.2021 has been found resolved. Fly ash dumping with in GP IV/01, outside mine void*
2. *Fly ash dumping with in GP IV/02 & 03, outside mine void*
3. *Leakage of fly ash slurry from JPL ash dyke*
4. *Fire in coal mine/coal dump Gare Pelma IV/02&03*
5. *Discharge of untreated waste water from M/s Hindalco Industries Limited Coal mine*
6. *Inadequate quality of drinking water supply to Kondkhel village*
7. *Making abandoned mines available for disposal of fly ash*

FOLLOWING ARE THE MAJOR RECOMMENDATION TO MEET OUT THE PROBLEM OF POLLUTION DUE TO TRANSPORTATION AND FLY ASH DISPOSAL:-

1. ***Coal brought from outside CG to Tamnar and Gharghoda area by TPP should be carried by train upto nearest Railway siding, may it be booked from any Rly station. From Rly siding to TPP coal may be carried through mechanically operated closed Goods Vehicle or through manual operated Tarpoline covered Goods vehicle. If any exigency arises State PCB may for limited period relax this condition.***

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2. ***Coal bought from inside CG to Tamnar and Gharghoda area by TPP should be carried by train upto nearest Railway siding if train connectivity is available. From Rly siding to TPP coal may be carried through mechanically operated closed Goods Vehicle or through manual operated Tarpoline covered Goods vehicle. If train connectivity is not available coal may be carried through mechanically operated closed Goods Vehicle or through manual operated***
3. ***Tarpoline covered Goods vehicle. If any exigency arises State PCB may for limited period relax this condition Fly ash is a byproduct of TTP and produced as a result of Coal/lignite Burning. Fly ash is hazardous to environment. For its disposal MoEF has from time to time issued notifications and as per notification 2009 one of the mode is stowing of mines using at least 25% of fly ash on weight to weight basis of the total stoving material used and 25% of fly ash on volume to volume basis on the total material used for external dump of over burden and same percentage in upper benches of back filling of open cast mines, this utilization is to be done under the direction of DGMS.***
4. ***Coal mines although are legally and morally bound to accept minimum above quantity of fly ash from TPP. To achieve this target it is recommended that when coal is sold by the coal company to TPP there should be a condition in the agreement to sell that at least 25 % Fly Ash of the coal sold, should be accepted by the coal company (Seller) from TPP (purchaser) failing which coal company shall be liable for civil action and other legal measures.***
5. ***Before approval of mining plan by the approving authority, approving authority should ensure incorporation of fly ash disposal as required under notification 2009 clause 8(i) and 8(ii).***
6. ***Till carrying capacity report comes, after taking due care to environment, authorities may grant mines, lease, consent permissions, EC etc. After receipt of the carrying capacity report, the same should also be taken as Governing factor."***

Analysis, Findings and Directions

9. We have given due consideration to the report. The Committee has comprehensively gone into the matter in the light of earlier proceedings. It has recorded compliance status of earlier directions in respect of short term and long-term measures and made recommendations to remedy the situation. It has also assessed compensation for the past violations. It has been then concluded that payment of compensation does not exonerate

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the industrial entities and the authorities from remedying the situation for future.

10. As regards compensation, we are broadly in agreement with the violations found and recommendations for compliance except that compensation is not adequate and recommendation for carrying capacity study needs to be expedited.

Compensation liability

11. As noted above, the Committee has held by two Departments of the State (PWD and Health) and seven industrial units responsible for violations, after considering their viewpoint. We agree with the findings of violations. Plea of lack of budget by the PWD to prevent dust pollution is untenable as clean environment is fundamental right under Article 21. Sustainable Development, Precautionary principle and polluter pays principles are to be statutory enforced by this Tribunal under sections 15 and 20 of the NGT Act. If budget is not available, the same has to be collected from the concerned polluters or otherwise arranged by the State and for lack of budget, environment and public health cannot be damaged. This is also the crux of the public trust doctrine which sustains good governance. Once pollution is being caused to the detriment of public health and environment, the State can be held accountable for its failure to take necessary steps. Thus, PWD has rightly been held liable to pay compensation for continuing damage to the public health and environment by failure to maintain/construct road in the area resulting in air pollution. Similarly, if the public health department is not providing health facilities to people affected by pollution, the Health department has to be held accountable as held by the Committee. TRN has been held responsible for unscientifically handling/storing flyash, adversely affecting

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agricultural lands. Damage to dyke has been found. In the case of Mahavir, dumping of flyash in low lying area has been found contrary to guidelines and specifications. The flyash is becoming airborne and flowing in drain, contaminating groundwater. Ash dump is against EC conditions and applicable SOP. CSPGCL has been found dumping flyash on both sides of road and dumping sludge waste on and drain, to the detriment of environment and public health. Ambuja has failed to provide garland drain and found dumping OB on both sides of public road. Ambuja has created OB dump and not developed necessary greenbelt. Gare Palma has dumped flyash and OB in drain meeting river Kelo. Jindal has been held liable for violations of flyash dyke which was later remedied.

12. In view of deficiencies found, quantum of compensation assessed is inadequate. It is based only on number of days of violation, without reference to cost of remediation or financial capacity of the PPs as required inter-alia in *M. C. Mehta & Anr. v. Union of India*[1], *Sterlite Industries (India) Ltd. v. Union of India*[2] and *Goel Ganga Developers India Pvt. Ltd. v UOI*[3]. Deterrent element has also to be included so that causing of pollution is not profitable. The compensation has been assessed only for the days of violation was found during inspection and not for the past violations. The formula evolved by CPCB may be a floor level determination of compensation but the same cannot be universal for all situations and needs to be supplemented by considering the cost of remediation and financial capacity of the PPs as required in terms of law laid down by the Hon'ble Supreme Court which is binding on all authorities. Since this deficiency in compensation assessment is happening repeatedly, it will be

[1] (1987) 1 SCC 395
[2] (2013) 4 SCC 575
[3] (2018) 18 SCC 257

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appropriate that CPCB issues revised guidelines to all the State PCBs/PCCs on this subject.

13. I.A. No. 40/2022 has been filed on behalf of M/s Ambuja Cement Limited objecting to the compensation assessed by the Oversight Committee. We do not find any merit therein. It is submitted that failure to dispose of fly ash is for want of approval by the DGMS for use of fly ash in OB dump, void and back filling. The joint Committee has not appreciated that there is increased demand for fly ash in view of letter dated 22.09.2021 issued by the Ministry of Power and para 13 of the Notification dated 31.12.2021 requiring the TPPs to undertake backfilling of ash in mines. Since no abundant mines are available to the industry, it is not accountable for not utilizing the fly ash. We are unable to accept the objection. The Committee has found failure to develop garland drain, as required and unscientific storing and dumping of OB on sides of public road which certainly is a ground for holding the unit accountable on polluter pays principle. As regards letter of the Ministry of Power dated 22.09.2021, while dealing with an identical issue vide order dated 18.01.2022 in OA No. 164/2018, *Ashwani Kumar Dubey vs. Union of India & Ors.,* this Tribunal has held that the said letter is not to be enforced, being against the spirit of Notification dated 31.12.2021, obstructing speedy utilization of fly ash. The Tribunal also held that Notification dated 31.12.2021 extending time limit for disposal of fly ash could not be interpreted to mean that there is no accountability for scientific handling of such fly ash till its disposal. Operative part of the order is reproduced below:-

> *"1to16….xxx……xxx……xxx*
>
> *17. With regard to past violations generally, we leave the issue of compensation determination to the joint Committees of CPCB, State*

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PCB and District Magistrate within next three months, following due process. Compensation determination must be based on principles laid down inter alia in M.C.Mehta, (1987) 1 SCC 395, Sterlite (2013) 4 SCC 575 and Goel Ganga (2018) 18 SCC 257, having regard to the period of violation and financial capacity of the unit. Mere days of violations are not conclusive without reference to financial capacity of the units. Directions already issued on the subject will be treated as final as far as this Tribunal is concerned, ***subject to final orders of the Hon'ble Supreme Court in appeals filed by the concerned units, if any.***

.....

19. The TPPs have referred to notification dated 31.12.2021 extending timeline for utilisation of legacy fly ash for 10 years, subject to scientific management and subject to 100% utilization on average of three years and not less than 80% in any given year. We are not called upon to express any opinion about the validity of Notification dated 31.12.2021. It may appear to be a retrograde step in the face of quantity of fly ash noted earlier and continuing damage to the environment and public health unless the notification is properly understood and interpreted so as to remedy the situation. ***The object of the notification is not to nullify the mandate of the Air Act or standards of air quality or other norms but to provide further opportunity beyond the earlier timelines, consistent with the mandate of complying with laid down environmental norms which are part of right to life. Violation of laid down air quality and other norms cannot and is not sought to be condoned. Nor there is any bar against remedying deteriorated environment of polluted industrial areas, in the light of recommendations based on ground verification. Thus, issue of violation of norms due to unscientific management and handling of fly ash remains including action against persons responsible for pollution and accidents, apart from issue of compliance of specific conditions of notification dated 31.12.2021 remains.***

20. As noted earlier, situation caused by failure of the TPPs to manage fly ash scientifically and to utilize the same within reasonable time is highly detrimental to public health and emergency measures in Mission Mode are required. Even the Notification dated 31.12.2021 recognizes the alarming situations which is clear from the text of the Notification itself.....

21. In the light of above discussion, it is patent that remedial measures are required in terms of recommendations set out in para 15 above in respect of individual TPPs or other projects as well as general issues applicable to all the TPPs such as timely installation of air pollution control and monitoring devices, timely utilisation and disposal of fly ash, scientific designing of fly ash dykes and safety norms, addressing public health issues, steps for restoration of deteriorated environment by bringing down CEPI scores in the entire area, restoration of Rihand Reservoir and other damaged/degraded areas, providing arrangement for public health facilities, including water supply and by coordinated and concerted efforts and high level monitoring. The PP are to be accountable

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for past violations and are under obligation to remedy the violations and follow the norms for future. The regulators are to enforce the same and higher authorities are to oversee. Accordingly, following direction are issued:

i. ***We direct constitution of a fly ash management and utilization Mission to be jointly headed by the Secretaries, MoEF&CC, Coal and Power, GoI and Chief Secretaries of UP and MP. The Secretary, MoEF&CC will be the nodal agency for coordination and compliance. The Mission will coordinate and monitor issues relating to handling and disposal of flyash as well as all associated issues in the light of above discussion. It may hold its first meeting within one month to take stock of the situation and to prepare action plan in the light of recommendations of Joint Committees quoted earlier in para 15 above in respect of individual plants as well as road map generally. Thereafter, it may meet atleast once in a month for one year to review the progress. The resolutions of the Mission and quarterly progress may be placed on the website of MoEF&CC for information of the stake holders and inhabitants in the area. The Mission will be free to interact with the concerned Government Departments/ Expert institutions/ individuals/other stakeholders. The Mission may in its first meeting require voluntary financial contribution by all the projects in proportion of the financial capacity of the projects out of CSR funds or otherwise. The contribution, alongwith compensation which may be collected may be credited to a separate environment restoration account for restoration of environment and relief to the victims of damage to the environment in such manner as may be found necessary by the Mission. Any victim or aggrieved party will be free to approach the Mission for providing such relief. The Mission may also consider the safeguards laid down in the Notification dated 31.12.2021, particularly for safety audits of the ash dykes which should be conducted particularly for structural stability, as far as possible within six months. Advisory issued by the Ministry of Power dated 22.9.2021 will not be enforced being against the spirit of notification dated 31.12.2021 and obstructing much needed speedy utilisation/disposal of legacy flyash. The Mission may evolve mechanism for interaction with stake holders, including associations of brick kiln owners. Guidelines be also issued for siting, design and engineering standards for the location, disposal, maintenance and regulation of Ash Ponds as breach of a fly ash ponds result in great disaster. Public health and risk impact assessment in the areas of operation of TPPs and generators of fly ash may be got conducted. The Mission may also monitor scientific management and utilization of fly ash by power projects outside Singrauli and Sonebhadra, in coordination with Chief Secretaries of concerned States and adopting safety measures for ash dykes, installing devices to control air pollution, (including FGDs, OCEMS) in a time bound***

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manner and restoration of environment and public health. The Mission may also consider use of beneficiated coal. It may in particular consider on-site and off-site crisis management plans with regard to fly ash ponds and dykes. *As noted earlier, legacy fly ash is 1670.602 Million Tonnes as on 31.12.2021 and data of ash generation and utilization of legacy fly ash is as follows:*

*"**Summary of Ash Generation and Utilization during year 2020-21***

No. of Thermal Power Stations:	*191*
Capacity (MW:	*2,13,030 MW*
Coal consumed :	*672.130 Million Tonnes*
Fly Ash Generation:	*222.789 Million Tonnes*
Fly Ash Utilization:	*205.098 Million Tonnes*
Percentage Utilization:	*92.06%*
Legacy flyash:	*1670.602 Million Tonnes*

The Committee of Secretaries, in coordination with PPs and statutory regulators, may draw a roadmap for utilization and disposal of entire legacy fly ash for Sonebhadra and Singrauli areas as well as for all the Power Plants located in clusters or standalone with tagging the sources to utilize fly ash on voluntary and compulsion mode for which required mechanism be laid down.

ii. *With regard to past violations, the PPs remain liable and the Joint Committee of CPCB, State PCB and jurisdictional District Magistrates may determine compensation following due process, on the principles laid down inter alia in M.C. Mehta, (1987) 1 SCC 395, Sterlite (2013) 4 SCC 575 and Goel Ganga (2018) 18 SCC 257, having regard to the period of violation and financial capacity of the unit. The PPs may take remedial measures as per recommendations of the Committee and as per law, failing with coercive measures for continuing or future violations be taken by concerned authorities.*

iii. *Statutory regulators may take action in terms of need for compliances in the light of recommendations with regard to individual Plants as well as generally so as to require the concerned PPs to comply, failing which coercive measures be taken by the statutory regulators in accordance with law.*

iv. *In respect of incident dated 10.04.2020, compensation paid to heirs of the deceased at the rate of Rs. 10 lakhs per death is increased to Rs. 15 lakhs on principles laid down inter alia in Sarla Verma (2009) 6 SCC 121 and Uphaar Cinema (2011) 14 SCC 481. We direct the remaining amount to be paid within one month. This order will not debar the heirs of the victims to claim higher compensation by approaching appropriate forum. If the salaries to persons appointed as compensation to the victims are below minimum wages, the PP may ensure compliance of law on the subject which may be also looked into by the concerned Labour Departments of the State of UP and MP. The statutory*

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regulators may take further remedial action in terms of recommendations of the Committee in OA 148/2020, quoted earlier for restoration of environment and preventing such incidents.

v. With regard to breach of Rihand Reservoir also, further remedial measures be taken in terms of recommendations on the subject, quoted in para 15 above."

14. Similarly, we do not find any merit in the reply filed on behalf of Mahavir Energy & Coal Benefication Limited, against proposed compensation. It is submitted that notification issued by the MoEF&CC under Section 5 of the Environment (Protection) Act, 1986 for utilization of fly ash from coal or lignite based Thermal Power Plant does not apply to the said industry as the said industry is not using coal or lignite but biomass.

15. This stand cannot be accepted. As seen earlier, Mahavir has been found dumping flyash unscientifically in low areas against specifications and guidelines which are becoming airborne causing pollution and flowing in drain contaminating ground water. Ash dump is in violation of SOP and EC conditions. Thus, whatever be the fuel used and *dehors* the notification of the MoEF&CC referred to by the applicant, scientific handling and disposal of fly ash is mandate of 'Precautionary' principle of Environmental Law for protection of environment. In view of specific violations causing air and water pollution in violation of EC conditions, the stand of the industry is untenable and is rejected.

16. Having regard to overall factual situation discussed above, while directing compensation assessed by the Committee be deposited as an interim compensation with the State PCB within two months, for restoration of the environment, we direct the State PCB to put M/s TRN Energy Private Limited, Nawapara Raigarh, M/s Hindalco Industries

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Limited Coal Mine, M/s Jindal Steel & Power Limited, Dongramau, Tamnar, M/s Chhattisgarh State Power Generation Company Limited and M/s Jindal Power Ltd., Tamnar, PWD and Health Departments through the Chief Secretary, Chattisgarh to notice of these proceedings with view to provide them opportunity to show cause why higher compensation be not determined, having regard to the said violations, having regard to their financial capacity. M/s Ambuja Cement Limited Coal Mine (GP IV/8) and M/s Mahavir Energy and Coal benefication Limited already represented in today's proceedings are put to notice through appearing counsel. The said entities may file their response, if any, within one month time from date of receipt of notice. The individuals who have been held entitled to compensation may be paid compensation out of the amount deposited. The State of Chhattisgarh and other entities may remedy the violations in terms of the observation of the Committee and file an affidavit of compliance failing which they will be held liable for further compensation.

Further recommendations about remedial measures

17. Further, the recommendation of the Committee in respect of short term and long-term measures need to be complied with by the industries in question as well as by the State of Chhattisgarh. This may be overseen by the joint Committee if any continuing violations founds, the violators will be held accountable by way of prosecution and liable to pay compensation.

Carrying capacity study

18. With regard to carrying capacity study, we are of the view that observation in para 2.1.3 of the Committee of requiring such study within 24 months cannot be accepted. The data is already available on the basis of which carrying capacity can be studied within three months. This may

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be got done by CPCB and State PCB with the assistance of any other experts/ agencies. Funds available with CPCB/State PCB may be utilised, subject to further orders.

Conclusion

19. Above resume of discussion shows that there is continued damage to the environment and public health by indiscriminate storing, transportation and disposal of fly ash in District Raigarh in Chhattisgarh. Remedial action has been duly identified in form of short-term and long-term measures but the action so far taken is not adequate. Absence of health facilities for the victims is unfortunate and needs to be remedied. Absence of suitable roads in the area added to the problem in the form of continued air pollution and even road accidents. This needs to be remedied by the concerned departments, including PWD and health Departments of the State. The industrial units have failed to follow the laid down environmental norms as per EC/Consent conditions which include requirement to comply with the Water and Air Acts. Wherever CCTV camaras and CAAQMS have still not been installed, the same need to be complied.

Directions

20. To sum up, our directions are:

(a) The State of Chhattisgarh and concerned Industrial units may deposit assessed compensation as interim compensation within two months, to be utilised for restoration of the environment, as per plan to be got prepared and executed by the Committee.

(b) Remedial measures be taken by the CPCB, State PCB, State of Chhattisgarh and the concerned Industrial units and the

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authorities in the light of report of the Committee and observations of this Tribunal, hereinabove.

(c) The State PCB may put the concerned industrial units to notice of these proceedings other than those who have put in appearance in the light of observations in Para 16 above, to enable the State and such units to file their response, if any.

(d) In the light of order of this Tribunal dated 18.01.2022 in OA No. 164/2018, *Ashwani Kumar Dubey vs. Union of India & Ors.* quoted above in Para 13, compensation may be redetermined, subject to final orders of the Hon'ble Supreme Court in Appeal, if any, filed by the affected parties.

(e) Having regard to aggravated adverse impact of the fly ash during the summer season, the State PCB may take appropriate remedial safeguards by issuing appropriate directions to the Project Proponents in question on the subject. For suppression of fly ash dust emissions, sprinkling be ensured utilising treated water and refraining from use of ground water or fresh water in view of already depleted level of groundwater.

(f) In view of order of this Tribunal in OA No. 164/2018, *Ashwani Kumar Dubey vs. Union of India & Ors.*, quoted earlier, TPPs and other projects have to install requisite devices, take steps for timely utilization of disposal of fly ash, scientific designing of fly ash dykes, address issues relating to public health and restoration of deteriorated environment, providing water supply to affected persons and higher-level monitoring by the statutory regulators. Fly Ash Management and Utilization Mission constituted by the Tribunal headed by the Secretary, MoEF&CC may also look into the issues with regard to fly ash management

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and utilization in Raigarh District. There has to be executable time bound plan to remove fly ash in Raigarh District for which a road map be prepared by the joint Committee and may also be overseen by the Mission in its next meeting, in coordination with concerned authorities.

(g) Consistent with the Notification dated 31.12.2021 issued by the MoEF&CC, audit of fly ash generation and management be got conducted within three months in respect of each unit generating fly ash in Raigarh District.

(h) CPCB may issue necessary guidelines to all PCBs/PCCs on determination of compensation in the light of observations in para 12 above.

(i) Any other victim of Raigarh District adversely affected by the operation of the TPPs with respect to fly ash in Raigarh District to put forward their claim, if any, with the District Magistrate, Raigarh, within two months which may be looked into by the joint Committee.

(j) The District Environment Plan of Raigarh District may cover all above aspects appropriately so as to be addressed in execution of District Environment Plan in association with stakeholders.

(k) The joint Committee may ensure that there is effective monitoring mechanism to address the issues on continuous basis.

21. Report of compliance status as on 30.06.2022 may be filed by the joint Committee by 15.07.2022 which may also be uploaded on the websites of CPCB and State PCB for response of affected parties, if any, by 31.07.2022.

List for further consideration on 05.08.2022.

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IAs stand disposed of in view of above order.

A copy of this order be forwarded to MoEF&CC, CPCB, Chief Secretary Chattisgarh, State PCB and District Magistrate, Raigarh by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Dr. Nagin Nanda, EM

February 15, 2022
Original Application No. 104/2018
(I.A. Nos. 37/2022 & 40/2022)
A

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ANNEXURE - C

क्षेत्रीय कार्यालय
छ.ग. पर्यावरण संरक्षण मंडल
टी.व्ही.टॉवर रोड, रायगढ़ (छ.ग.)

Email ID: roraigarh.cecb@gmail.com

जावक क्र. 2567 /क्षे. का./प.सं.मं./2022 रायगढ़, दिनांक 03/03/22

प्रति,

मेसर्स जिंदल पॉवर लिमिटेड,
तमनार, जिला–रायगढ़ (छ.ग.)

मेसर्स टी.आर.एन. इनर्जी प्राईवेट लिमिटेड,
नवापारा टेण्डा, तहसील–घरघोड़ा
जिला–रायगढ़ (छ.ग.)

मेसर्स छत्तीसगढ़ स्टेट पॉवर जनरेशन कंपनी लिमिटेड,
गारे पेलमा सेक्टर–02, कोल माईन,
जिला–रायगढ़ (छ.ग.)

मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड,
गारे पेलमा IV/4, कोल माईन,
जिला–रायगढ़ (छ.ग.)

मेसर्स जिंदल स्टील एण्ड पॉवर लिमिटेड,
डोंगामहुआ, जिला–रायगढ़ (छ.ग.)

मेसर्स महावीर इनर्जी एण्ड कोल बेनिफिकेशन लि.,
ग्राम–भेंगारी, तहसील–घरघोड़ा,
जिला–रायगढ़ (छ.ग.)

मेसर्स अंबुजा सीमेंट लिमिटेड,
गारे पेलमा IV/8, कोल माईन,
ग्राम–करवाही, जिला–रायगढ़ (छ.ग.)

विषय :– माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली में विचाराधीन प्रकरण क्रमांक 104/2018 के संबंध में।

संदर्भ :– माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली प्रकरण क्रमांक 104/2018 में पारित आदेश दिनांक 15.02.2022

– – 00 – –

उपरोक्त विषयांतर्गत लेख है कि माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली में विचाराधीन प्रकरण क्रमांक 104/2018 में पारित आदेश दिनांक 15.02.2022 के द्वारा आपके इकाई/संस्थान पर पर्यावरणीय मानको के उल्लंघन पर पर्यावरणीय क्षतिपूर्ति अधिरोपित की गई है। माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली द्वारा पारित आदेश में 02 माह के समयावधि में उक्त क्षतिपूर्ति राज्य प्रदूषण नियंत्रण बोर्ड/छत्तीसगढ़ पर्यावरण संरक्षण मण्डल में जमा किये जाने हेतु आदेशित किया गया है। उक्त आदेश के परिपेक्ष्य में पर्यावरणीय क्षतिपूर्ति मण्डल मुख्यालय, छत्तीसगढ़ पर्यावरण संरक्षण मण्डल, नवा रायपुर में MS (EC) C.G. Environment Conservation Board, Raipur डिमांड ड्राफ्ट के माध्यम से जमा करना सूनिश्चित करें।

क्षेत्रीय अधिकारी,
छ.ग. पर्यावरण संरक्षण मंडल,
जिला रायगढ़ (छ.ग.)

पृ. जावक क्र. /क्षे. का./प.सं.मं./2022 रायगढ़, दिनांक

प्रतिलिपि :–

सदस्य सचिव, छत्तीसगढ़ पर्यावरण संरक्षण मण्डल, पर्यावास भवन, नार्थ ब्लॉक, सेक्टर–19, नवा रायपुर, अटल नगर, जिला–रायपुर (छ.ग.) की ओर सूचनार्थ प्रेषित।

क्षेत्रीय अधिकारी,
छ.ग. पर्यावरण संरक्षण मंडल,
जिला–रायगढ़ (छ.ग.)

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ANNEXURE - C

REGIONAL OFFICE

CHHATTISGARH ENVIRONMENT COSERVATION BOARD

T.V. TOWER ROAD, RAIGARH, CHHATTISGARH

Email ID : roaraigarh.cccb@gmail.com

Issue No.2567/Regional Office/Environment Conservation Board/2022 Raigarh dated 03.03.2022

To

1. M/s Jindal Power Limited, Tamnagar, District Raigarh, Chhattisgarh.
2. M/s T.R.N. Energy Private Limited, Nawapara Tenda, Tehsil-Gharghera, District Raigarh, Chhattisgarh.
3. M/s Chhattisgarh State Power Generation Company Limited, Gare Pelma, Sector-2, Coal Mines, District Raigarh, Chhattisgarh.
4. M/s Hindalco Industries Limited, Gare Pelma IV/4, Coal Mines, District Raigarh, Chhattisgarh.
5. √M/s Jindal Steel & Power Limited, Dongamhua, District Raigarh, Chhattisgarh.
6. M/s Mahaveer Energy & Coal Benification Limited, Village Bhengari, Tehsil-Gharghora, District Raigarh, Chhattisgarh.
7. M/s Ambuja Cement Limited, Gare Pelma, IV/8, Coal ne, Village Karwahi, District Raigarh, Chhattisgarh.

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Subject: With regard to the Case No.104/2018 which pending consideration before the Hon'ble National Green Tribunal, New Delhi.

Reference : The Order dated 15.02.2022 passed in the Case No.104/2018 by the Hon'ble National Green Tribunal, New Delhi.

With regard to the above subject matter it is submitted that by the Order dated 15.02.2022 passed in the Case No.104/2018 by the Hon'ble National Green Tribunal, New Delhi on your Unit / Organization on the violation of the Environment Standard the Environment Compensation has been imposed. By the Hon'ble National Green Tribunal, New Delhi in the passed Order within 2 months period of time the above compensation for depositing the same before the State Pollution Control Board / Chhattisgarh Environment Conservation Board the order has been given. In the context of the above Order in the Environment Compensation Board Headquarter, Chhattisgarh Environment Board, New Raipur through the MS (EC) C.G. Environment Conservation Board, Raigarh please ensure to deposit the same.

Sd/- illegible

Regional Officer

Chhattisgarh Environment Conservation Board

District Raigarh, Chhattisgarh

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Back Issue No. /Regional Area/Environment Conservation Board/2022 Raigarh dated ……

Copy sent to :-

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Regional Officer

Chhattisgarh Environment Conservation Board

District Raigarh, Chhattisgarh

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ANNEXURE - D

क्षेत्रीय कार्यालय
छ.ग. पर्यावरण संरक्षण मंडल
टी.व्ही.टॉवर रोड, रायगढ़ (छ.ग.)

Email ID: roraigarh.cecb@gmail.com

जावक क्र. 2569 /क्षे. का./प.सं.मं./2022 रायगढ़, दिनांक 03/03/22

प्रति,

मेसर्स जिंदल पॉवर लिमिटेड,
तमनार, जिला–रायगढ़ (छ.ग.)

मेसर्स टी.आर.एन. इनर्जी प्राईवेट लिमिटेड,
नवापारा टेण्डा, तहसील–घरघोड़ा
जिला–रायगढ़ (छ.ग.)

मेसर्स छत्तीसगढ़ स्टेट पॉवर जनरेशन कंपनी लिमि.
गारे पेलमा सेक्टर–02, कोल माईन,
जिला–रायगढ़ (छ.ग.)

मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड,
गारे पेलमा IV/4, कोल माईन,
जिला–रायगढ़ (छ.ग.)

मेसर्स जिंदल स्टील एण्ड पॉवर लिमिटेड,
डोंगामहुआ, जिला–रायगढ़ (छ.ग.)

विषय :– माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली प्रकरण क्रमांक 104/2018 के संबंध में।
संदर्भ :– माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली प्रकरण क्रमांक 104/2018 में पारित आदेश दिनांक 15.02.2022

– – 00 – –

उपरोक्त विषयांतर्गत लेख है कि माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली प्रकरण क्रमांक 104/2018 में पारित आदेश दिनांक 15.02.2022 के द्वारा आपके इकाई/संस्थान पर पर्यावरणीय मानको के उल्लंघन पर पर्यावरणीय क्षतिपूर्ति अधिरोपित की गई है। पारित आदेश की छायाप्रति संलग्न है। माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली द्वारा और अधिक पर्यावरणीय क्षतिपूर्ति अधिरोपित करने बाबत पारित आदेश में उल्लेख किया गया है। अधिरोपित की गई क्षतिपूर्ति के विरूद्ध क्यों ना और अधिक क्षतिपूर्ति राशि अधिरोपित ना की जाये तत्संबंध आप अपना पक्ष यदि रखना चाहे तो माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली के समक्ष रख सकते है। कृपया सूचनार्थ एवं अग्र कार्यवाही हेतु प्रेषित।

संलग्न :– माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली का आदेश दिनांक 15.02.2022

क्षेत्रीय अधिकारी,
छ.ग. पर्यावरण संरक्षण मंडल,
जिला–रायगढ़ (छ.ग.)

पृ. जावक क्र. /क्षे. का./प.सं.मं./2022 रायगढ़, दिनांक .....

प्रतिलिपि :–

सदस्य सचिव, छत्तीसगढ़ पर्यावरण संरक्षण मण्डल, पर्यावास भवन, नार्थ ब्लॉक, सेक्टर–19, नवा रायपुर, अटल नगर, जिला–रायपुर (छ.ग.) की ओर सूचनार्थ प्रेषित।

क्षेत्रीय अधिकारी,
छ.ग. पर्यावरण संरक्षण मंडल,
जिला–रायगढ़ (छ.ग.)

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ANNEXURE - D

REGIONAL OFFICE

CHHATTISGARH ENVIRONMENT COSERVATION BOARD

T.V. TOWER ROAD, RAIGARH, CHHATTISGARH

Email ID : roaraigarh.cccb@gmail.com

Issue No.2569/Regional Office/Environment Conservation Board/2022 Raigarh dated 03.03.2022

To

1. M/s Jindal Power Limited, Tamnagar, District Raigarh, Chhattisgarh.
2. M/s T.R.N. Energy Private Limited, Nawapara Tenda, Tehsil-Gharghera, District Raigarh, Chhattisgarh.
3. M/s Chhattisgarh State Power Generation Company Limited, Gare Pelma, Sector-2, Coal Mines, District Raigarh, Chhattisgarh.

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4. M/s Hindalco Industries Limited, Gare Pelma IV/4, Coal Mines, District Raigarh, Chhattisgarh.

5. M/s Jindal Steel & Power Limited, Dongamhua, District Raigarh, Chhattisgarh.

Subject: With regard to the Case No.104/2018 of the Hon'ble National Green Tribunal, New Delhi.

Reference : The Order dated 15.02.2022 passed in the Case No.104/2018 by the Hon'ble National Green Tribunal, New Delhi.

With regard to the above subject matter it is submitted that by the Order dated 15.02.2022 passed in the Case No.104/2018 by the Hon'ble National Green Tribunal, New Delhi on your Unit / Organization on the violation of the Environment Standard the Environment Compensation has been imposed. Photocopy of the passed order has been enclosed. By the Hon'ble National Green Tribunal, New Delhi for more imposing the Environment Compensation as has been described in the passed Order. Against the

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compensation which has been imposed why not more compensation amount may not be imposed. With regard to the same in case you want to keep your version then you may keep your version before the Hon'ble National Green Tribunal, New Delhi. This has been sent for your humbly information and action purposes.

Enclosure: The Order dated 15.02.2022 passed in the Case No.104/2018 by the Hon'ble National Green Tribunal, New Delhi.

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Regional Officer

Chhattisgarh EnvironmentConservation Board

District Raigarh, Chhattisgarh

Back Issue No. /Regional Area/Environment Conservation Board/2022 Raigarh dated ……

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The Member Secretary, Chhattisgarh Environment Conservation Board, Paryavaran Bhawan, North Block, Sector-19, Nawa Raipur, Atal Nagar,

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District Raipur, Chhattisgarh for information purposes.

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Regional Officer

Chhattisgarh Environment Conservation Board

District Raigarh, Chhattisgarh

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ANNEXURE - E

JINDAL POWER

JPL/EMD/CECB/2021/134 03.05.2021

The Regional Officer,
Chhattisgarh Environment Conservation Board,
T.V. Tower Road,
Raigarh.

Sub.:- Regarding Hon'ble NGT, case no. 104/218 of Shivpal Bhagat Vs Union of India other.

Ref.:- Your office Letter No. 2027/RO/CECB/2021, Raigarh, dated 25-03-2021.

Dear Sir,

This is in reference to above letter we would like to inform you that the leakage found at ash dye during the NGT committee visit has been arrested. Stability report of the ash dyke is attached as Annexure-1

This is for your information and record please.

Thanking you,

Yours faithfully,

For Jindal Power Ltd.

HOD
Environment Management Department

Jindal Power Limited
CIN No: U04010CT1995PLC008985
Corporate C ...tre, 12 Bhikaiji Cama Place, New Delhi 110 066
T +91 11 41... 11 2616 1271 E info@jindalpower.com W www.jindalpower.com
Registered Office Tamnar - 496 107, District Raigarh, Chhattisgarh

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ANNEXURE - F

4 X 250 MW O. P. JINDAL SUPER THERMAL POWER PLANT AT TAMNAR, RAIGARH

OWNER: JINDAL POWER — JINDAL POWER LIMITED (JPL)

ENGINEERING CONSULTANT: L&T-S&L — L&T-SARGENT & LUNDY LIMITED

L&T-S&L JOB NO. : T829000

TITLE :

CONSTRUCTION OF ASH DYKE (STAGE-II) DESIGN CALCULATION & STABILITY ANALYSIS FOR RAISING OF ASH DYKE

DOC/DRG NO. : T829000-XW03-00-UEV-160001	REV: 0	TOTAL NO. OF PAGES. :

JINDAL POWER LIMITED			OWNER / OWNER'S CONSULTANT	
DOC. CATEGORY (USE TICK MARK)	A ✓	1	REVIEW / APPROVAL CODE:	
ISSUED FOR: ☐ INFORMATION ☐ APPROVAL ☐ INQUIRY ☐ ORDER ☐ CONSTRUCTION ☐ AS BUILT ✓			a ✓ APPROVED; b APPROVED EXCEPT AS NOTED, FORWARD FINAL DRAWING; c APPROVED EXCEPT AS NOTED, RESUBMISSION REQUIRED; d DISAPPROVED; e FOR INFORMATION / REFERENCE ONLY	
SIGN :	DATE:		NAME	DISCIPLINE / SIGN, DATE

Prof. S.R. GANDHI, Department of Civil Engineering, IIT Madras, Chennai-600036, e-mail:srgandhi@iitm.ac.in

REVISION CERTIFICATION

REVISION No.	PREPARED		REVIEWED					APPROVED	
	NAME	DATE	NAME MECH	CIVIL	ELEC	C&I	DATE	NAME	DATE
A	SDA	18/06/2014	-	JCS	-	-	24/06/2014	TVS	30/06/2014
0	RS	20/06/2015	-	SDA	-	-	22/06/2015	TVS	23/06/2015

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CONTENT

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2.0	Design Input	3
3.0	Assumptions	3
4.0	Methodology and Acceptance Criteria	3
5.0	Calculation	5
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1.0 Purpose and Scope:

The purpose of this document is to furnish stability analyses of Stage II ash dyke raising and design of new decantation well & its foundation inside the existing filled up ash pond for 4x250 MW O. P. Jindal Super Thermal Power Plant at Tamnar, Raigarh.

2.0 Design Input:

Sr. No.	Document No.	Document Title
1	K4A07-DWG-S-33A	Ash Dyke Area Layout and Details
2	K8B15-DWG-S-0037A	Modification of Existing Ash Dyke Area Layout and Details of Modification
3	--	Geotechnical Investigation Work for existing Ash Dyke of 4x250 MW Tamnar Project at Raigarh by CETEST
4	--	Stability Analysis of the Embankment of the Fly-Ash Dyke in Jindal Power Limited (For Starter Dyke)
5	--	Geotechnical Investigation for Approach Road & Lagoon-1 Bund Slope Stability Analysis of Ash Dyke at 4 x 250 MW Jindal PowerPlant at Tanmar, Raigarh, Chatisgarh

3.0 Assumptions

There exists no major assumption throughout the entire calculation. Engineering assumptions, if any, will be discussed and justified when used. However, standard engineering practice has been followed where required and has been identified within the body of calculation at relevant locations.

4.0 Methodology and Acceptance criteria

4.1 Material of Construction and Soil Parameters

4.1.1 Material

Cohesion of starter dyke bearing stratum, c : 30 kPa (Cl.2.0, Sr. No.5)
Angle of internal friction of starter dyke bearing stratum, Φ : 15 degree (Cl.2.0, Sr. No.5)

Cohesion of starter dyke material (soil), c : 30 kPa (Cl.2.0, Sr. No.4)
Angle of internal friction of starter dyke material (soil), Φ : 15 degree (Cl.2.0, Sr. No.4)

Cohesion of stage I dyke material & pond ash, c : 6 kPa (Cl.2.0, Sr. No.3)
Angle of internal friction of stage I dyke material & pond ash, Φ : 30 degree (IRC SP58)

Cohesion of stage I dyke material & pond ash, c : 6 kPa (Cl.2.0, Sr. No.3)
Angle of internal friction of stage I dyke material & pond ash, Φ : 34 degree (EJ: Compacted)

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Angle of internal friction of rock toe material, Φ : 40 degree (EJ)

(EJ:- Engineering Judgment)

4.1.2 Unit Weight

Starter dyke bearing stratum	: 19.07 kN/m^3 (Cl.2.0, Sr. No.5)
Starter dyke material (soil)	: 19.6 kN/m^3 (Cl.2.0, Sr. No.4)
Pond ash	: 13.0 kN/m^3 (EJ)
Stage I dyke material (using pond ash)	: 14.0 kN/m^3 (Cl.2.0, Sr. No.3)
Rock toe material	: 14.0 kN/m^3 (EJ)

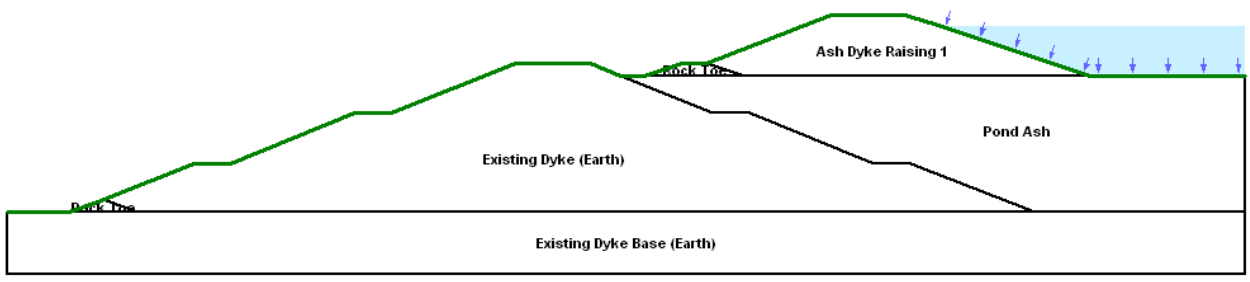
4.2 Methodology

Geometry of the Structure

Existing ash pond has three compartments at present. One compartment is already raised up to RL.278 m. For the rest portion dyke top is at RL. 270 m. Stage I raising of ash dyke will be done for this portion up to RL. 274 m. An additional partition dyke will be provided to make provision of four compartments. Pond is already filled up with ash up to RL. 269.0 m Stage I ash dyke will be raised above this ash bed from RL. 269 m to RL. 274 m. Slope on both upstream and downstream side of the ash dyke is considered as 1 vertical (V): 3 horizontal (H). 1 m freeboard is assumed i.e. ash water level is considered up to RL. 273 m. for the ash dyke along periphery continuous vertical sand chimney has been provided to allow smooth flow of seepage water (if any) keeping the downstream face dry. Seepage water will pass through the horizontal sand blanket provided at intervals and finally come out through rock toe. Water from the rock toe drain will be carried out by means of pipes to the surface drain existing on the starter dyke face.

The structure along with the existing starter dyke outline has been modelled in Geo-Studio 2007 (SEEP/W & SLOPE/W) to perform the analysis. Sand chimney or blanket is not considered in the analysis conservatively. 1 m high rock toe with 1 m top width has been included in the model as shown in design drawing. Analysis has been performed for the peripheral dyke raising. The condition applicable to the peripheral dyke fulfils the criteria for partition dyke also.

Stability of the stage I dyke has been checked for different conditions as applicable for construction and / or operation phase. Stability of starter dyke has also been checked for additional loading expected from the future raisings.



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4.3 Acceptance Criteria

The dyke shall be safe and stable during all phases of construction and operation of the pond, the analysis shall be done for all possible conditions which are likely to occur in practice.

The dykes are analysed for the following conditions:

Steady Seepage Condition

Earthquake Condition (Pseudo static)

The minimum factor of safety required for different loading conditions as given in the IS: 7894 – 1975 are furnished below.

Loading condition	Minimum FOS required
Steady Seepage Condition	1.5
Earthquake Condition (Pseudo static)	1.0

5.0 Calculation

5.1 Slope Stability Analysis

5.1.1 Pseudo static Seismic Coefficient

The design horizontal seismic coefficient (α_h) is considered 0.10. (Assumed)

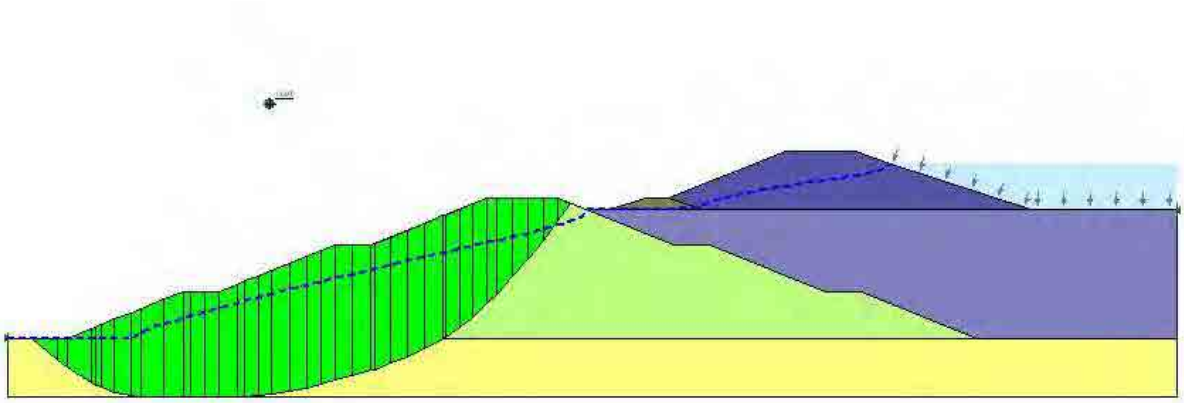
Vertical seismic coefficient (α_v) is taken as the two third of Ah i.e. 0.07.

5.1.2 Analysis

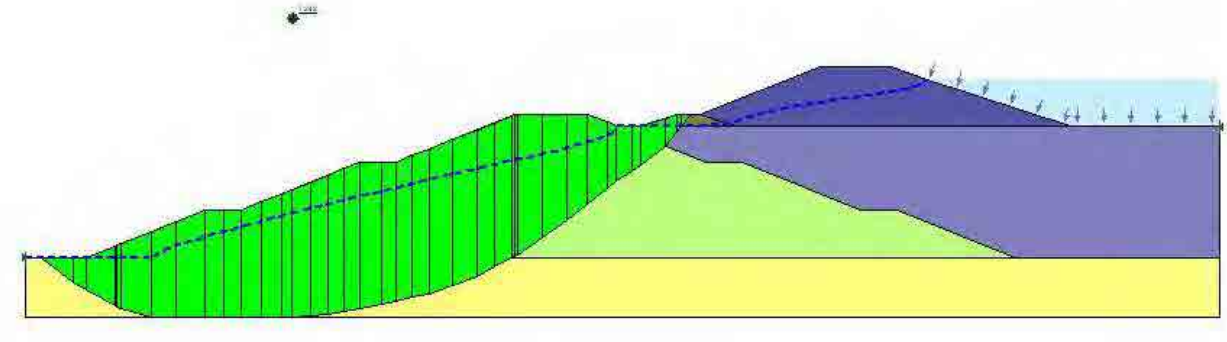
For slope stability analysis, Limit equilibrium approach (Morgenstern-Price method) has been used. In this method, all inter-slice forces are considered and it satisfies all equations of statics. Analysis files of slope stability analysis have been furnished in Attachment B.

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Stability of starter dyke after stage-I raising – Steady Seepage Condition
Factor of Safety: 1.687



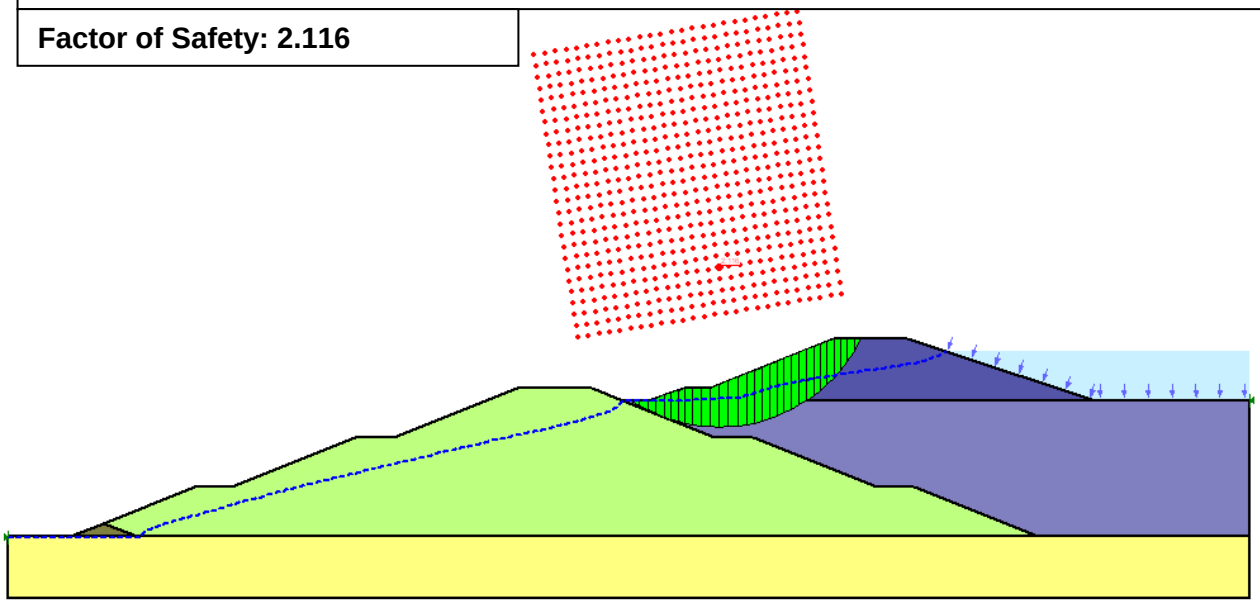
Stability of starter dyke after stage-I raising – Earthquake Condition
Factor of Safety: 1.242



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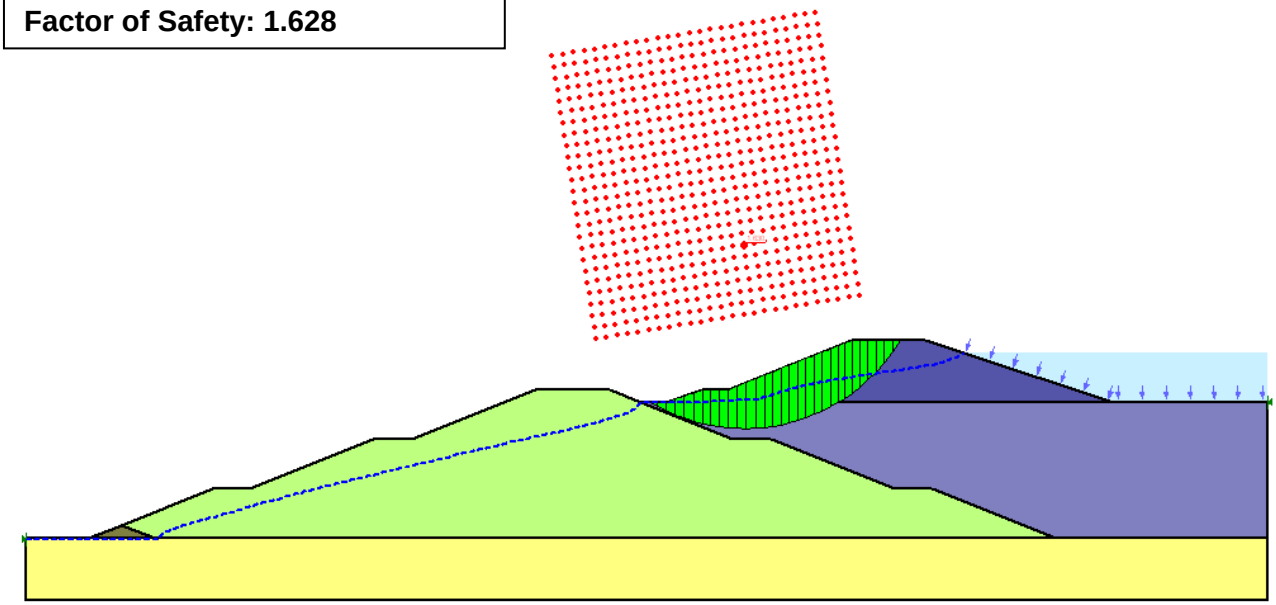
Stability of stage-I dyke – Steady Seepage Condition

Factor of Safety: 2.116



Stability of stage-I dyke – Earthquake Condition

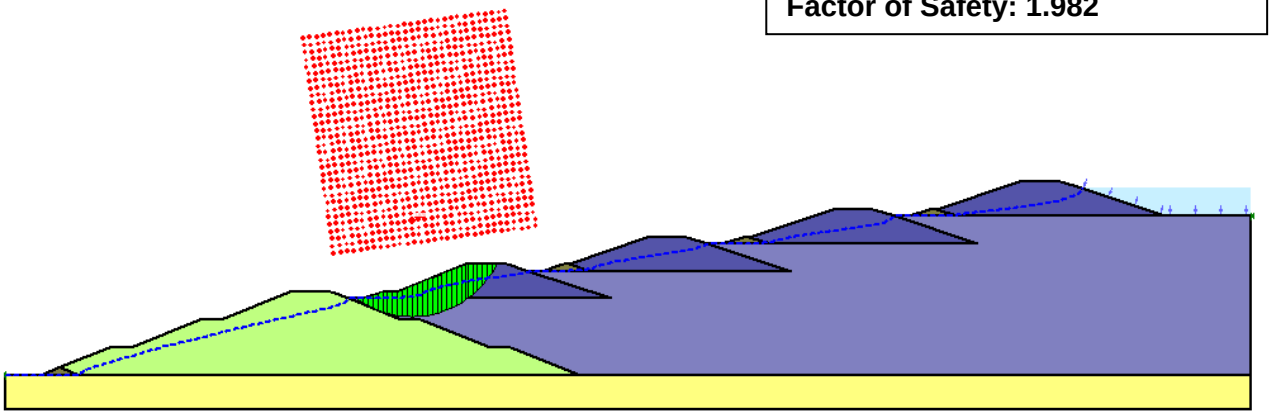
Factor of Safety: 1.628



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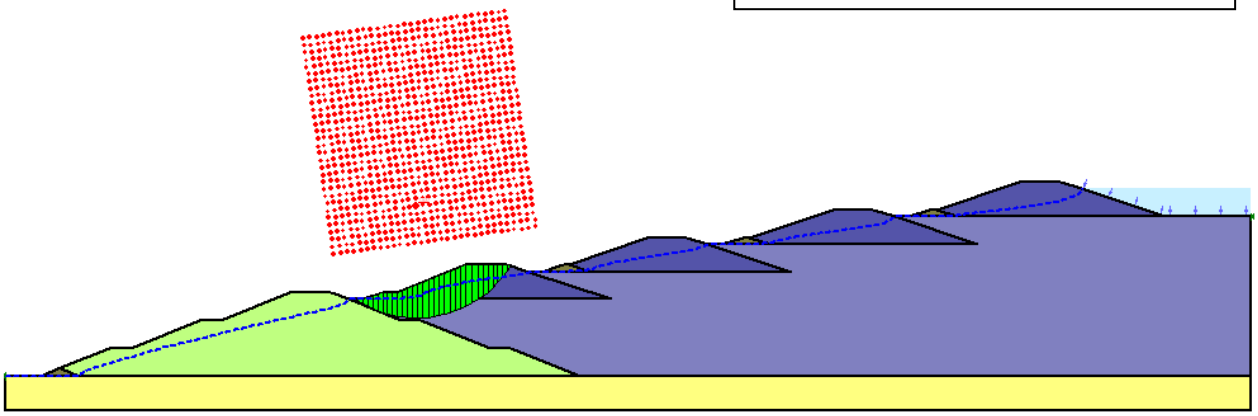
Stability of stage-I dyke after multistage raising – Steady Seepage Condition

Factor of Safety: 1.982



Stability of stage-I dyke after multistage raising – Earthquake Condition

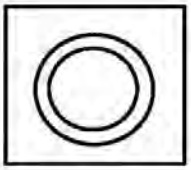
Factor of Safety: 1.525

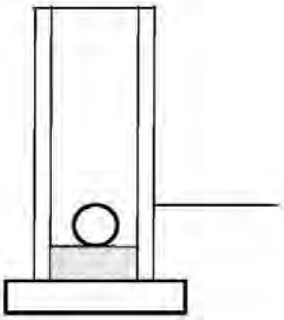


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5.2 Design of Decantation Well & Foundation

Inside diameter of well	3 m	Unit weight of soil / ash	19 kN/m^3
Wall thickness	0.3 m	Unit weight of PCC	24 kN/m^3
Outside diameter of well	3.6 m	Unit weight of concrete	25 kN/m^3
Centre line diameter of well	3.3 m	Unit weight of water	10 kN/m^3
Height of well above EGL	5 m		
Net safe allowable bearing pressure	80 kN/m^2		
Permissible stress in reinf. steel	130 N/mm^2	For uncracked section	
Depth of foundation below EGL	2.5 m		
Centre of hume pipe below EGL	1 m		
PCC filling	0.5 m		
Thickness of foundation	0.5 m		
Height of soil / ash	2 m		
Hight of water inside well	6.5 m		
Water pressure on foundation	65 kN/m^2		
Soil pressure on foundation	38 kN/m^2		
Pressure for PCC on foundation	12 kN/m^2		
Wall Load	175 kN/m^2		





Case - I:- Inside empty, soil outside

Co-efficient of active earth pressure	0.33
Submerged soil pressure	5.94 kN/m^2
Water pressure	20 kN/m^2
Total horizontal pressure	25.94 kN/m^2
Hoop tension due to lateral pressure	42.80 kN/m
Area of steel required	329.24 mm^2
Minimum area of steel required	600 mm^2

Case - II:- Water inside, no soil outside

Water pressure	70 kN/m^2
Hoop tension due to lateral pressure	115.50 kN/m
Area of steel required	888.46 mm^2
Area of steel required to be provided	888.46 mm^2
Provide T 16 @ 200 c/c hoop reinforcement	
Area of steel provided	1005 mm^2
Minimum vertical reinforcement reqd.	360 mm^2
Provide T 16 @ 200 c/c	
Area of steel provided	1005 mm^2
Foundation size	4.5 m square
Projection beyond wall	0.45 m
Foundation Load:-	
Well Water	459.5 kN
PCC load	84.8
Saturated Soil	382.71 kN
Wall weight	544.28 kN
Self weight of footing	253.13
Total vertical load at c.g. of foundation	1471.27 kN
Horizontal seismic co-efficient	0.1
Horizontal load acting at c.g. of well	147.13 kN
Moment at foundation level due to seismic load	735.63 kN-m

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Gross bearing pressure at founding level			
Max	121.09	kN/m^2	< SBC, Hence OK
Min	24.22	kN/m^2	
Net bearing pressure at founding level			
Max	90.59	kN/m^2	
Min	-6.28	kN/m^2	
Design Pressure (assumed)	80.00	kN/m^2	
Max bottom moment	98.65	kN-m	
Effective footing thickness, d	442	mm	
$\frac{Mu}{bd^2}$	0.76		
p_t required	0.167		
A_{st} required	738	mm^2	
Provide T 16 @ 200 c/c at bottom			
Area of steel provided	1005	mm^2	
Max top moment	83.85	kN-m	
Effective footing thickness, d	442	mm	
$\frac{Mu}{bd^2}$	0.64		
p_t required	0.167		
A_{st} required	738	mm^2	
Provide T 16 @ 200 c/c at top			
Area of steel provided	1005	mm^2	

Stability check

Self weight calculation		
Inside diameter of tank	3	m
Thickness of tank	0.3	m
Outside diameter	3.6	m
Inside area	7.065	m^2
Outside area	10.1736	m^2
Net area	3.1086	m^2
Height of tank	7	m
Total volume of tank	21.7602	m^3
Weight of tank	544.005	kN
Foundation thickness	0.5	m
Length of foundation	4.5	m
Width of foundation	4.5	m
Volume of foundation	10.125	m^3
Weight of foundation	253.125	kN
PCC thickness	0.5	m
Area of PCC	7.065	m^2
Volume of PCC	3.5325	m^3
Weight of PCC	84.78	kN
Total self weight of well	881.91	kN
Total weight of water upto top	494.55	kN
Total soil weight	382.903	kN
1)FOS against sliding	1.5	
Coefficient of friction	0.3	
Total vertical load	1759.36	kN
Horizontal seismic coefficient	0.1	
Total horizontal seismic load	175.936	kN
Total fricitonal resistance	527.809	kN
Factor of safety	3	Remarks ok

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2) FOS against overturning	1.5	
Total horizontal seismic load	175.936	kN
Lever arm	5	
Total moment due to seismic load	879.682	kN-m
Total resisting moment	3958.57	kN-m
Factor of safety	4.5	Remarks ok

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Results

The factors of safety obtained from the Geo-Studio for all conditions are well above the desired values for the new dyke to be raised. These are furnished in Table 6.1.

Table 6.1: FOS values for Dyke

Construction Stage-I	Condition	**Factor of Safety**	
		Calculated	Required
Starter Dyke (Earthen)	Steady-state	**1.623**	1.50
	Earth quake (downstream slope)	**1.161**	1.0
Stage I Dyke	Steady-state	**2.116**	1.50
	Earth quake (downstream slope)	**1.628**	1.0
Multi Stage (upto stage-III)	Steady-state	**1.982**	1.50
	Earth quake (downstream slope)	**1.525**	1.0

GEO-STUDIO SLOPE/W software graphical outputs for the critical slip surface for each case are tabulated above. Detailed report generated for each case is presented in Attachment-B.

6.0 References

IS 7894 – 1975 : Code of Practice for Stability Analysis of Earth Dams
IS 1893 – 1984: Criteria for Earthquake Resistant Design of Structures.

7.0 Attachments

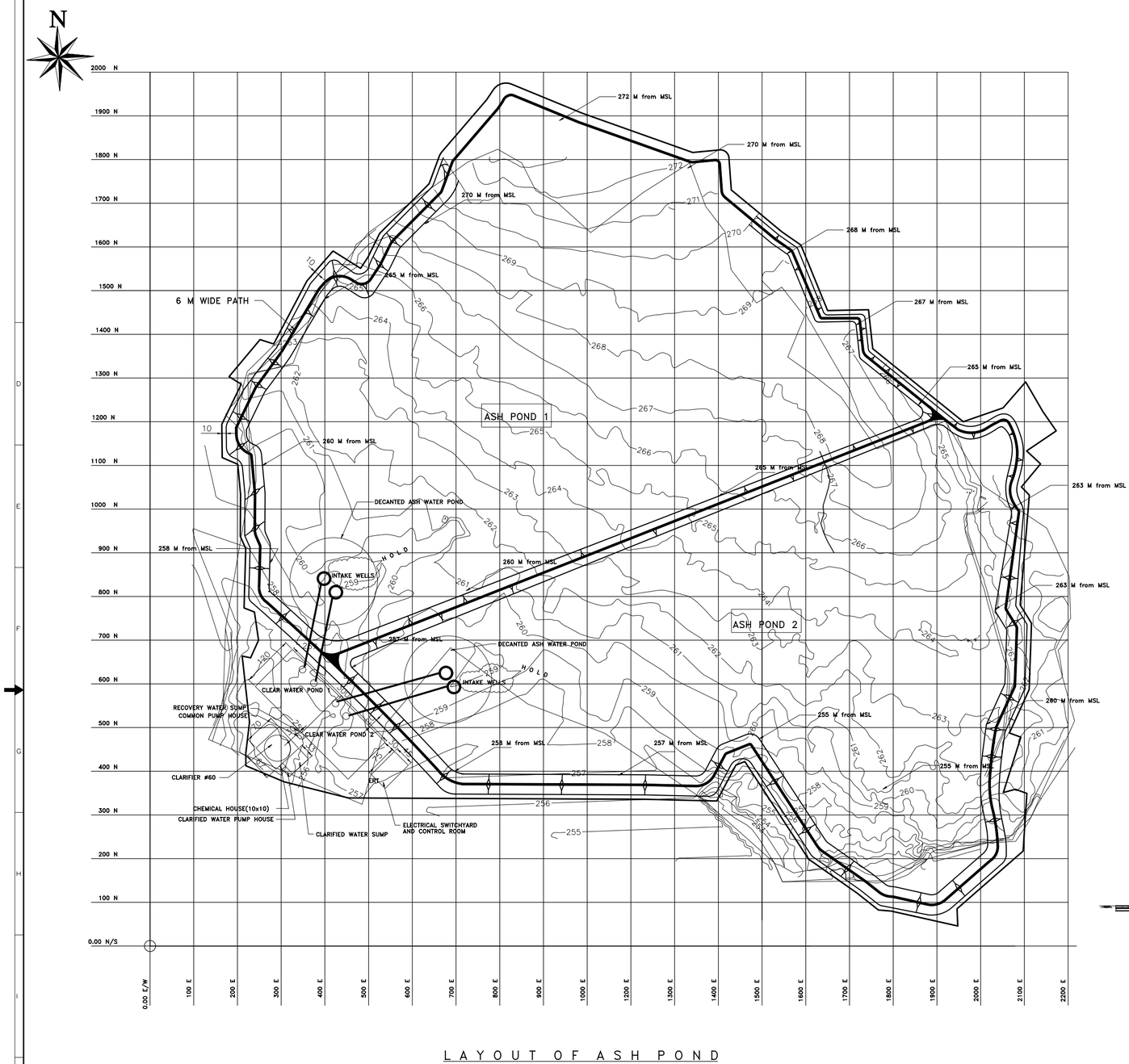
Attachment A: Input Drawings
Attachment B: Input / Output of Geo-Studio Analysis
Attachment C: Design Drawings

True Copy

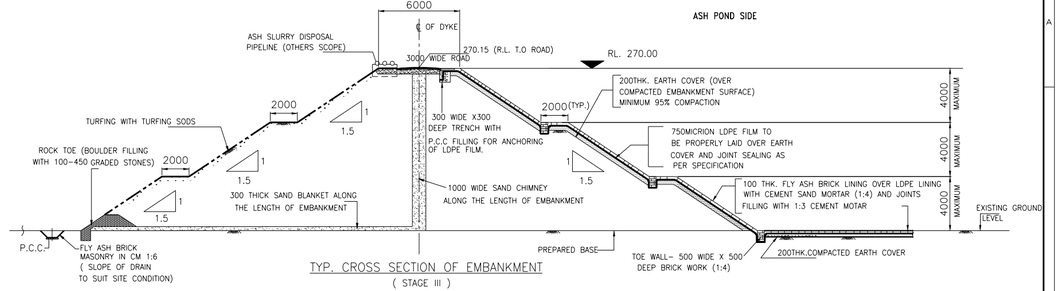
ATTACHMENT-A

Input Drawings

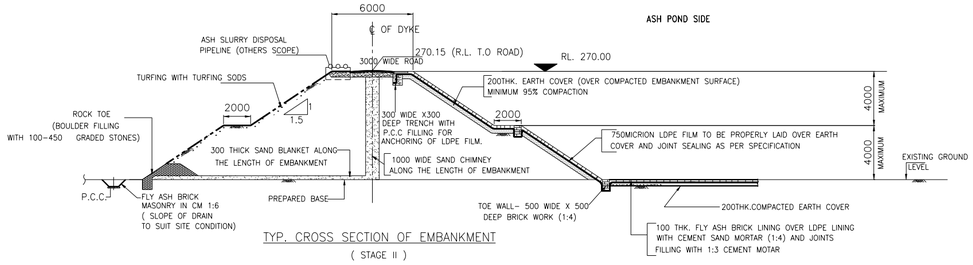
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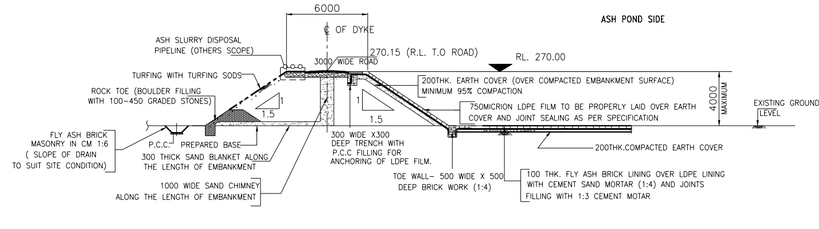
LAYOUT OF ASH POND



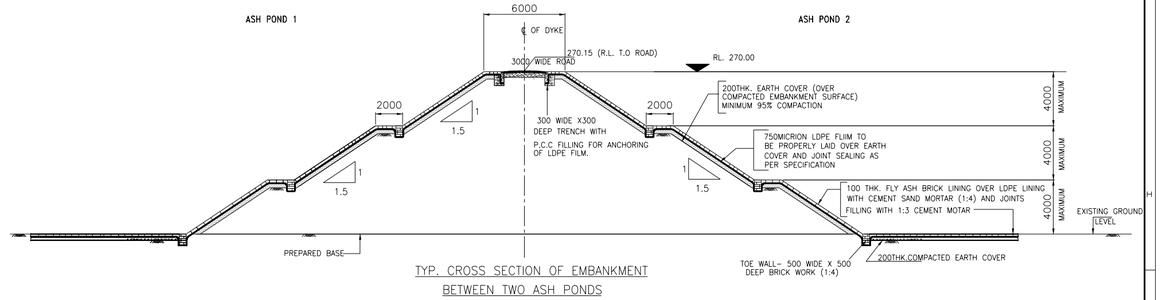
TYP. CROSS SECTION OF EMBANKMENT
(STAGE III)



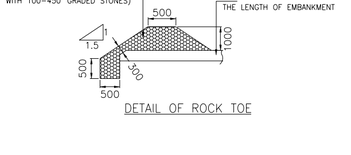
TYP. CROSS SECTION OF EMBANKMENT
(STAGE II)



TYP. CROSS SECTION OF EMBANKMENT
(STAGE I)



TYP. CROSS SECTION OF EMBANKMENT
BETWEEN TWO ASH PONDS
(STAGE III)



DETAIL OF ROCK TOE

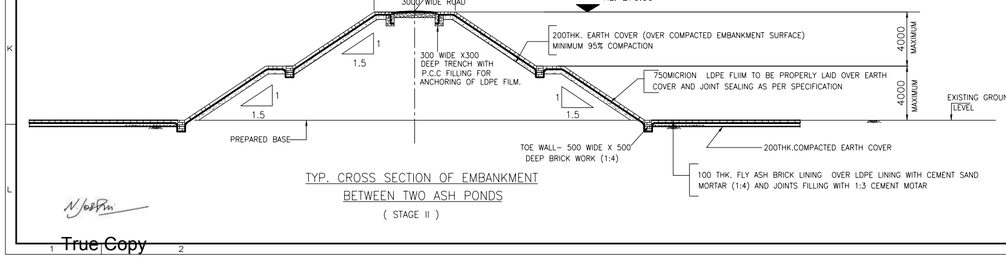
NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. THIS DRAWING SHALL BE READ IIN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, SPECIFICATIONS AND SCHEDULE OF ITEMS.
3. ELEVATIONS ARE SHOWN IN LAYOUT PLAN.
4. THE EMBANKMENT SHALL BE CONSTRUCTED FROM ATLEAST 500mm BELOW EGL.
5. THE EMBANKMENT SHALL BE CONSTRUCTED FROM THE SELECTED EARTH EXCAVATED, INSIDE THE PROPOSED ASH POND. EXCAVATION SHALL BE STARTED AT LEAST 6m AWAY FROM THE INSIDE EDGE OF EMBANKMENT. AFTER EXCAVATION TO THE DESIRED FOUNDING LEVEL, COMPACTING THE EXPOSED SURFACE BY ROLLING TO PREPARED THE BASE FOR FINISHING TREATMENT AS PER SPECIFICATION.

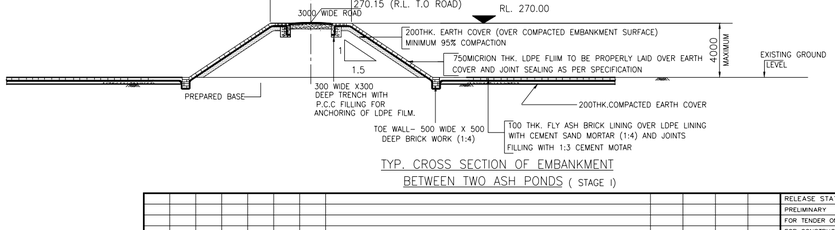
NOTES:-

1. K4A07-DWG-M-036 (SHT.1 OF 2) (R2)

K4A07-DWG-S-33A (SHT.-1a)
SUPERCEDED TO
K4A07-DWG-S-33A (SHT.-1)
K4A07-DWG-S-33A (SHT.-2)



TYP. CROSS SECTION OF EMBANKMENT
BETWEEN TWO ASH PONDS
(STAGE II)



TYP. CROSS SECTION OF EMBANKMENT
BETWEEN TWO ASH PONDS (STAGE I)

APPROV.	MECH.	INST.	ELEC.	STRL.	ARCH.	NATURE OF REVISION & DESCRIPTION	CHECKED	DRAWN	REV.	DATE
	REVIEWED									

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY		
FOR TENDER ONLY		
FOR CONSTRUCTION		
REVIEWED: ARCHITECTURAL		
REVIEWED: CIVIL & STRUCTURAL		
REVIEWED: ELECTRICAL		
REVIEWED: INSTRUMENTATION		
REVIEWED: MECHANICAL		

ASH DYKE AREA
LAYOUT AND DETAILS

O.P. JINDAL SUPER THERMAL POWER PLANT
4 X 250 MW UNITS

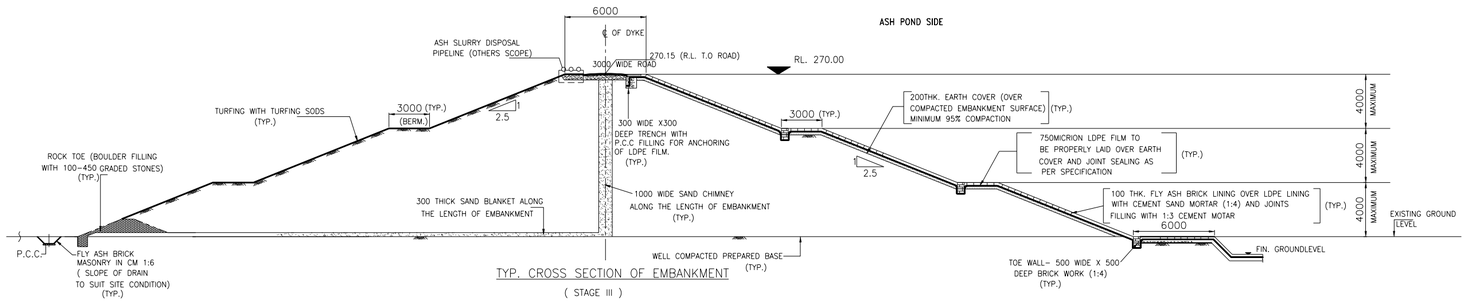
JINDAL POWER LIMITED

DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
KOLKATA • MUMBAI • CHENNAI • NEW DELHI

DRAWN : Arindam	CHECKED : S.D.M	SCALE	N.T.S.
REVIEWED : T.K.D		DATE	25.11.05
APPROVED :		JOB NO.	K4A07

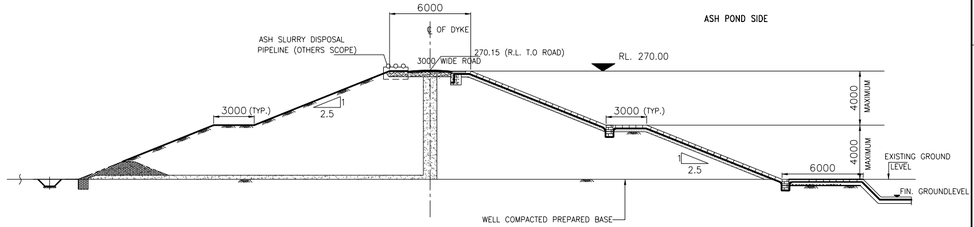
DWG. NO. K4A07-DWG-S-33A (SHT.-1) REV. 0

True Copy



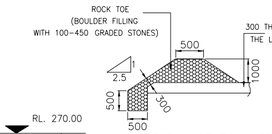
TYP. CROSS SECTION OF EMBANKMENT

(STAGE III)

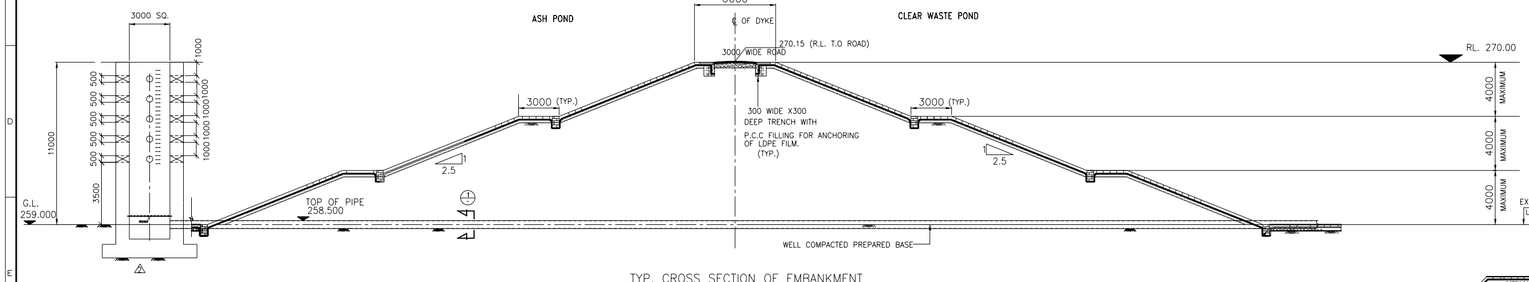


TYP. CROSS SECTION OF EMBANKMENT

(STAGE II)

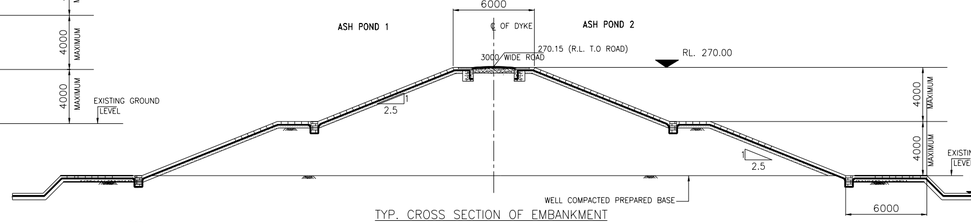


DETAIL OF ROCK TOE



TYP. CROSS SECTION OF EMBANKMENT

BETWEEN ASH POND TO CLEAR WATER POND



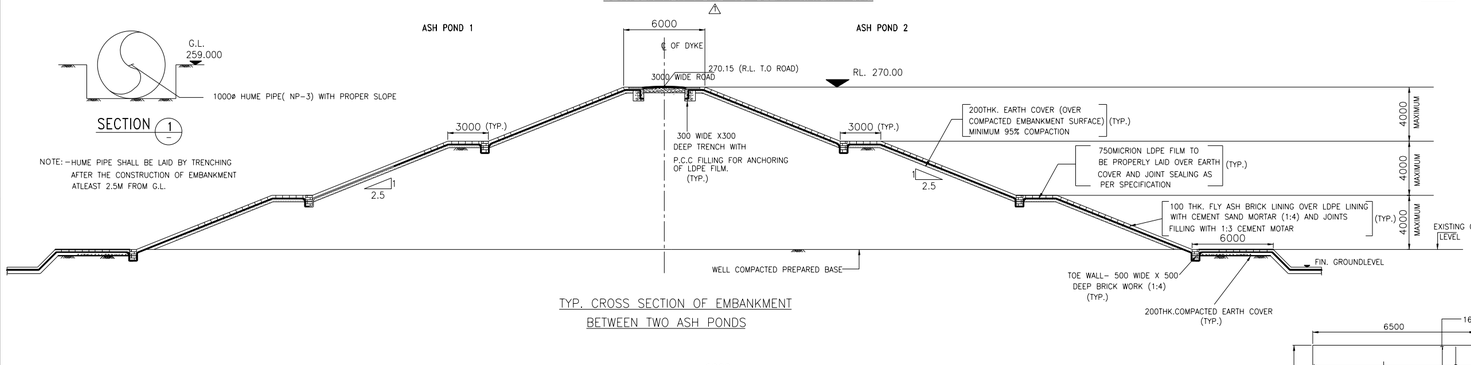
TYP. CROSS SECTION OF EMBANKMENT

BETWEEN TWO ASH PONDS

(STAGE II)

SECTION 1

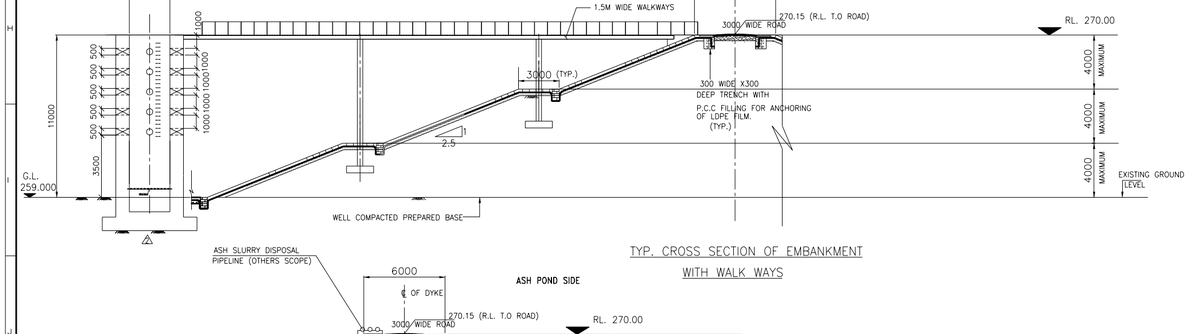
NOTE:-HUME PIPE SHALL BE LAID BY TRENCHING AFTER THE CONSTRUCTION OF EMBANKMENT ATLEAST 2.5M FROM G.L.



TYP. CROSS SECTION OF EMBANKMENT

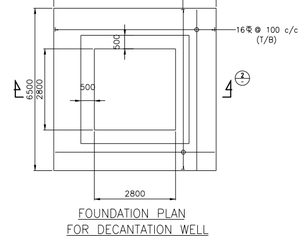
BETWEEN TWO ASH PONDS

(STAGE I)



TYP. CROSS SECTION OF EMBANKMENT

WITH WALK WAYS



FOUNDATION PLAN

FOR DECANTATION WELL

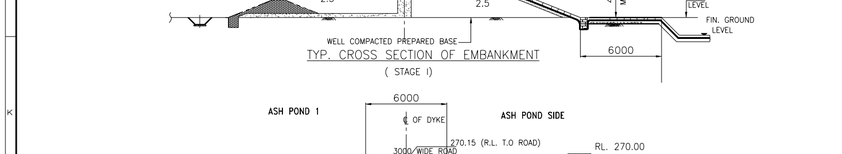
NOTE:- LOCATIONS & ORIENTATION OF FOUNDATION SHALL BE DECIDED AT SITE TO MAINTAIN WALKWAY ACCESSIBILITY & HUME PIPE CONNECTION



TYP. DETAIL OF REINF. AROUND OPNG.

TYP. CROSS SECTION OF EMBANKMENT

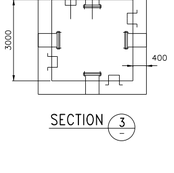
(STAGE I)



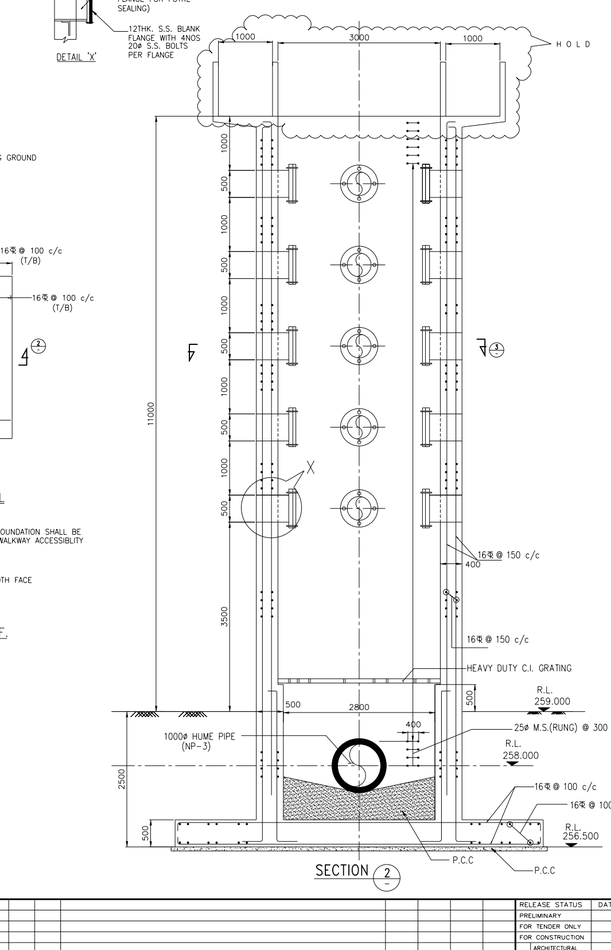
TYP. CROSS SECTION OF EMBANKMENT

BETWEEN TWO ASH PONDS

(STAGE I)



SECTION 3



SECTION 2

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. THIS DRAWING SHALL BE READ IIN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, SPECIFICATIONS AND SCHEDULE OF ITEMS.
3. ELEVATIONS ARE SHOWN IN DWG.NO. S33A SHT.1
4. THE EMBANKMENT SHALL BE CONSTRUCTED FROM ATLEAST 500mm BELOW EGL.
5. THE EMBANKMENT SHALL BE CONSTRUCTED FROM THE SELECTED EARTH EXCAVATED, INSIDE THE PROPOSED ASH POND. EXCAVATION SHALL BE STARTED AT LEAST 6m AWAY FROM THE INSIDE EDGE OF EMBANKMENT AND THE COMPACTION SHALL BE DONE AS PER SPECIFICATION. AFTER EXCAVATION TO THE DESIRED FOUNDING LEVEL, COMPACTING THE EXPOSED SURFACE BY ROLLING TO PREPARED THE BASE FOR FINISHING TREATMENT AS PER SPECIFICATION.
6. FOR LOCATION OF EMBANKMENT REFER TO DWG.NO. S-33A SHT.1
7. SLOPE OF EMBANKMENT SHALL BE AS PER JPL'S COMMENTS DATED.6.12.05
8. THE NALLAH ADJACENT TO SITE ON SOUTH WEST SHOULD BE CLOSED AT ITS SOURCE OR DIVERTED AWAY FROM THE SITE. IT SHOULD BE FILLED IN LAYERS WITH PROPER COMPACTION CONTROL.

NOTES FOR CONC. WORK

1. GRADE OF CONCRETE SHALL BE M-25
2. ALL REINFORCING STEEL SHALL CONFORM TO IS: 1786 FOR COLD TWISTED DEFORMED BARS SHOWN THUS "ℜ" AND TO IS: 432 (GRADE-1) FOR MILD STEEL BARS SHOWN THUS : " ø "
3. CLEAR COVER TO MAIN REINF. SHALL BE AS FOLLOWS:-

ITEM	TOP	BOTTOM	SIDES
a) WALL/RAFT	15	15	75
b) BEAMS & WALLS	40	40	40
c) LIGHT BEAMS, COLS AND WALLS MIN. WIDTH 200mm OR LESS	25	25	25

4. ALL HOOKS, BENDS AND LAPS OF REINFORCEMENT BARS SHALL CONFORM TO IS: 2502 – (LATEST REVISION) UNLESS OTHERWISE NOTED.
5. LAPS SHALL BE STAGGERED AS FAR AS POSSIBLE. MINIMUM LENGTH OF LAP SHALL BE FIFTY (50) TIMES DIAMETER OF BARS UNLESS NOTED OTHERWISE.

REF. DRG.

1. K4A07-DWG-M-036 (SHT.1 OF 2) (R2)

APPROV.	MECH.	INST.	ELEC.	STRL.	ARCH.
	REVIEWED				

NATURE OF REVISION & DESCRIPTION	CHECKED	DRAWN	REV.	DATE
DECANTATION WELL ADDED & AS MARKED 3	S.D.M.	Arindam	3	06.03.06
REVISED AS PER JPL'S COMMENTS ON MAIL DT. 17.02.06 & AS MKD. 2	S.D.M.	Arindam	2	21.02.06
LAYOUT OF HUME PIPE ADDED & AS MARKED 1	S.D.M.	Arindam	1	16.02.06

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY		
FOR TENDER ONLY		
FOR CONSTRUCTION		
ARCHITECTURAL		
CIVIL & STRUCTURAL		
ELECTRICAL		
INSTRUMENTATION		
MECHANICAL		

REVIEWED

DETAILS OF ASH DYKE

O.P. JINDAL SUPER THERMAL POWER PLANT
4 X 250 MW UNITS

JINDAL POWER LIMITED

DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
KOLKATA • MUMBAI • CHENNAI • NEW DELHI

DRAWN : Arindam	CHECKED : S.D.M	SCALE	N.T.S
REVIEWED : T.K.D		DATE	25.11.05
APPROVED : R.N.B		JOB NO.	K4A07

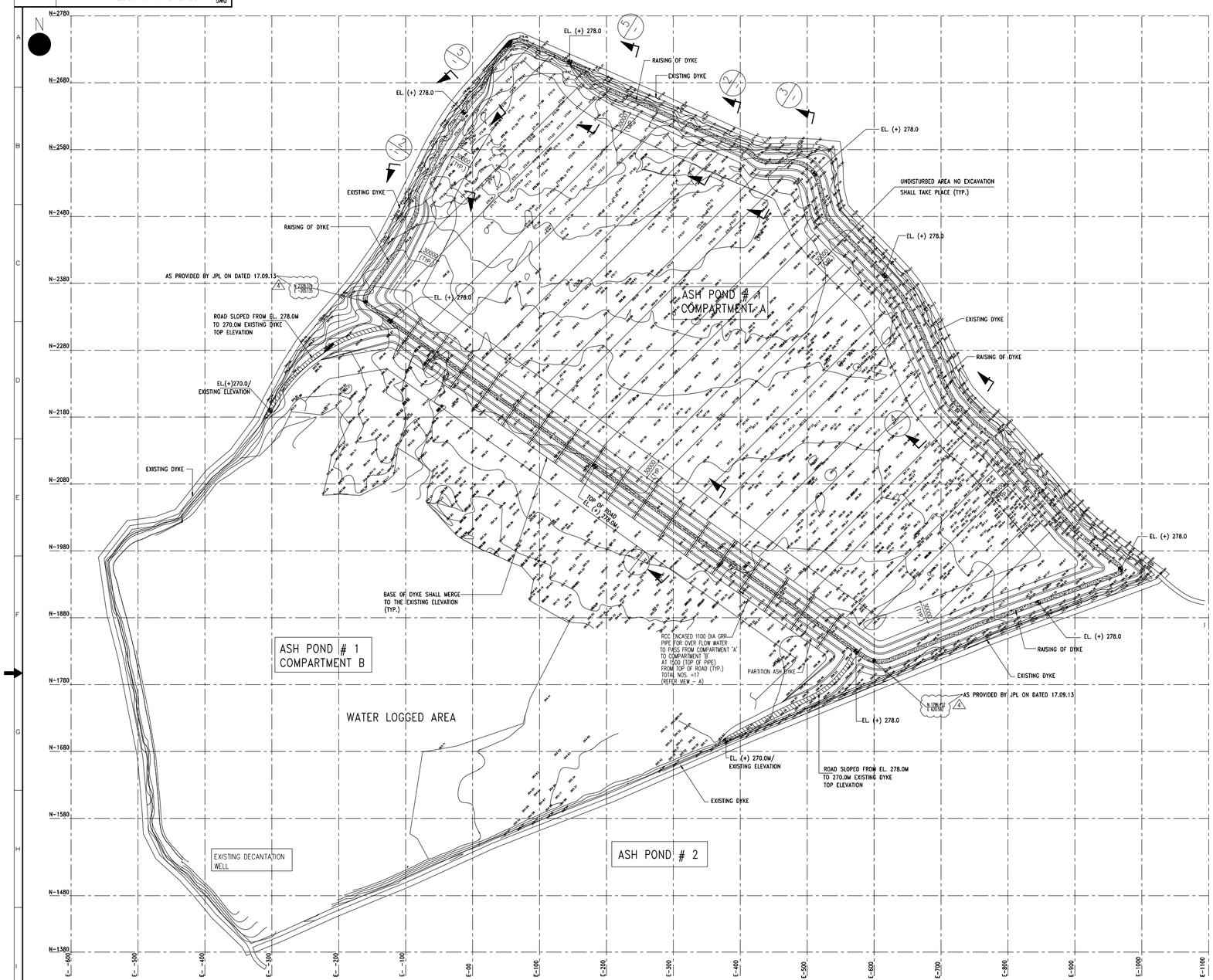
DWG. NO. K4A07-DWG-S-33A (SHT.-2) REV. 3

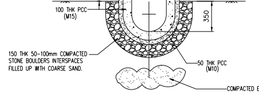
True Copy

Ao (09-96) [1189 x 841]

K4A07-DWG-S-33A (SHT.-2)

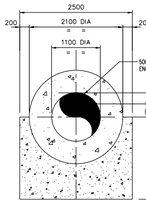
DWG. NO. K8B15-DWG-S-0037A REV. 4





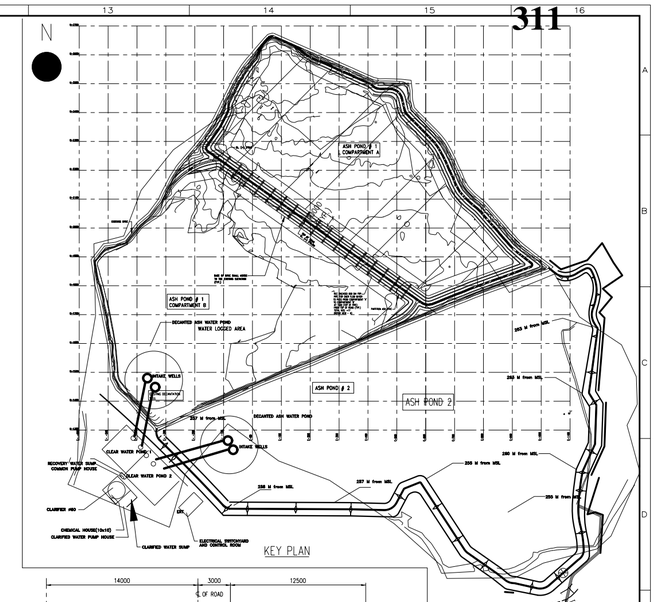
DETAIL OF CUP DRAIN

SECTION - (6) SCALE-1:25

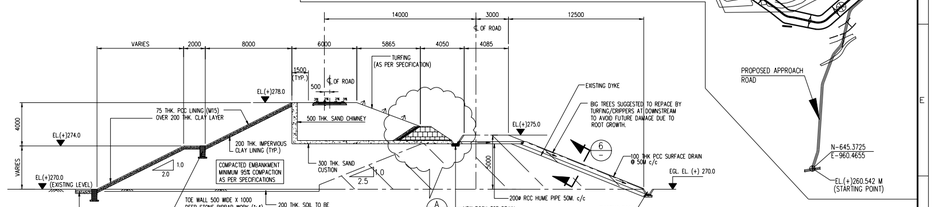


VIEW (A)

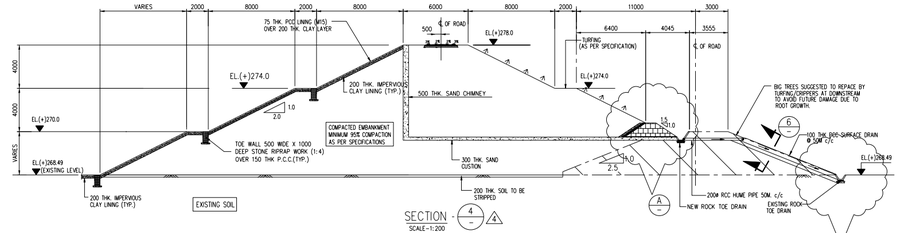
* - SHALL VARY AS PER SITE CONDITION.
SCALE-1:50



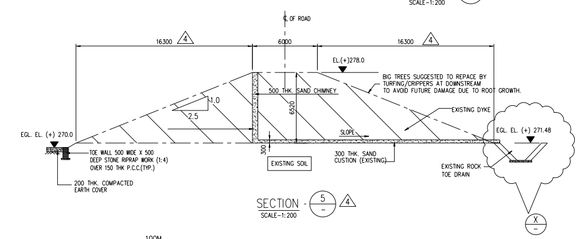
KEY PLAN



SECTION - (2) SCALE-1:200



SECTION - (4) SCALE-1:200



SECTION - (5) SCALE-1:200

LEGEND

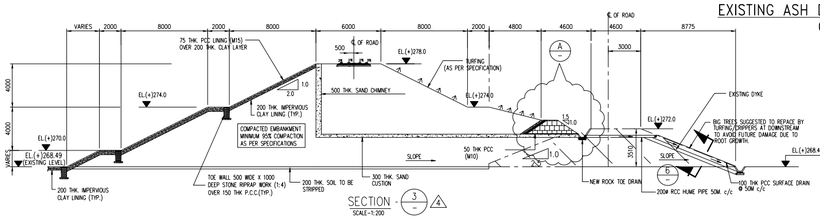
- EL. (+) 278.0
- EL. (+) 278.0 TO LOWER EXISTING LEVEL AS SHOWN
- EXISTING DYKE

NOTES:-

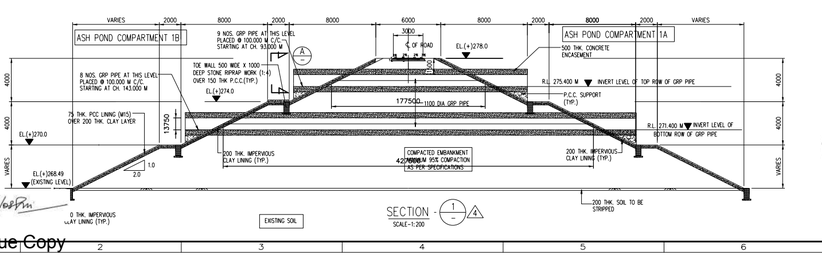
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, SPECIFICATIONS AND SCHEDULE OF ITEMS.
3. THE APPROX ELEVATIONS ARE SHOWN IN LAYOUT PLAN. HOWEVER, THE ELEVATIONS MAY BE ADJUSTED LOCALLY TO SUIT SITE CO-ORDINATE.
4. THE EMBANMENT SHALL BE CONSTRUCTED FROM THE SELECTED EARTH EXCAVATED FROM INSIDE OF ASH POND, PROPER COMPACTION OF SURFACE SHALL BE DONE BY ROLLING TO PREPARE THE BASE FOR FINISHING TREATMENT AS PER SPECIFICATION.
5. EMBANKMENT SHALL BE PREPARED BY COMPACTING THE LAYERS AND FINISHING WITH LINING AS PER DRAWING AND SPECIFICATION.
6. THE LAYOUT PLAN AND SECTIONS SHOWN ARE SCHEMATIC AND SHALL BE ADJUSTED AND FIRMED TO SUIT THE ACTUAL SITE CONDITIONS.
7. FOR THE EMBANKMENT MATERIAL FOLLOWING PROPERTIES SHALL BE SATISFIED AND THE SAME SHALL BE ENQUIRED IN EXECUTION : UNIT WEIGHT NOT LESS THAN 18.0 KN/CUM. ANGLE OF INTERNAL FRICTION NOT LESS THAN 10 DEGREES. COHESION NOT LESS THAN 40.0 KN/SQM. PERMEABILITY NOT MORE THAN 1X10^-7(0.00001) CM/SEC.
8. THE IMPERVIOUS CLAY LINING SHALL BE DONE FOR MINIMUM THICKNESS OF 200 MM BY USING SELECTED CLAY HAVING PERMEABILITY OF 10^-7CM/SEC.
9. THE CLAYEY SOIL COVER UNDER TURFING ON DOWN STREAM SIDE SHALL BE CLAYEY SOIL OF SEMI PERVIOUS NATURE AS AVAILABLE FROM THE BORROW PITS.
10. THE DEPTH OF CUT OFF FOR BUND SHALL BE MIN. 200 MM UNDER ORIGINAL SOIL.
11. THIS DRAWING HAS BEEN PREPARED BASED ON THE TOPOGRAPHICAL DRAWING PROVIDED BY JPL IN MAY 2012.
12. DECANTATION WELL OF COMPARTMENT-B OF ASH POND NO. 1 SHALL SERVE THE PURPOSE OF BOTH COMPARTMENTS A & B OF ASHPOND NO.-1.
13. THE NEW ROAD AT THE TOP NEW BUNH SHALL BE MAINTAINED AS 1:30 VERTICAL SLOPE (WORE OF LESS)
14. AHP VENDOR TO CHECK AND CONFIRMED THE ARRANGEMENT OF PIPE CORRIDOR FOR ASH DISPOSAL PIPES ALONG THE NEW BUND.
15. THE DEPTH OF CUT SHALL BE SUBJECTED TO MINIMUM 1000MM AND MAXIMUM 5000MM. IF HARD ROCK IS MET EARLIER THEN CUT OFF SHALL BE TAKEN MINIMUM 500MM IN HARD ROCK.

EXISTING ASH DYKE MODIFICATION PLAN

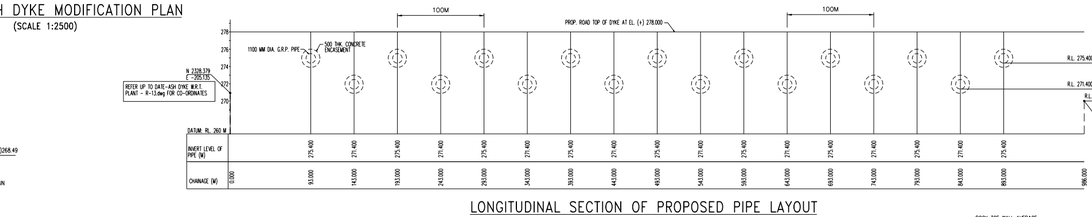
(SCALE 1:2500)



SECTION - (3) SCALE-1:200

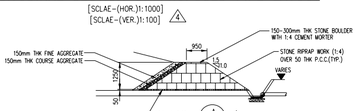


SECTION - (1) SCALE-1:200

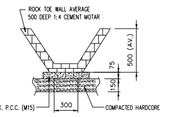


LONGITUDINAL SECTION OF PROPOSED PIPE LAYOUT

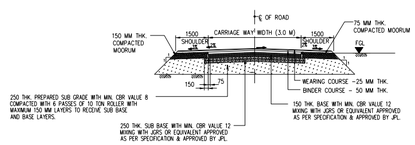
[SCLAE-(HOR.)1:1000]
[SCLAE-(VER.)1:100] (4)



DETAIL - (A) SCALE-1:100



DETAIL-X



CROSS SECTION OF 3.0 M WIDE BITUMINOUS ROAD (4)

DKC		SS	-	-	A.R.	-													
DKC		SS	-	-	A.R.	-	REVISED AS PER JPL DRAWING NO. JPL/SITE/ASH-DYKE/DWG-001 & AS MKD (3)	PR	Sanjib Bh.	4	18.09.13								
DKC		SS	-	-	A.R.	-	115mm thk FLYASH CEMENT BRICK LINING HAS BEEN REPLACED BY 75mm THK. M15 GRADE PCC LINING AND NOTE 8 REVISED. (2)	A.R.	AB	3	16.04.13								
DKC		SS	-	-	A.R.	-	REVISED AS PER JPL COMMENTS	S.B.	TRDIP	2	25.09.12								
DKC		SS	-	-	A.R.	-	REVISED AS PER JPL COMMENTS	S.B.	TRDIP	1	04.09.12								
DKC		SS	-	-	A.R.	-	ISSUED FOR TENDER PURPOSE ONLY	S.B.	TRDIP	0	23.08.12								
APPROV.		MECH.	INST.	ELEC.	STRL.	ARCH.	NATURE OF REVISION & DESCRIPTION	CHECKED	DRAWN	REV.	DATE								
REVIEWED																			

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY		
FOR TENDER ONLY		
FOR CONSTRUCTION		AR
ARCHITECTURAL		-
CIVIL & STRUCTURAL		AR
ELECTRICAL		-
INSTRUMENTATION		-
MECHANICAL		SS

MODIFICATION OF EXISTING ASH DYKE AREA LAYOUT AND DETAILS OF MODIFICATION

O.P. JINDAL SUPER THERMAL POWER PLANT
4x250 MW UNITS
TAMNAR, RAIGARH, CHHATTISGARH

JINDAL POWER LIMITED

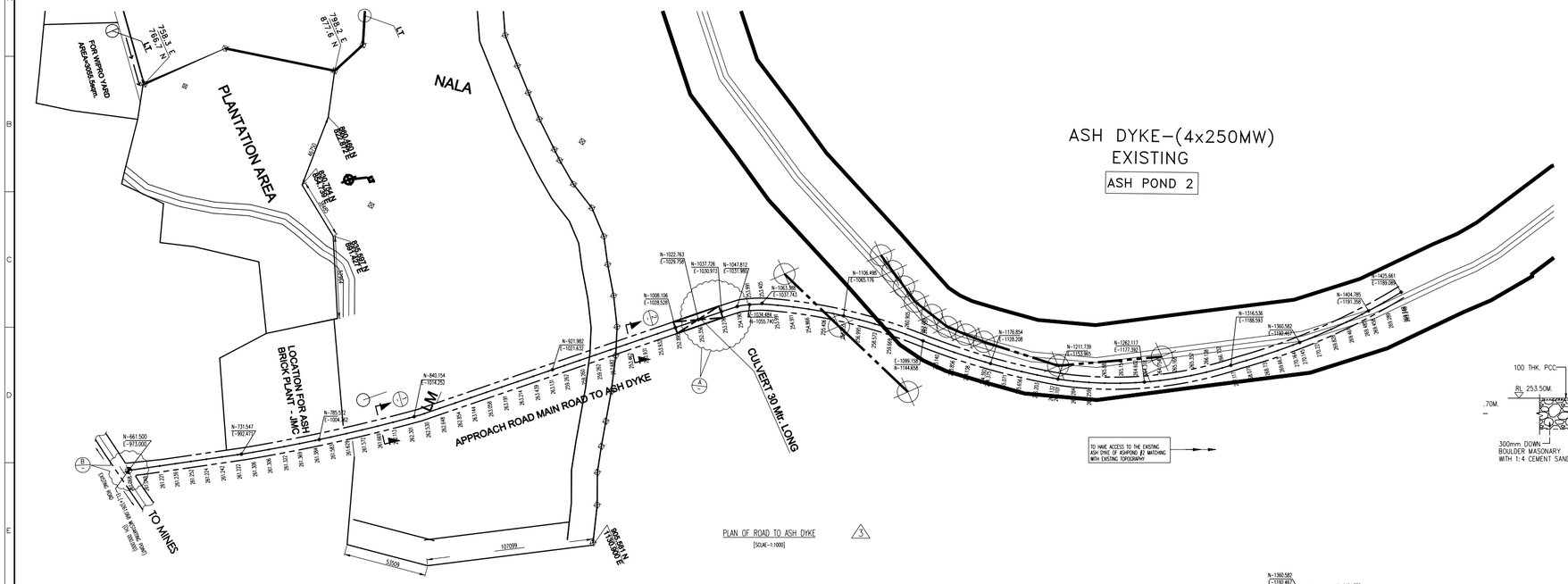
DEVELOPMENT CONSULTANTS PVT.LTD.
CONSULTING ENGINEERS
KOLKATA • MUMBAI • CHENNAI • NEW DELHI

DRAWN : TRDIP	CHECKED : S.B.	SCALE	1:2500
REVIEWED : A.R.		DATE	23.08.12
APPROVED : D.K.C.		JOB NO.	K8B15

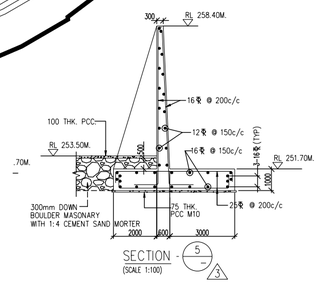
DWG. NO. K8B15-DWG-S-0037A REV. 4

Ao (09-96) [1189 x 841]

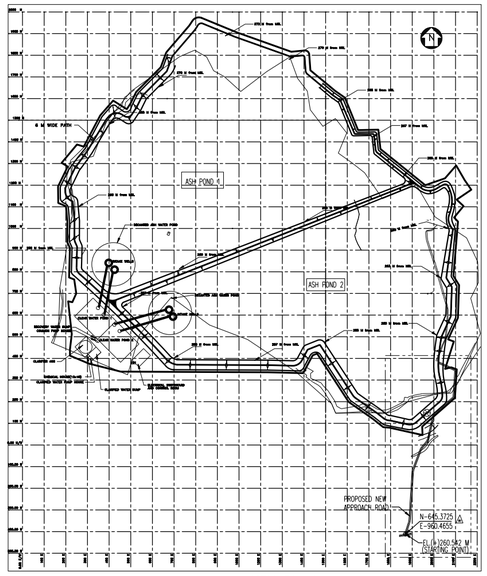
True Copy



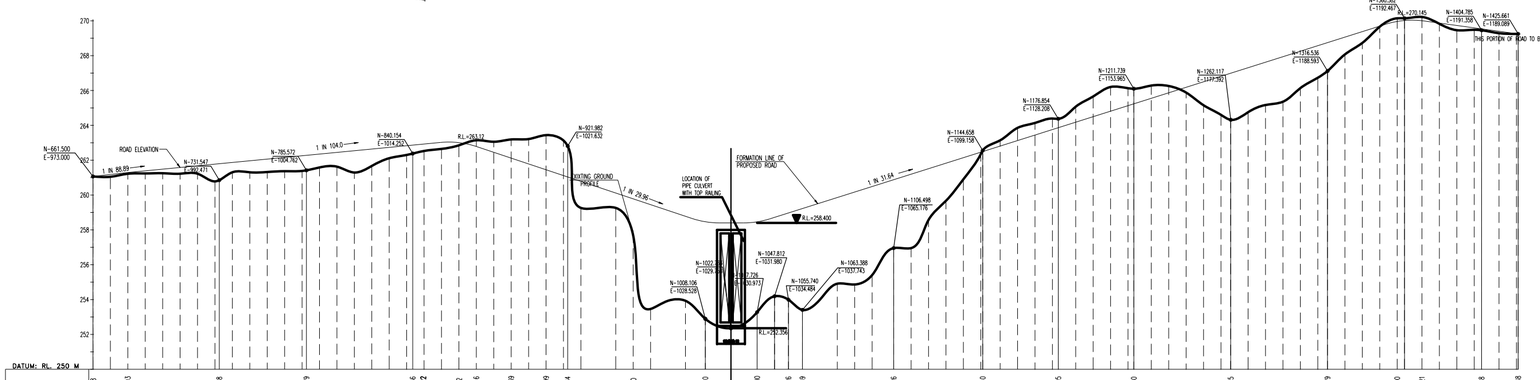
PLAN OF ROAD TO ASH DYKE
[SCALE- 1:1000] 3



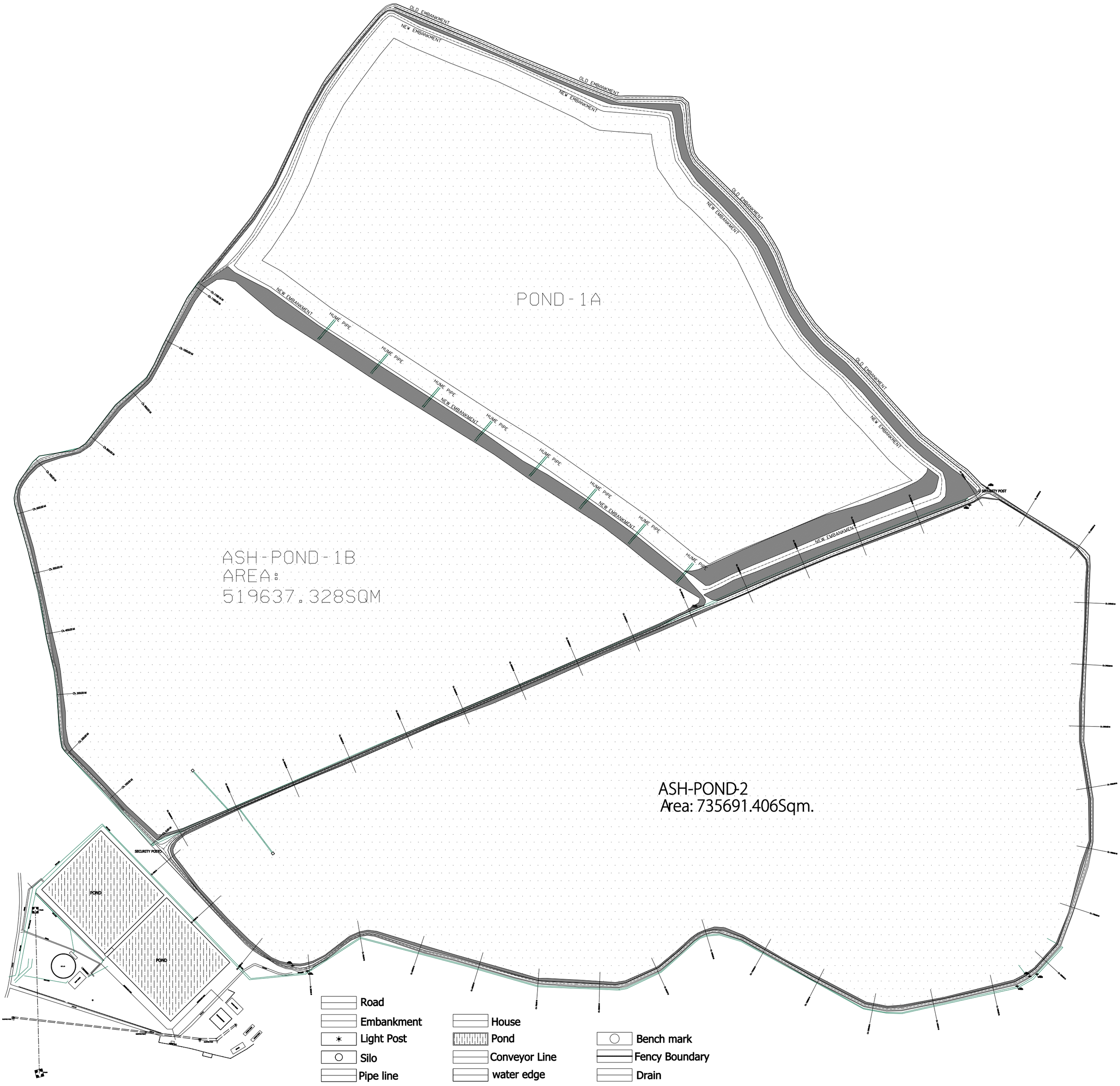
SECTION - (5/-) 3
(SCALE 1:100)



KEY PLAN



| | | |



3

JPL ASH-POND AT TAMNAR
TAMNAR, RAIGARH

PREPARED FOR :
JINDAL POWER LTD.
ASH-POND EMBANKMENT PROJECT
TAMNAR

CONSULTANTS :
S & S ASSOCIATES
PLOT No.-7G/1353/D-15, SEC-9, CDA, CUTTACK
PH :- 9338823018

Sc.: 1: 1000

DATE : 19. 04. 2014

N W E S

True Copy

OLD EMBANKMENT
NEW EMBANKMENT
POND - 1A
HUME PIPE
ASH - POND - 1B
AREA:
519637.328SQM
SECURITY POST
POND
ASH-POND-2
Area: 735691.406Sqm.

LEGEND:

- Road
- Embankment
- Light Post
- Silo
- Pipe line
- House
- Pond
- Conveyor Line
- water edge
- Bench mark
- Fency Boundary
- Drain

True Copy

JPL ASH-POND AT TAMNAR
TAMNAR, RAIGARH

PREPARED FOR :
JINDAL POWER LTD.
ASH-POND EMBANKMENT PROJECT
TAMNAR

CONSULTANTS :
S & S ASSOCIATES
PLOT No.-7G/1353/D-15, SEC-9, CDA, CUTTACK
PH :- 9338823018

Sc.: 1: 1000

DATE : 19. 04. 2014

N W E S

ATTACHMENT- B

Input / Output of Geo-Studio Analysis

True Copy

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
    Side Function
        Interslice force function option: Half-Sine
    PWP Conditions Source: Parent Analysis
Slip Surface
    Direction of movement: Right to Left
    Use Passive Mode: No
    Slip Surface Option: Auto-Search
    Critical slip surfaces saved: 1
    Optimize Critical Slip Surface Location: Yes
    Tension Crack
        Tension Crack Option: (none)
FOS Distribution
    FOS Calculation Option: Constant
Advanced
    Number of Slices: 30
    Optimization Tolerance: 0.01
    Minimum Slip Surface Depth: 0.1 m
    Optimization Maximum Iterations: 2000
    Optimization Convergence Tolerance: 1e-007
    Starting Optimization Points: 8
    Ending Optimization Points: 16
    Complete Passes per Insertion: 1
    Driving Side Maximum Convex Angle: 5 °
    Resisting Side Maximum Convex Angle: 1 °

True Copy

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Existing Dyke (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash

Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1

Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe

Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (100, 16) m

Regions

	Material	Points	Area (m²)

True Copy

Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	500
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	368.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3

Points

	X (m)	Y (m)
Point 1	0	0
Point 2	100	0
Point 3	0	5
Point 4	100	5
Point 5	5	5
Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17
Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9
Point 16	73	9
Point 17	83	5
Point 18	100	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20
Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16



True Copy

Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	Optimized	1.687	(17.784, 33.479)	23.17479	(48.1325, 16.547)	(2.03415, 5)
2	56	1.733	(17.784, 33.479)	33.575	(47.0305, 16.9878)	(0, 5)

Slices of Slip Surface: Optimized

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	Optimized	3.1426835	4.045871	9.6044354	39.552702	8.024614	30
2	Optimized	4.62561	2.839324	21.968455	62.567852	10.878576	30
3	Optimized	6.038095	1.88701	32.076767	93.458728	16.447247	30
4	Optimized	7.288095	1.102569	40.793651	110.12795	18.578071	30
5	Optimized	7.75	0.91827965	43.027775	118.48753	20.21938	30
6	Optimized	8.532495	0.60608215	46.93688	135.0834	23.618788	30
7	Optimized	9.782495	0.2689566	51.927482	146.30844	25.289302	30
8	Optimized	10.915185	0.0721421	55.751222	162.95379	28.724843	30
9	Optimized	12.316705	0	59.249767	166.28765	28.680715	30
10	Optimized	14.15152	0	63.372148	181.45389	31.639909	30
11	Optimized	15.32941	0	66.17589	188.36708	32.741031	30
12	Optimized	16.244115	0	68.384319	188.28112	32.126252	30
13	Optimized	17.414705	0	71.224767	187.99067	31.28733	30
14	Optimized	18.7911	0	74.560738	193.80609	31.951696	30
15	Optimized	19.930385	0	77.306393	202.37749	33.5127	30
16	Optimized	20.856375	0.05059125	79.030193	200.76291	32.618184	30
17	Optimized	22.01198	0.15177375	80.791362	206.82313	33.77011	30
18	Optimized	23.336855	0.3370635	82.101536	204.4865	32.792954	30
19	Optimized	24.831005	0.6064605	82.951203	209.24859	33.841283	30
20	Optimized	26.18356	0.910709	83.098616	204.32717	32.483094	30
21	Optimized	27.39452	1.2498085	82.549927	206.013	33.081831	30
22	Optimized	28.75	1.6293775	81.915592	202.54208	32.32177	30
23	Optimized	30.25	2.049416	81.177325	193.93324	30.212856	30
24	Optimized	31.16549	2.3057765	80.710037	189.95851	29.27304	30
25	Optimized	32.02166	2.602426	79.705923	184.89378	28.185002	30
26	Optimized	33.40302	3.103042	77.847865	185.62884	28.879825	30

True Copy

27	Optimized	34.88298	3.7650125	74.608213	175.07065	26.918828	30
28	Optimized	36.461535	4.5883375	69.98557	172.75652	27.537392	30
29	Optimized	37.349905	5.0516835	67.38934	171.54464	27.908327	30
30	Optimized	38.03488	5.544461	64.282758	157.00988	24.846157	30
31	Optimized	39.20664	6.4266485	58.600704	151.52145	24.89804	30
32	Optimized	40.39626	7.4398915	51.746887	136.3823	22.67799	30
33	Optimized	41.39911	8.390268	45.088873	126.41434	21.791094	30
34	Optimized	42.47947	9.5260475	36.903167	104.34672	18.071445	30
35	Optimized	43.84197	11.04115	25.867307	81.545717	14.918985	30
36	Optimized	45.142415	12.6133	14.255955	52.256525	10.182222	30
37	Optimized	46.380805	14.242505	2.2007454	25.6831	6.2920779	30
38	Optimized	47.566245	15.802055	-9.3099133	-3.2710535	-0.87647615	30

Slices of Slip Surface: 56

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	56	0.8333335	4.512348	4.8672207	21.800451	4.5372453	30
2	56	2.5	3.5984405	14.051478	40.682249	7.1356933	30
3	56	4.1666665	2.802268	22.244097	57.554312	9.4613435	30
4	56	5.625	2.189477	28.846498	74.555726	12.247751	30
5	56	6.875	1.731838	34.103556	92.098364	15.539662	30
6	56	7.75	1.4387805	37.744377	104.28945	17.830699	30
7	56	8.625	1.1832385	41.245413	118.64887	20.740193	30
8	56	9.875	0.85447275	46.222731	138.89677	24.831934	30
9	56	11.25	0.554117	51.593197	157.35798	28.339587	30
10	56	12.75	0.29151425	57.303195	173.6009	31.161877	30
11	56	14.25	0.09834846	62.637274	187.44576	33.442333	30
12	56	15.11897	0.00947296	65.574595	193.59001	34.301628	30
13	56	15.928455	0	67.619722	187.39609	32.093982	30
14	56	17.309485	0	70.969391	186.8313	31.045104	30
15	56	19.16502	0	75.462159	195.10378	32.057876	30
16	56	21.097035	0.0760745	79.356842	199.23867	32.12224	30
17	56	22.63103	0.26407705	81.155228	202.21398	32.437595	30
18	56	24.165025	0.52452075	82.202442	203.61168	32.531509	30
19	56	25.699015	0.8591447	82.489496	203.5915	32.449185	30
20	56	27.233005	1.2702665	81.982134	202.29683	32.238225	30
21	56	28.75	1.75453	80.688759	194.49482	30.494241	30
22	56	30.25	2.31378	78.59243	180.53295	27.314879	30
23	56	31.76133	2.962491	75.615857	170.99549	25.556896	30
24	56	33.28399	3.7075785	71.697032	165.59405	25.159629	30
25	56	34.80665	4.5519775	66.778171	158.99861	24.710392	30
26	56	36.473315	5.607072	60.383521	149.88544	23.981967	30

True Copy

27	56	38.28399	6.912758	52.171077	137.6421	22.901891	30
28	56	40.094665	8.4173375	42.10832	122.45981	21.530116	30
29	56	41.75	9.9884915	31.112395	100.54561	18.604575	30
30	56	43.25	11.62776	19.178758	71.487302	14.016032	30
31	56	44.75	13.51489	4.9985422	37.329007	8.6629219	30
32	56	46.25	15.730875	-12.341782	-1.9132213	-0.5126461	30
33	56	47.015255	16.960805	-22.697775	-23.516933	-6.3013431	30



True Copy

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
    Side Function
        Interslice force function option: Half-Sine
    PWP Conditions Source: Parent Analysis
Slip Surface
    Direction of movement: Right to Left
    Use Passive Mode: No
    Slip Surface Option: Auto-Search
    Critical slip surfaces saved: 1
    Optimize Critical Slip Surface Location: Yes
    Tension Crack
        Tension Crack Option: (none)
FOS Distribution
    FOS Calculation Option: Constant
Advanced
    Number of Slices: 30
    Optimization Tolerance: 0.01
    Minimum Slip Surface Depth: 0.1 m
    Optimization Maximum Iterations: 2000
    Optimization Convergence Tolerance: 1e-007
    Starting Optimization Points: 8
    Ending Optimization Points: 16
    Complete Passes per Insertion: 1
    Driving Side Maximum Convex Angle: 5 °
    Resisting Side Maximum Convex Angle: 1 °

True Copy

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Existing Dyke (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash

Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1

Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe

Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (100, 16) m

Seismic Loads

Horz Seismic Load: 0.1
Vert Seismic Load: 0.07

True Copy

Ignore seismic load in strength: No

Regions

	Material	Points	Area (m²)
Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	500
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	368.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3

Points

	X (m)	Y (m)
Point 1	0	0
Point 2	100	0
Point 3	0	5
Point 4	100	5
Point 5	5	5
Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17
Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9
Point 16	73	9
Point 17	83	5
Point 18	100	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20

True Copy

Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16
Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	Optimized	1.242	(21.13, 44.679)	26.00612	(55.7427, 17)	(1.24799, 5)
2	85	1.264	(21.13, 44.679)	44.954	(56.5757, 17.0303)	(0, 5)

Slices of Slip Surface: Optimized

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	Optimized	2.6090795	3.9454715	10.583395	50.296172	10.641007	30
2	Optimized	4.485085	2.600546	24.343746	77.540184	14.253943	30
3	Optimized	6.25	1.605186	35.032731	116.08011	21.71658	30
4	Optimized	7.553845	0.869856	43.345929	148.77592	28.249881	30
5	Optimized	7.803845	0.78399425	44.406781	133.42883	23.853385	30
6	Optimized	9.25	0.37485857	50.116931	163.2678	30.318685	30
7	Optimized	11.54497	0.010608825	57.57284	175.96247	31.722405	30
8	Optimized	13.79497	0	62.542011	195.63413	35.661927	30
9	Optimized	15.78932	0	67.285765	206.37384	37.268538	30
10	Optimize	17.28932	0	70.917994	206.24613	36.261065	30

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	d						
11	Optimized	18.871685	0	74.751988	213.30588	37.125403	30
12	Optimized	20.61505	0	78.950765	227.50256	39.804333	30
13	Optimized	21.91639	0	82.050953	237.85094	41.746481	30
14	Optimized	23.0772	0.06513175	84.156622	233.38392	39.985334	30
15	Optimized	24.539505	0.19539525	86.302258	241.1627	41.494731	30
16	Optimized	25.952995	0.3843794	87.723662	235.05212	39.476541	30
17	Optimized	27.317665	0.63208425	88.423029	239.31321	40.430901	30
18	Optimized	28.88208	0.91604535	89.191996	237.26343	39.67562	30
19	Optimized	30.38208	1.214592	89.634545	224.58381	36.159545	30
20	Optimized	31.687325	1.5070165	89.677026	223.00355	35.724733	30
21	Optimized	33.06197	1.8149895	89.691224	226.51737	36.662455	30
22	Optimized	34.758275	2.3311025	88.335012	214.01149	33.674912	30
23	Optimized	36.77624	3.0553555	85.592471	215.3781	34.775955	30
24	Optimized	38.51697	3.8131115	81.895282	198.24969	31.177071	30
25	Optimized	39.98047	4.6043705	77.24904	196.09788	31.84545	30
26	Optimized	40.85611	5.0777945	74.499485	194.92381	32.267601	30
27	Optimized	41.082055	5.199953	73.836717	194.02842	32.20527	30
28	Optimized	42.21166	5.955686	69.196173	172.42972	27.661347	30
29	Optimized	44.306755	7.378424	60.434115	151.53741	24.411054	30
30	Optimized	46.17715	8.74967	51.789008	124.7724	19.555841	30
31	Optimized	47.841605	10.084464	43.219258	99.09608	14.972149	30
32	Optimized	49.091605	11.059805	37.186977	77.697478	10.854756	30
33	Optimize	50.132175	11.82527	32.68992	60.447363	7.4375846	30

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	d						
34	Optimized	51.132175	12.563285	28.332032	44.879336	4.4338367	30
35	Optimized	52.50722	13.58375	21.924434	26.957977	1.3487338	30
36	Optimized	54.00722	14.92143	11.022055	16.731752	3.2964948	6
37	Optimized	54.703885	15.75581	2.7667554	8.8233454	3.4967739	6
38	Optimized	55.325245	16.5	-4.4489938	4.118691	3.4559921	0

Slices of Slip Surface: 85

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	85	0.8333335	4.5782195	4.2097746	23.922556	5.2820239	30
2	85	2.5	3.7768785	12.265453	42.736611	8.1647221	30
3	85	4.1666665	3.057686	19.674725	60.113203	10.835458	30
4	85	6.25	2.279378	28.195344	87.870073	15.989795	30
5	85	7.75	1.762761	34.43912	111.4245	20.628171	30
6	85	9.25	1.3421634	40.378361	139.31634	26.510352	30
7	85	11.625	0.7560624	50.332808	178.08266	34.23047	30
8	85	13.875	0.3285944	59.489373	206.43422	39.373753	30
9	85	15.58113	0.0722854	66.073379	219.41355	41.087375	30
10	85	17.08113	0	70.412419	206.29642	36.410007	30
11	85	19.012125	0	75.094517	214.30664	37.301776	30
12	85	21.036375	0	79.955579	230.57934	40.359515	30
13	85	23.060625	0	84.757359	246.34321	43.296799	30
14	85	25.084875	0	89.485039	261.57849	46.112302	30
15	85	27.0485	0.12640935	92.768544	253.17181	42.979926	30
16	85	28.75	0.38184115	94.130617	248.06936	41.247762	30
17	85	30.25	0.6662809	94.714427	236.11695	37.888692	30
18	85	32	1.0709751	94.634102	229.18181	36.051949	30
19	85	34	1.6191495	93.651089	226.83885	35.687554	30
20	85	36	2.268681	91.621091	223.38126	35.305031	30
21	85	38	3.024324	88.492622	218.93524	34.951995	30
22	85	40	3.891994	84.227178	213.5289	34.646291	30
23	85	41.629625	4.6773275	79.951321	204.15043	33.279051	30
24	85	43.049375	5.4414005	75.652527	189.05397	30.385826	30
25	85	44.629625	6.367462	70.361528	171.46981	27.091884	30
26	85	46.209875	7.383466	64.295444	152.93536	23.750993	30
27	85	48.25	8.861291	55.057527	118.25011	16.932402	30

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28	85	50.5	10.671426	43.456461	75.348751	8.5455133	30
29	85	52.8134	12.84218	28.624154	35.113699	1.7388683	30
30	85	54.3134	14.35347	16.833683	24.753343	4.5724178	6
31	85	55.123705	15.27883	7.8073133	14.65864	3.9556152	6
32	85	56.123705	16.466755	-3.8016878	4.3553535	3.6545755	0
33	85	56.520645	16.959875	-8.5032025	0.39447369	0.33100273	0
34	85	56.55849	17.00826	-8.9482216	-3.4739186	-2.3431877	6



True Copy

Stage-I Dyke Stability – Steady Seepage Condition

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
Side Function
Interslice force function option: Half-Sine
PWP Conditions Source: Parent Analysis
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Grid and Radius
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: No
Tension Crack
Tension Crack Option: (none)
FOS Distribution
FOS Calculation Option: Constant
Advanced
Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 m
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³



True Copy

Cohesion: 21 kPa
Phi: 8 °
Phi-B: 0 °

Existing Dyke (Earth)
Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash
Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Grid
Upper Left: (42.41632, 43.86784) m
Lower Left: (45.94144, 21.05824) m
Lower Right: (67.16128, 24.5488) m
Grid Horizontal Increment: 25
Grid Vertical Increment: 25
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius
Upper Left Coordinate: (59.9728, 17.32576) m
Upper Right Coordinate: (66.43552, 19.33024) m
Lower Left Coordinate: (58.2448, 13.69696) m
Lower Right Coordinate: (67.33408, 15.42496) m
Number of Increments: 25
Left Projection: No
Left Projection Angle: 135 °
Right Projection: No



True Copy

Right Projection Angle: 45 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (100, 16) m

Regions

	Material	Points	Area (m²)
Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	500
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	368.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3

Points

	X (m)	Y (m)
Point 1	0	0
Point 2	100	0
Point 3	0	5
Point 4	100	5
Point 5	5	5
Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17
Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9



True Copy

Point 16	73	9
Point 17	83	5
Point 18	100	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20
Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16
Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	3093	2.116	(57.261, 26.662)	12.787	(68.7253, 21)	(50.2024, 16)

Slices of Slip Surface: 3093

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	3093	50.52682	15.798925	1.971799	4.8416567	1.6569131	6
2	3093	51.175605	15.42224	5.6715336	9.776015	2.3697234	6
3	3093	51.842935	15.08614	9.0060967	16.312656	4.2184439	6
4	3093	52.51339	14.794645	11.953949	24.178628	7.0579217	6
5	3093	53.117425	14.568905	14.316713	30.700543	9.4592084	6
6	3093	53.670455	14.39326	16.226842	36.107856	11.478309	6
7	3093	54.223485	14.244725	17.884211	40.951717	13.318031	6
8	3093	54.833335	14.11263	19.520763	43.752723	13.990329	6
9	3093	55.5	14.00181	21.010838	44.441889	13.527924	6
10	3093	56.166665	13.92683	22.206739	44.398533	12.812438	6
11	3093	56.875	13.886885	23.189444	45.895109	13.109121	6
12	3093	57.625	13.886265	23.971582	48.746836	14.304	6
13	3093	58.375	13.929785	24.502319	50.71676	15.134914	6
14	3093	59.125	14.017905	24.847337	51.905437	15.622001	6
15	3093	59.801165	14.13427	25.002026	52.42355	15.831824	6

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16	3093	60.403495	14.271735	24.872684	52.461794	15.92858	6
17	3093	61.005825	14.440415	24.507298	52.1671	15.969394	6
18	3093	61.608155	14.641625	23.897998	51.569529	15.976166	6
19	3093	62.210485	14.87704	22.836373	50.679634	16.075315	6
20	3093	62.812815	15.14876	21.383051	49.49999	16.233323	6
21	3093	63.415145	15.45944	19.527428	48.015354	16.447512	6
22	3093	64.017475	15.812445	17.169294	46.183612	16.751424	6
23	3093	64.59131	16.190885	14.515104	43.210622	19.355372	6
24	3093	65.13665	16.59509	11.510379	40.054812	19.253463	6
25	3093	65.68199	17.04723	8.0103811	36.341224	19.109395	6
26	3093	66.22733	17.55449	3.9681238	31.932375	18.862125	6
27	3093	66.778165	18.133335	-0.79849868	25.636553	17.292074	6
28	3093	67.3345	18.800155	-6.4244724	18.383599	12.399894	6
29	3093	67.890835	19.57371	-13.129788	10.340481	6.9747425	6
30	3093	68.44717	20.495425	-21.343453	1.2320974	0.83106016	6

True Copy

Stage-I Dyke Stability – Earthquake Condition

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
Side Function
Interslice force function option: Half-Sine
PWP Conditions Source: Parent Analysis
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Grid and Radius
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: No
Tension Crack
Tension Crack Option: (none)
FOS Distribution
FOS Calculation Option: Constant
Advanced
Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 m
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³

True Copy

Cohesion: 21 kPa
Phi: 8 °
Phi-B: 0 °

Existing Dyke (Earth)
Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash
Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Grid
Upper Left: (42.41632, 43.86784) m
Lower Left: (45.94144, 21.05824) m
Lower Right: (67.16128, 24.5488) m
Grid Horizontal Increment: 25
Grid Vertical Increment: 25
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius
Upper Left Coordinate: (59.9728, 17.32576) m
Upper Right Coordinate: (66.43552, 19.33024) m
Lower Left Coordinate: (58.2448, 13.69696) m
Lower Right Coordinate: (67.33408, 15.42496) m
Number of Increments: 25
Left Projection: No
Left Projection Angle: 135 °
Right Projection: No



True Copy

Right Projection Angle: 45 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (100, 16) m

Seismic Loads

Horz Seismic Load: 0.1
Vert Seismic Load: 0.07
Ignore seismic load in strength: No

Regions

	Material	Points	Area (m^2)
Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	500
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	368.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3

Points

	X (m)	Y (m)
Point 1	0	0
Point 2	100	0
Point 3	0	5
Point 4	100	5
Point 5	5	5
Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17



True Copy

Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9
Point 16	73	9
Point 17	83	5
Point 18	100	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20
Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16
Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	4472	1.630	(57.827, 28.627)	14.745	(70.4468, 21)	(50.2127, 16)

Slices of Slip Surface: 4472

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	4472	50.534525	15.816785	1.7966743	5.453211	2.1111024	6
2	4472	51.178175	15.470915	5.1936628	10.57937	3.1094396	6
3	4472	51.875	15.142725	8.4496319	18.07586	5.5577052	6
4	4472	52.625	14.83573	11.566059	27.773661	9.3574635	6
5	4472	53.375	14.57545	14.309512	36.650806	12.898752	6
6	4472	54.125	14.35932	16.705391	44.499527	16.046952	6
7	4472	54.833335	14.19287	18.708763	48.791421	17.36823	6
8	4472	55.5	14.070435	20.313014	49.724966	16.980998	6
9	4472	56.166665	13.97935	21.67266	49.818351	16.249923	6

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10	4472	56.875	13.91728	22.881432	51.635902	16.601401	6
11	4472	57.625	13.887855	23.955075	54.95082	17.895402	6
12	4472	58.375	13.89665	24.837506	57.248445	18.712465	6
13	4472	59.125	13.943735	25.618808	58.655369	19.073668	6
14	4472	59.830105	14.022145	26.244254	59.314804	19.093291	6
15	4472	60.49032	14.128045	26.576953	59.442096	18.974699	6
16	4472	61.150535	14.26506	26.681565	59.192021	18.769921	6
17	4472	61.81075	14.43409	26.453738	58.637175	18.581116	6
18	4472	62.470965	14.63631	25.851338	57.825173	18.460102	6
19	4472	63.13118	14.87318	24.777962	56.783124	18.478189	6
20	4472	63.791395	15.14653	23.33143	55.516725	18.582189	6
21	4472	64.45161	15.45864	21.46824	54.015641	18.79125	6
22	4472	65.111825	15.81235	19.106402	52.241724	19.130687	6
23	4472	65.70645	16.167275	16.615035	49.480852	22.168274	6
24	4472	66.235485	16.51823	14.032737	46.83479	22.125264	6
25	4472	66.8289	16.955575	10.675282	41.980784	21.115828	6
26	4472	67.4867	17.49462	6.4238983	34.790279	19.133365	6
27	4472	68.1445	18.102425	1.4744571	26.762124	17.056747	6
28	4472	68.802295	18.79187	-4.2679164	18.80168	12.681893	6
29	4472	69.46009	19.58189	-11.003716	10.476486	7.0664787	6
30	4472	70.11789	20.502445	-19.014598	1.1940919	0.80542516	6

True Copy

Stage-I Dyke Stability after Multi-stage raising – Steady Seepage Condition

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
Side Function
Interslice force function option: Half-Sine
PWP Conditions Source: Parent Analysis
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Grid and Radius
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: No
Tension Crack
Tension Crack Option: (none)
FOS Distribution
FOS Calculation Option: Constant
Advanced
Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 m
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³

True Copy

Cohesion: 21 kPa
Phi: 8 °
Phi-B: 0 °

Existing Dyke (Earth)
Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash
Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Grid
Upper Left: (43.02458, 53.765824) m
Lower Left: (47.42061, 22.57888) m
Lower Right: (76.57542, 26.51872) m
Grid Horizontal Increment: 30
Grid Vertical Increment: 30
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius
Upper Left Coordinate: (53.64141, 16.35808) m
Upper Right Coordinate: (68.9031, 19.634368) m
Lower Left Coordinate: (61.14784, 12.874432) m
Lower Right Coordinate: (72.76, 16.026304) m
Number of Increments: 30
Left Projection: No
Left Projection Angle: 135 °
Right Projection: No



True Copy

Right Projection Angle: 45 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (180, 28) m

Regions

	Material	Points	Area (m²)
Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	900
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	1248.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3
Region 7	Pond Ash	38,18,23,22,31,39,37	394
Region 8	Ash Dyke Raising 1	37,36,35,34,33,39	99
Region 9	Rock Toe	33,39,31,32	4
Region 10	Pond Ash	37,38,57,46,47,40,36	290
Region 11	Ash Dyke Raising 1	47,46,45,44,43,42	102
Region 12	Rock Toe	40,47,42,41	4
Region 13	Pond Ash	46,57,56,54,55,48,45	182
Region 14	Rock Toe	48,55,50,49	4
Region 15	Ash Dyke Raising 1	55,54,53,52,51,50	102

Points

	X (m)	Y (m)
Point 1	0	0
Point 2	180	0
Point 3	0	5
Point 4	180	5
Point 5	5	5

True Copy

Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17
Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9
Point 16	73	9
Point 17	83	5
Point 18	180	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20
Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16
Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5
Point 31	77.5	20
Point 32	80.5	21
Point 33	81.5	21
Point 34	92.5	25
Point 35	98.5	25
Point 36	101.5	24
Point 37	113.5	20
Point 38	180	20
Point 39	84.5	20
Point 40	103.5	24
Point 41	106.5	25
Point 42	107.5	25

True Copy

Point 43	119.5	29
Point 44	125.5	29
Point 45	128.5	28
Point 46	140.5	24
Point 47	110.5	24
Point 48	130.5	28
Point 49	133.5	29
Point 50	134.5	29
Point 51	146.5	33
Point 52	152.5	33
Point 53	155.5	32
Point 54	167.5	28
Point 55	137.5	28
Point 56	180	28
Point 57	180	24

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	3282	1.976	(58.643, 27.274)	13.861	(71.003, 21)	(50.5784, 16)

Slices of Slip Surface: 3282

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	3282	51.039205	15.69733	2.9712866	6.5879451	2.0880788	6
2	3282	51.875	15.184715	8.0454802	15.511812	4.3106889	6
3	3282	52.625	14.793935	12.020684	25.199121	7.6085738	6
4	3282	53.375	14.458945	15.567882	34.105302	10.702585	6
5	3282	54.125	14.17544	18.707704	42.121954	13.518224	6
6	3282	54.833335	13.950775	21.415188	46.931985	14.73213	6
7	3282	55.5	13.77783	23.655005	48.705176	14.462723	6
8	3282	56.166665	13.63966	25.610506	49.767295	13.946929	6
9	3282	56.875	13.530875	27.424662	52.525805	14.492152	6
10	3282	57.625	13.455005	29.147688	56.783473	15.955528	6
11	3282	58.375	13.42013	30.719587	60.111422	16.969384	6
12	3282	59.125	13.425935	32.204493	62.584757	17.540054	6
13	3282	59.85	13.469595	33.746936	64.251957	17.612082	6
14	3282	60.55	13.548835	34.907476	65.274292	17.532289	6
15	3282	61.25	13.664515	35.667138	65.796406	17.395141	6

True Copy

16	3282	61.95	13.81758	35.947395	65.875349	17.278912	6
17	3282	62.65	14.009335	35.741802	65.555356	17.212863	6
18	3282	63.35	14.24149	35.099213	64.868312	17.187197	6
19	3282	64.05	14.516255	33.927001	63.826535	17.262504	6
20	3282	64.75	14.83646	32.243856	62.427028	17.426263	6
21	3282	65.45	15.205745	30.032993	60.642084	17.672167	6
22	3282	66.15	15.62881	27.225618	58.41591	18.007723	6
23	3282	66.603725	15.927225	25.148852	56.316887	17.994873	6
24	3282	67.065415	16.2741	22.566101	51.069833	19.22601	6
25	3282	67.781345	16.862405	18.002291	43.343435	17.092818	6
26	3282	68.49727	17.53898	12.52254	34.66006	14.931945	6
27	3282	69.213195	18.324145	5.9013757	24.618173	12.624639	6
28	3282	69.929125	19.2505	-2.151501	13.287754	8.9627033	6
29	3282	70.64505	20.37703	-12.205408	2.1552054	1.4537044	6



True Copy

Stage-I Dyke Stability after Multi-stage raising – Earthquake Condition

Project Settings

Length(L) Units: meters
Time(t) Units: Seconds
Force(F) Units: kN
Pressure(p) Units: kPa
Strength Units: kPa
Unit Weight of Water: 9.807 kN/m³
View: 2D

Analysis Settings

Slope Stability

Kind: SLOPE/W
Parent: SEEP/W Analysis
Method: Morgenstern-Price
Settings
Side Function
Interslice force function option: Half-Sine
PWP Conditions Source: Parent Analysis
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Grid and Radius
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: No
Tension Crack
Tension Crack Option: (none)
FOS Distribution
FOS Calculation Option: Constant
Advanced
Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 m
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Existing Dyke Base (Earth)

Model: Mohr-Coulomb
Unit Weight: 19.07 kN/m³

True Copy

Cohesion: 21 kPa
Phi: 8 °
Phi-B: 0 °

Existing Dyke (Earth)
Model: Mohr-Coulomb
Unit Weight: 19.6 kN/m³
Cohesion: 30 kPa
Phi: 15 °
Phi-B: 0 °

Pond Ash
Model: Mohr-Coulomb
Unit Weight: 12 kN/m³
Cohesion: 6 kPa
Phi: 30 °
Phi-B: 0 °

Ash Dyke Raising 1
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 6 kPa
Phi: 34 °
Phi-B: 0 °

Rock Toe
Model: Mohr-Coulomb
Unit Weight: 14 kN/m³
Cohesion: 0 kPa
Phi: 40 °
Phi-B: 0 °

Slip Surface Grid
Upper Left: (43.02458, 53.765824) m
Lower Left: (47.42061, 22.57888) m
Lower Right: (76.57542, 26.51872) m
Grid Horizontal Increment: 30
Grid Vertical Increment: 30
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius
Upper Left Coordinate: (53.64141, 16.35808) m
Upper Right Coordinate: (68.9031, 19.634368) m
Lower Left Coordinate: (61.14784, 12.874432) m
Lower Right Coordinate: (72.76, 16.026304) m
Number of Increments: 30
Left Projection: No
Left Projection Angle: 135 °
Right Projection: No



True Copy

Right Projection Angle: 45 °

Slip Surface Limits

Left Coordinate: (0, 5) m
Right Coordinate: (180, 28) m

Seismic Loads

Horz Seismic Load: 0.1
Vert Seismic Load: 0.07
Ignore seismic load in strength: No

Regions

	Material	Points	Area (m²)
Region 1	Existing Dyke Base (Earth)	1,2,4,17,30,5,3	900
Region 2	Existing Dyke (Earth)	17,16,15,14,13,12,11,10,9,8,7,6,28,29,30	501
Region 3	Pond Ash	4,18,23,26,19,12,13,14,15,16,17	1248.25
Region 4	Ash Dyke Raising 1	25,27,26,23,22,21,20	96
Region 5	Rock Toe	19,26,27,25,24	5
Region 6	Rock Toe	29,30,5,28	3
Region 7	Pond Ash	38,18,23,22,31,39,37	394
Region 8	Ash Dyke Raising 1	37,36,35,34,33,39	99
Region 9	Rock Toe	33,39,31,32	4
Region 10	Pond Ash	37,38,57,46,47,40,36	290
Region 11	Ash Dyke Raising 1	47,46,45,44,43,42	102
Region 12	Rock Toe	40,47,42,41	4
Region 13	Pond Ash	46,57,56,54,55,48,45	182
Region 14	Rock Toe	48,55,50,49	4
Region 15	Ash Dyke Raising 1	55,54,53,52,51,50	102

Points

	X (m)	Y (m)
Point 1	0	0

True Copy

Point 2	180	0
Point 3	0	5
Point 4	180	5
Point 5	5	5
Point 6	15	9
Point 7	18	9
Point 8	28	13
Point 9	31	13
Point 10	41	17
Point 11	47	17
Point 12	49.5	16
Point 13	57	13
Point 14	60	13
Point 15	70	9
Point 16	73	9
Point 17	83	5
Point 18	180	16
Point 19	51.5	16
Point 20	66.5	21
Point 21	72.5	21
Point 22	75.5	20
Point 23	87.5	16
Point 24	54.5	17
Point 25	56.5	17
Point 26	59.5	16
Point 27	58	16.5
Point 28	7.5	6
Point 29	8	6
Point 30	10.5	5
Point 31	77.5	20
Point 32	80.5	21
Point 33	81.5	21
Point 34	92.5	25
Point 35	98.5	25
Point 36	101.5	24
Point 37	113.5	20
Point 38	180	20



True Copy

Point 39	84.5	20
Point 40	103.5	24
Point 41	106.5	25
Point 42	107.5	25
Point 43	119.5	29
Point 44	125.5	29
Point 45	128.5	28
Point 46	140.5	24
Point 47	110.5	24
Point 48	130.5	28
Point 49	133.5	29
Point 50	134.5	29
Point 51	146.5	33
Point 52	152.5	33
Point 53	155.5	32
Point 54	167.5	28
Point 55	137.5	28
Point 56	180	28
Point 57	180	24

Critical Slip Surfaces

	Slip Surface	FOS	Center (m)	Radius (m)	Entry (m)	Exit (m)
1	5237	1.527	(59.322, 29.484)	16.166	(72.9824, 20.8392)	(50.4038, 16)

Slices of Slip Surface: 5237

	Slip Surface	X (m)	Y (m)	PWP (kPa)	Base Normal Stress (kPa)	Frictional Strength (kPa)	Cohesive Strength (kPa)
1	5237	50.951905	15.66796	3.2592234	8.2986451	2.9095115	6
2	5237	51.875	15.141225	8.4749995	18.758387	5.9371165	6
3	5237	52.625	14.77579	12.201493	29.542053	10.011577	6
4	5237	53.375	14.45665	15.591574	39.608748	13.866322	6
5	5237	54.125	14.18091	18.652519	48.776325	17.391987	6
6	5237	54.833335	13.95721	21.349869	54.318528	19.034464	6
7	5237	55.5	13.77973	23.6357	56.387841	18.909457	6
8	5237	56.166665	13.632265	25.686171	57.627645	18.441419	6
9	5237	56.875	13.50849	27.652245	60.784593	19.12897	6
10	5237	57.625	13.411475	29.588922	65.60745	20.795307	6
11	5237	58.375	13.349885	31.432603	69.322099	21.875511	6

True Copy

12	5237	59.125	13.323315	33.253539	72.018671	22.381059	6
13	5237	59.88889	13.332405	35.281395	73.820069	22.250313	6
14	5237	60.66667	13.37854	37.056436	74.893156	21.84504	6
15	5237	61.444445	13.462545	38.304815	75.350349	21.388249	6
16	5237	62.22222	13.585015	39.115114	75.300864	20.891852	6
17	5237	63	13.74686	39.323135	74.855304	20.514507	6
18	5237	63.77778	13.94931	39.057334	74.079539	20.220079	6
19	5237	64.555555	14.19398	38.297813	73.026645	20.050701	6
20	5237	65.33333	14.482945	37.021929	71.723796	20.035132	6
21	5237	66.11111	14.818835	35.180801	70.165589	20.198477	6
22	5237	66.934895	15.23118	32.651042	66.126549	19.327093	6
23	5237	67.80468	15.73174	29.26657	59.675072	17.556357	6
24	5237	68.594605	16.248745	25.499223	52.422888	18.160241	6
25	5237	69.304675	16.776405	21.400245	45.511513	16.263256	6
26	5237	70.01475	17.36868	16.626778	37.938449	14.374903	6
27	5237	70.724825	18.035675	11.078472	29.453789	12.394308	6
28	5237	71.434895	18.79152	4.6229021	19.730024	10.189882	6
29	5237	72.144965	19.65702	-2.9661598	9.3492369	6.3061399	6
30	5237	72.741185	20.47976	-10.376925	0.4779736	0.32239726	6

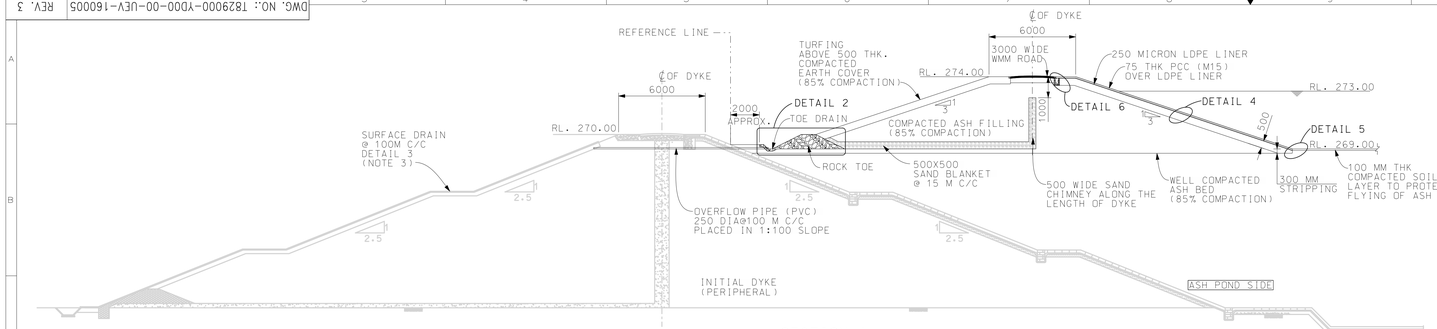
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ATTACHMENT- C

Design Drawings

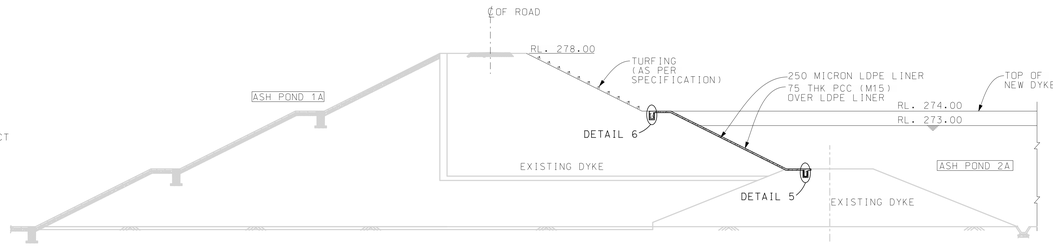
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DWG. NO.: T829000-YD00-00-UEV-160005 REV. 3



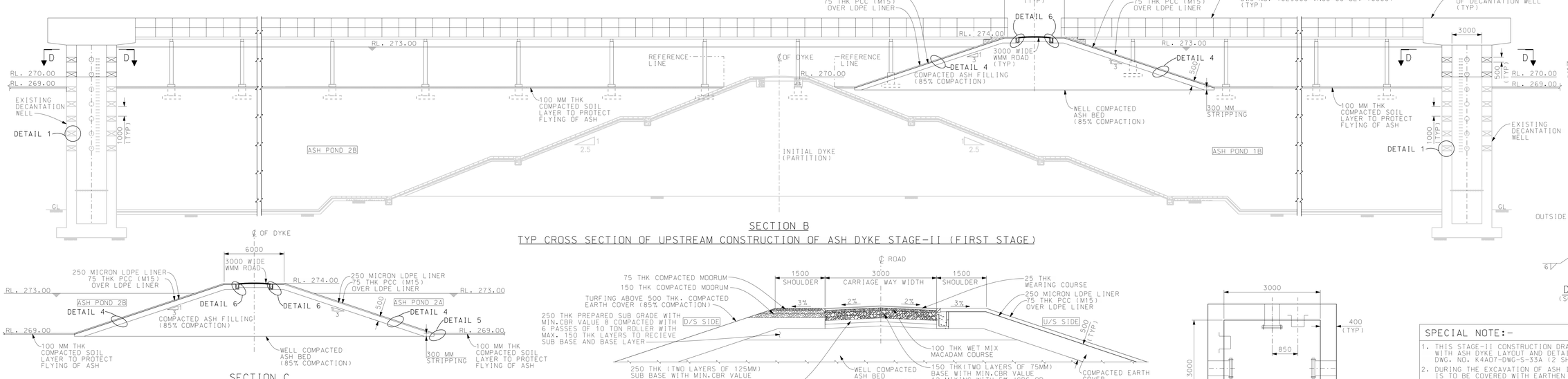
SECTION A

TYP CROSS SECTION OF UPSTREAM CONSTRUCTION OF ASH DYKE STAGE-II (FIRST STAGE)



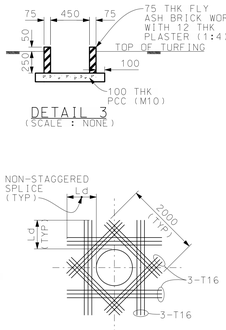
SECTION D

TYP CROSS SECTION OF ASH DYKE BETWEEN ASH POND 1A AND 2

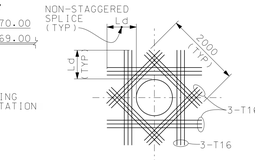


SECTION B

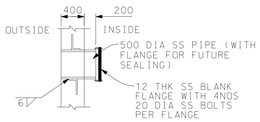
TYP CROSS SECTION OF UPSTREAM CONSTRUCTION OF ASH DYKE STAGE-II (FIRST STAGE)



DETAIL 3
(SCALE : NONE)



REINFORCEMENT DETAIL AROUND PIPE OUTLET

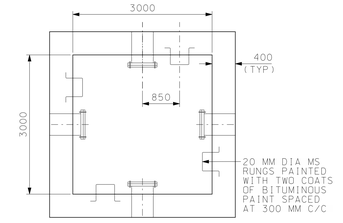


DETAIL 1
(SCALE : NONE)

SECTION C

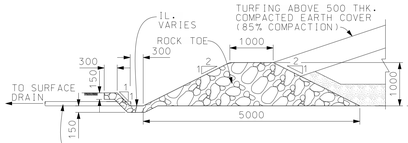
TYPICAL CROSS SECTION OF PARTITION DYKE

TYPICAL CROSS SECTION OF WMM ROAD
(SCALE : NONE)
(NOTE 2)

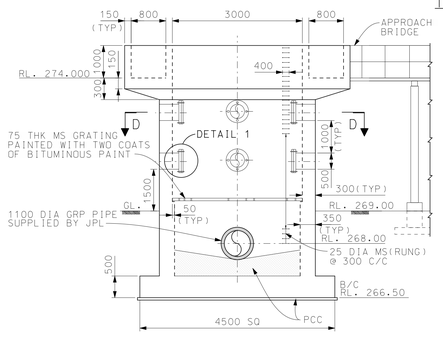


SECTION E
(SCALE : NONE)

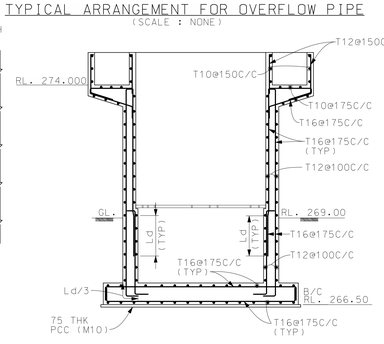
TYPICAL ARRANGEMENT FOR OVERFLOW PIPE
(SCALE : NONE)



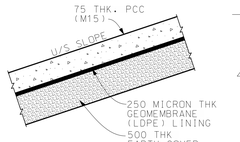
DETAIL 2
(SCALE : NONE)



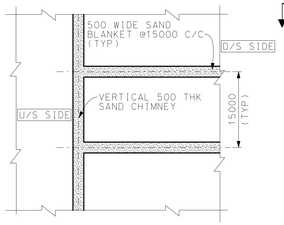
NEW DECANTATION WELL
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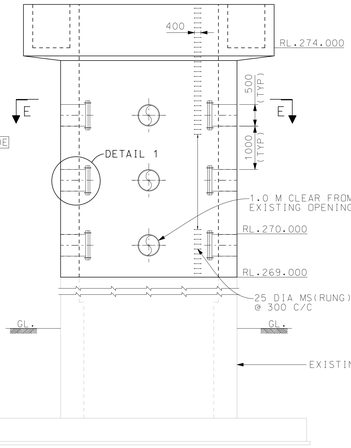
RCC DETAIL OF NEW DECANTATION WELL
(SCALE : NONE)



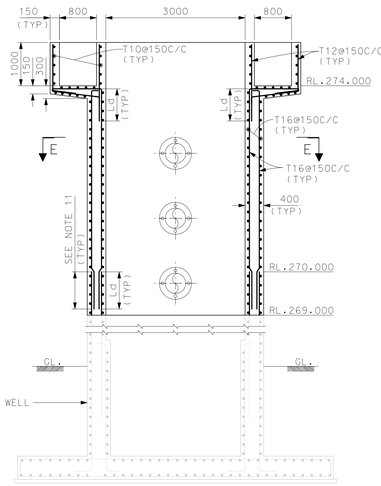
DETAIL 4
FOR U/S EMBANKMENT
(SCALE:NONE)



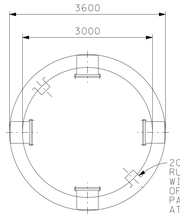
SAND FILTER PLAN
(SCALE : NONE)



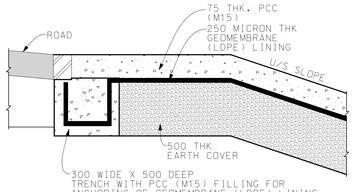
RAISING OF EXISTING DECANTATION WELL
(SCALE : NONE)



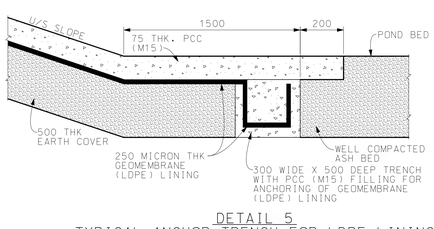
RCC DETAIL FOR RAISING OF EXISTING DECANTATION WELL
(SCALE : NONE)



SECTION D
(SCALE : NONE)



DETAIL 6
TYPICAL ANCHOR TRENCH FOR LDPE LINING
(SCALE:NONE)



DETAIL 5
TYPICAL ANCHOR TRENCH FOR LDPE LINING
(SCALE:NONE)

SPECIAL NOTE:-

1. THIS STAGE-II CONSTRUCTION DRAWING SHALL BE READ IN CONJUCTION WITH ASH DYKE LAYOUT AND DETAILS FOR STAGE-I. DWG. NO. K4A07-DWG-S-33A (2 SHEETS).
2. DURING THE EXCAVATION OF ASH IN ASH POND AREA. THE TOP OF THE ASH IS TO BE COVERED WITH EARTHEN LAYER OF 100 MM THK. TO PREVENT THE ASH FROM BLOWING DUE TO WIND.

NOTES:-

1. FOR OTHER NOTES AND REFERENCES SEE DWG T829000-YD00-00-UEV-160004.
2. IT IS PROPOSED TO CONSIDER THE FOLLOWING ITEMS FOR ROAD WORK IN ASH DYKE MODIFICATION WORK:
   A) A CRACK RELIEF LAYER OF WET MIX MACADAM OF 100 THK REQUIRED TO BE PROVIDED BETWEEN THE BITUMINOUS LAYER & BASE COURSE FOR ARRESTING THE PROPAGATION OF CARCKS FROM CEMENTITIOUS BASE TO THE BITUMINOUS LAYER.
   B) PRIME COAT @ 0.85 KG/SQ.M BITUMEN OVER BASE COURSE FOR PLUGING THE VOIDS AND FORMING A WATER TIGHT SURFACE.
   C) TACK COAT @ 0.45 KG/SQ.M BITUMEN OVER PRIME COAT & OVER BINDER FOR BONDING OF THE TWO LAYERS(OVER & BELOW).
3. SURFACE DRAIN ALONG DOWNSTREAM FACE OF EXISTING DYKE SHALL BE PROVIDED AT SPACING MENTIONED IN THE SECTION IF NOT PROVIDED EARLIER. LOCATION OF PVC DRAIN PIPE FROM NEW ROCK TOE DRAIN SHALL BE DECIDED AT SITE BASED ON THE SPACING OF SURFACE DRAIN.
4. GRADE OF CONCRETE FOR DECANTATION WALL SHALL BE M25 AS PER IS:456.
5. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF GRADE Fe500 CONFORMING TO IS:1786.
6. CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:
   FOUNDATION - 50MM
   WALL - 40MM
7. COMPACTION OF FLYASH AND EARTH SHALL BE DONE SIMULTANEOUSLY AT EVERY 225 MM THK LAYER TO ACHIEVE 85% DRY DENSITY AT OPTIMUM MOISTURE CONTENT.
8. THE EXISTING CONCRETE SHALL BE REMOVED UPTO THE INTENDED LEVEL AS INDICATED WITHOUT DAMAGING THE REINFORCEMENT. THE SURFACE OF CONCRETE SHALL BE CLEANED AND ROUGHENED TO TAKE THE NEW CONCRETE.
9. THE EXISTING REINFORCEMENT SHALL BE WIRE BRUSHED TO CLEAR FROM THE CONCRETE DIRT AND GIRTH IF ANY. THE REINFORCEMENT SHALL BE CLEANED AND A SUITABLE BONDING AGENT SHALL APPLIED AS PER MANUFACTURER'S INSTRUCTIONS BEFORE PROCEEDING WITH CONCRETING.
10. THE EXISTING CONCRETE SURFACE SHALL BE CLEANED AND BONDING AGENT SIKA DAUR 32 OR EQUIVALENT SHALL BE APPLIED.
11. THE NEW REINFORCEMENT SHALL BE LAPPED WITH THE EXISTING REINFORCEMENT.
12. STRIPPING OF ASH BED SHALL BE DONE BELOW EMBANKMENTS ONLY AND THE LOCATIONS FROM WHERE THE ASH IS TO BE BORROWED FOR CONSTRUCTION OF EMBANKMENT. REST PART OF EXISTING ASH BED SHALL BE KEPT UNDISTURBED.

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	OWNER'S CONSULTANT	L&T-SARGENT & LUNDY LIMITED, FARIDABAD, HARYANA
	PROJECT	O.P. JINDAL SUPER THERMAL POWER PLANT, 4x250 MW UNITS, TAMNAR, RAIGARH, CHHATTISGARH

APPROV.	MECH.	INST.	ELEC.	STRL.	ARCH.
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3	27.02.2015	GENERALLY REVISED AND RELEASED FOR CONSTRUCTION	SDA	DK
2	22.01.2015	REVISED AS PER CLIENT'S COMMENTS AND RELEASED FOR CONSTRUCTION	SDA	SD
1	08.01.2015	REVISED AS PER CLIENT'S COMMENTS AND RELEASED FOR CONSTRUCTION	SDA	SD
0	26.12.2014	RELEASED FOR CONSTRUCTION	SDA	MDA
B	18.12.2014	RELEASED FOR INFORMATION	SDA	MDA
A	30.06.2014	RELEASED FOR APPROVAL	SDA	SD/MS

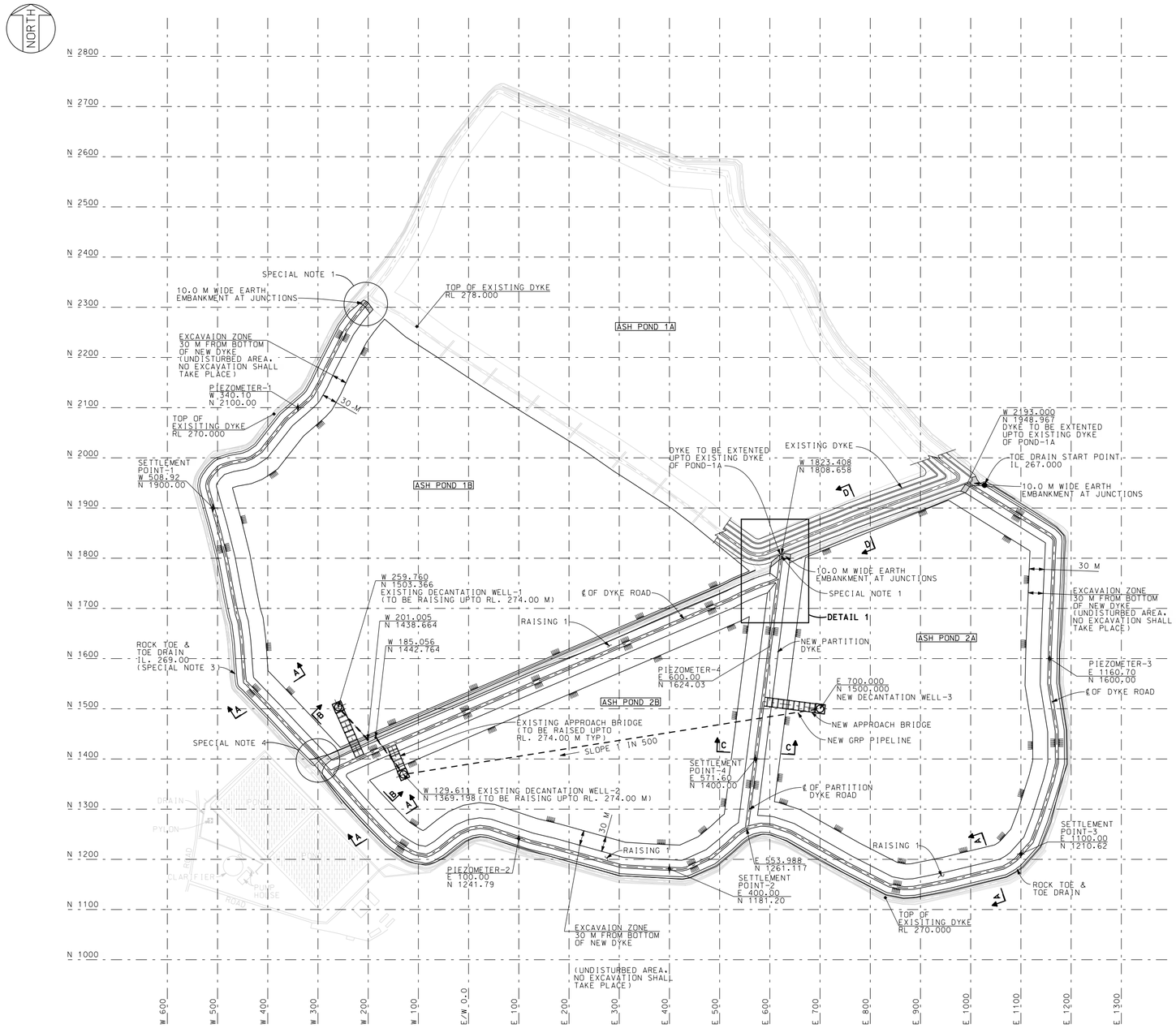
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ASH DYKE AREA
SECTIONAL DETAILS OF CONSTRUCTION OF ASH DYKE STAGE-II

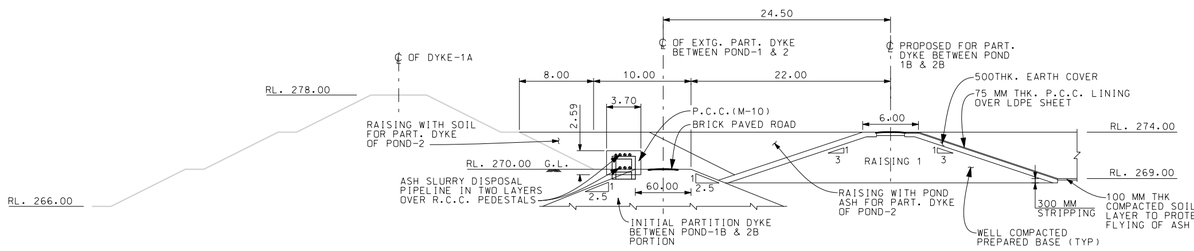
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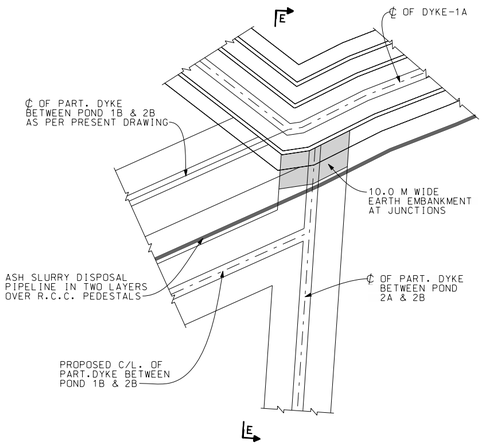
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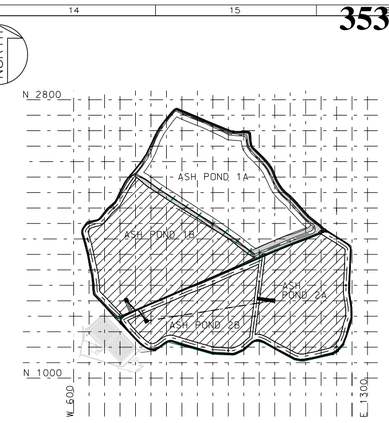
LAYOUT
PROPOSED CONSTRUCTION OF ASH DYKE (STAGE-II)



CROSS SECTION AT E-E
(SCALE : NONE)



DETAIL- 1
(SCALE : NONE)



KEY PLAN
(SCALE : NONE)

HOLD LIST:-

LEGENDS:-

: PROPOSED DYKE STAGE-II

IL : INVERT LEVEL

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS. SPECIFICATIONS AND SCHEDULE OF ITEMS.
3. THE APPROX ELEVATIONS ARE SHOWN IN LAYOUT PLAN. HOWEVER, THE ELEVATIONS MAY BE CHECKED / ADJUSTED LOCALLY TO SUIT SITE.
4. THE DYKE SHALL BE CONSTRUCTED FROM THE POND ASH EXCAVATED FROM INSIDE OF ASH POND. PROPER COMPACTION OF SURFACE SHALL BE DONE BY ROLLING TO PREPARE THE BASE TREATMENT AS PER SPECIFICATION.
5. DYKE SHALL BE PREPARED BY COMPACTING THE LAYERS AND FINISHING WITH LINING AS PER DRAWING AND SPECIFICATION.
6. ALL REINFORCED CONCRETE SHALL BE M25 GRADE.
7. ALL LEAN CONC. SHALL BE OF M10.
8. ALL REINFORCEMENTS SHALL BE HIGH YIELD STRENGTH DEFORMED BARS (HYSD) OR THERMO MECHANICALLY TREATED BARS (TMT) CONFORMING TO IS:1786 CORRESPONDING TO GRADE Fe500 AND DESIGNATED AS IN THE DRAWING.
9. THE NEW ROAD AT THE TOP OF NEW DYKE SHALL BE MAINTAINED AS 1:30 VERTICAL SLOPE. LOCATION OF CONNECTING ACCESS ROAD SHALL BE SUITABLY DECIDED AT SITE.
10. PIEZOMETER TO BE INSTALLED ON THE DWONSTREAM FACE OF DYKE AT THE LOCATIONS OF SAND BLANKET. CO-ORDINATES FURNISHED IN THE DRAWING ARE MEASURED APPROXIMATELY.
11. CO-ORDINATES OF THE SETTLEMENT POINTS FURNISHED IN THE DRAWING ARE MEASURED APPROXIMATELY. THE SAME SHALL BE SUITABLY ADJUSTED AT SITE TO AVOID ANY CLASHES WITH OTHER UTILITIES.
12. THE DEPTH OF CUTTING SUBJECT TO MINIMUM 1.0 M AND MAXIMUM 3.0 M UNO.

REFERENCE:-

DRAWING NO.	DRAWING TITLE
1. K4A07-DWG-S-33A (SHT.-1)	ASH DYKE AREA LAYOUT AND DETAILS
2. K4A07-DWG-S-33A (SHT.-2)	DETAILS OF ASH DYKE
3. K8B15-DWG-S-0037A	MODIFICATION OF EXISTING ASH DYKE AREA LAYOUT AND DETAILS OF MODIFICATION
4. JPL/ASH DYKE/SITE/011	TEST LOCATIONS FOR GEO-TECHNICAL INVESTIGATION IN ASH DYKE, JPL TAMNAR

SPECIAL NOTES:-

1. TOP OF NEW DYKE SHALL MATCH WITH BERM LEVEL OF EXISTING DYKE AT RL. 274.00 M.
2. NO ENERGY DISSIPATING STRUCTURE IS PROVIDED CONSIDERING SLURRY WILL BE DISPOSED INSIDE THE POND. NOT ON THE UPSTREAM FACE OF DYKE.
3. GENTLE SLOPE OF 1 IN 1000 SHALL BE PROVIDED IN TOE DRAIN TO AVOID POOLING OF RAIN WATER WITHIN THE SPACE BETWEEN STARTER DYKE & RAISED SYKE. DIRECTION OF SLOPE SHALL BE DECIDED AT SITE BASED ON THE EXISTING DYKE DRAINAGE SYSTEM.
4. PROPER OUTLET ARRANGEMENT TO BE PROVIDED TO DRAIN OFF RAIN WATER FROM DYKE TOE DRAIN TO EXISTING STILLING POND.
5. CONSTRUCTION OF DYKE FOR POND 1B AND 2B SHALL BE STARTED ONLY AFTER THE ASH COMPLETELY SETTLES AND DRIES.

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PROJECT		O.P. JINDAL SUPER THERMAL POWER PLANT, 4x250 MW UNITS, TAMNAR, RAIGARH, CHHATTISGARH

APPROV.	MECH.	INST.	ELEC.	STRL.	ARCH.	NATURE OF REVISION & DESCRIPTION	CHECKED	DRAWN	REV.	DATE
TVS		DM	–	–	KGG	–	REVISED AS PER CLIENT'S COMMENTS AND RELEASED FOR CONSTRUCTION	SDA	SD	3	13.04.2015
TVS		DM	–	–	KGG	–	REVISED AS PER CLIENT'S COMMENTS AND RELEASED FOR CONSTRUCTION	SDA	SD	2	22.01.2015
TVS		DM	–	–	KGG	–	REVISED AS PER CLIENT'S COMMENTS AND RELEASED FOR CONSTRUCTION	SDA	SD	1	08.01.2015
TVS		DM	–	–	KGG	–	RELEASED FOR CONSTRUCTION	SDA	MDA	0	26.12.2014
TVS		DM	–	–	KGG	–	RELEASED FOR INFORMATION	SDA	MDA	B	18.12.2014
TVS		DM	–	–	KGG	–	RELEASED FOR APPROVAL	SDA	SD	A	30.06.2014

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ASH DYKE AREA
GENERAL ARRANGEMENT OF CONSTRUCTION OF ASH DYKE STAGE-II

DRAWN : SD | CHECKED : RS | SCALE : 1:3500
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ANNEXURE - G (COLLY)

JINDAL POWER

Ref: JPL/EMD/FA/3400MW/RO/2021/175

Date: 18.11.2021

The Regional Officer
Chhattisgarh Environment Conservation Board
TV Tower Road
Raigarh (C. G.)

Sub: Regarding Hon'ble NGT, Case No. 104/2018 of Shivpal Bhagat Vs Union of India other.

Ref: 1.Your letter no 1262/R.O./C.E.C.B/2021 Raigarh dated 14/10/2021

2.Our reply dated 19.10.2021

Dear Sir,

This has reference to above referred letter on captioned subject regarding Hon'ble NGT, Case No. 104/2018 of Shivpal Bhagat Vs Union of India. We would like to inform you that as per instruction given by oversight committee during the hearing at Bilaspur, the stability study of ash dyke through reputed institute i.e. National Institute of Technology (NIT) Raipur has been completed. NIT, Raipur has submitted the report. The stability report is attached as **Annexure-1**.

We hope the above study is in line with your requirement.

Thanking You,

Yours faithfully,
For Jindal Power Limited

S.K. Singh
GM – EMD

Encl.: As above

Jindal Power Limited
CIN No. : U04010CT1995PLC008985
Corporat ...entre, 12 Bhikaiji Cama Place, New Delhi 110 066
T +91 11 ... 11 2616 1271 E info@jindalpower.com W www.jindalpower.com
Registered Office: Tamnar 496 107, District Raigarh, Chhattisgarh

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राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर
(राष्ट्रीय महत्व का संस्थान)

National Institute of Technology Raipur
(An Institution of National Importance)

Testing and Consultancy Cell — Department of Civil Engineering

Report No. 212 Civil/Consultancy/2021 Raipur, Dated 16/11/2021

To,

The HoD, Civil
Jindal Power Limited,
Tamnar, Raigarh, Chhattisgarh

Subject : Stability Analysis of Ash Dyke Lagoon 2B, Tamnar, Raigarh.

Reference: 1. Your letter No.: Nil, Dated: 14.10.2021
2. This office Proforma invoice No. 157/T&C/Civil/2021, Dated: 18.10.2021.
3. This office Tax invoice No. NITRR/T&C/2173, Dated: 21.10.2021.
4. This office Proforma invoice No. 181/T&C/Civil/2021, Dated: 29.10.2021.
5. This office Tax invoice No. NITRR/T&C/ 2230, Dated: 15.11.2021.
6. Your letter No. Nil, Dated 27.10.2021.

CONSULTANCY REPORT (Report No. 166/RKT+GDR+LKY/2021)

1 Preamble

HoD, Civil O.P. Jindal Power Limited Tamnar Raigarh has entrusted Department of Civil Engineering, National Institute of Technology (NIT) Raipur for the stability analysis of lagoon 2B, vide referred letter No. 1, where ash boiling/leakage was reported in the month of February 2021. In response, Department of Civil Engineering, NIT Raipur has raised proforma invoice (ref. 2) for the site visit of ash dyke to see the site condition and assess the quantum of work for the stability analysis of lagoon 2B. Further, Jindal Power Limited (JPL) has deposited the site visit charges and subsequently NIT Raipur has issued Tax Invoice vide ref. No. (3).

Team of three membes have been constituted by Head of Department, Civil Engineering, National Institute of Technology Raipur for the site visit and stability analysis of lagoon 2B.

1. Dr. R. K. Tripathi, Professor
2. Dr. G. D. Ramtekkar, Professor
3. Dr. Laxmikant Yadu, Associate Professor

Following members visited the site on 27.10.2021 along with the officials of Jindal Power Limited.

1. Dr. R. K. Tripathi, Professor NIT Raipur
2. Dr. Laxmikant Yadu, Associate Professor
3. Mr. J.P. Tripathi, HoD (Civil), O. P. Jindal Super Thermal Power Plant Tamnar, Raigarh.

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Lagoon 2B was visited by the team on 27.10.2021. During the visit, officials of Jindal Power Ltd has shown the area (chainage between E/w 0.0 to E100 as per drawing No. JPL-HO-ADR-STG-IV- DWG-001, General arrangement for construction of ash pond) where ash boiling was reported in lagoon 2B. Authorities of Jindal Power Ltd has reported that problem was retified as per standard guidelines / procedures. During the site visit no ash boiling/leakage was observed in the mentioned area.

Team of NIT Raipur has asked the officials of Jindal Power Ltd to submit the ash materials, properties of materials of starter dyke, ash dyke, rock toe etc. and relevant drawings for the proposed stability analysis of ash dyke during the site visit.

Further, Department of Civil Engineering, NIT Raipur has raised proforma invoice (ref. 4) for the stability analysis of lagoon 2B. Jindal Power Ltd has deposited the consultancy charges and subsequently NIT Raipur has issued Tax Invoice vide ref. No. (5).

Following materials, documents and drawings have been submitted with referred letter No (6).

1. Flyash, location 00 Mtr, Chainage 50 m.
2. Flyash, location 03 Mtr, Chainage 50 m.
3. Bottom Ash, location 00 Mtr, Chainage 75 m.
4. Bottom Ash, location 03 Mtr, Chainage 75 m.
5. Shear strength parameters of starter dyke bearing stratum, starter dyke material (soil), Stage I to IV dyke material & Pond ash, Stage I to IV dyke material & Pond Ash and Rock Toe.
6. Unit weight and permeability details of Starter dyke bearing stratum, starter dyke material (soil), Pond ash, Stage I to IV dyke material and Rock Toe.
7. Drawing No. JPL-HO-ADR-STG-IV- DWG-001, General arrangement for construction of ash pond .

2 Analysis Methodology

Stability analysis of lagoon 2B has been done by considering the following codes and standards for static and siesmic cases.

IS 7894-1975 code of practice for stability analysis of earth dams.

U.S. Army corps of engineers "enginering and design: stability analysis of earth and rock fill dams." Engineering manual EM 1110-2-1902.

IS 1893-1984: Criteria for earthquake resistant design of structures.

1893 (Part 1) – 2016: Criteria for Earthquake Resistant Design of Structures Part 1: General Provisions and Buildings (Sixth revision)

3 Analysis Parameters

Stability analysis of lagoon 2B has been done with various parameters. All parameters i.e. material of construction and soil parameters, geometry, sloping geometry and siesmic parameters provided vide referred letter (6) are mentioned in Table 3.1 and section 3.1 .

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Table 3.1: Parameters for the stability analysis of lagoon 2B provided by the Jindal Power Ltd.

1. Material of construction and soil parameters

(I) Shear Strength Parameters

Description	Cohesion (c) (kPa)	Angle of Internal Friction (Φ) (Degree)
Starter dyke bearing stratum	30.0	15°
Starter dyke material (soil)	30.0	15°
Stage I to IV dyke material & Pond ash	6.0	30°
Stage I to IV dyke material & Pond Ash	6.0	34°
Rock Toe	-	40°

(II) Unit weight and permeability

Description	Unit weight (kN/m^3)	Permeability (m/sec)
Starter dyke bearing stratum	19.07	$7x10^{-9}$
Starter dyke material (soil)	19.6	$1x10^{-9}$
Pond ash	13.0	$5x10^{-6}$
Stage I to IV dyke material	14.0	$1x10^{-6}$
Rock Toe	20.0	$1x10^{-4}$

3.1 Geometry

Schematic layout of the starter and ash dyke are presented in Fig. 3.1, as provided by the Jindal Power Ltd.

Existing pond was filled in three stages after constructing mother dyke having top level of 270m.

Stage – I raising of 4 m till 274 m

Stage –II raising of 4 m till 278 m

Stage – III raising of 4 m till 282 m.

Minimum 1.0 m free board was maintained while filling the ash pond. Pond is already filled up with ash upto RL 281.0 m. Slope on both upstream and downstream side of the ash dyke is constructed as 1 vertical (V) to 3 horizontal (H). 1 m free board is considered for all stage of dyke filling. 20 kPa road surcharge is considerd for stage I to III ash dyke filling.

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Along the periphery of ash dyke continuous vertical sand chimney has been provided to allow smooth flow of seepage. Seepage water, if any, is further directed towards the rock toe to suitably intercept and divert to final draingae discharge by means of pipes to the surface drain existing at the starter dyke face.

4 Slope stability analysis of lagoon 2B

Slope stability analysis are performed as per the classical limit equilibrium and standard procedures.

4.1 Acceptance criteria

The dyke is analysed for the following conditions:

a. Steady seepage: Normal condition
b. Steady seepage earthquake condition (Pseudo static): Seismic condition

The minimum factor of safety required for different loading conditions as given in the IS 7894-1975 are as below:

Loading condition	Minimum Factor of Safety required
Steady seepage condition	1.5
Earthquake condition (Pseudo static)	1.0

4.2 Pseudo static seismic coefficient

The horizontal seismic coefficient is considered as 0.10 (Zone – II is considered for the present site as per IS 1893 (Part 1):2016). Vertical seismic coefficient is taken as one half of horizontal seismic coefficient i.e. 0.05 (as per the Cl. No. 7.4.3.1 of IS 1893-1984).

4.3 Material properties

Fly ash and bottom ash material from 00.0 meters and 03.0 meters depth have been provided from the ash dyke by Jindal Power Ltd. The same has been tested in the laboratory and results have been used for the analysis. Other material parameters have been taken same as provided by the Jindal Power Ltd. Table 4.1 shows the material properties which have been used for the slope stability analysis.

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Table 4.1: Parameters for the stability analysis of lagoon 2B

1. Material of construction and soil parameters

(i) Shear Strength Parameters

Description	Cohesion (c) (kPa)	Angle of Internal Friction (Φ) (Degree)
Starter dyke bearing stratum	30.0	15°
Starter dyke material (soil)	30.0	15°
Pond ash	3.0	29°
Stage I to IV dyke material	6.0	34°
Rock Toe	-	40°

(ii) Unit weight and permeability

Description	Unit weight (kN/m^3)	Permeability (m/sec)
Starter dyke bearing stratum	19.07	$7x10^{-9}$
Starter dyke material (soil)	19.6	$1x10^{-9}$
Pond ash	12.5	$3x10^{-6}$
Stage I to IV dyke material	14.0	$1x10^{-6}$
Rock Toe	20.0	$1x10^{-4}$

4.4 Slope stability analysis with pond ash filling for stage - III

The following steps are considered for seepage and stability analysis for stage III. All these steps are also analysed for seismic conditions.

(1) Step-1: Seepage analysis
(2) Step-2: Local stability analysis with ash dyke-I
(3) Step-3: Local stability analysis with ash dyke-II
(4) Step-4: Lcoal stability analysis with ash dyke-III
(5) Step-5: Global stability analysis

Factor of safety obtained through the seepage and slope stability analysis with pond ash filling for stage –III, considering 20 kPa surcharge for stage –I to stage –III is presented in the following Table 4.2.

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Table 4.2: Factor of Safety obtained from stability analysis

S.No.	Section	Obtained Factor of Safety	
		Normal	Seismic
1	Step-2: Ash Dyke Raising-1	1.881	1.339
2	Step-3: Ash Dyke Raising-2	1.987	1.422
3	Step-4: Ash Dyke Raising-3	2.206	1.566
4	Step-5: Global Stability	1.880	1.060

Figures 4.1 to 4.4 show the stability analysis of various steps in normal loading. Stability analysis of seismic loading is shown in Figs 4.5 to 4.8 for various steps.

4.5 Slope stability analysis with water ponding

Stability analysis considering the water ponding for ash dyke raising-III is also carried out for both normal and seismic stability analysis. Factor of safety obtained through the seepage and slope stability analysis with water ponding for stage –III and global stability is presented in the following Table 4.3.

Table 4.3: Factor of Safety obtained from stability analysis with water ponding

S.No.	Section	Obtained Factor of Safety	
		Normal	Seismic
1	Step-4: Ash Dyke Raising-3	2.175	1.540
2	Step-5: Global Stability	1.827	1.011

Figures 4.9 to 4.10 and 4.11 to 4.12 represent the stability analysis of various steps in normal loading and seismic loading condition respectively.

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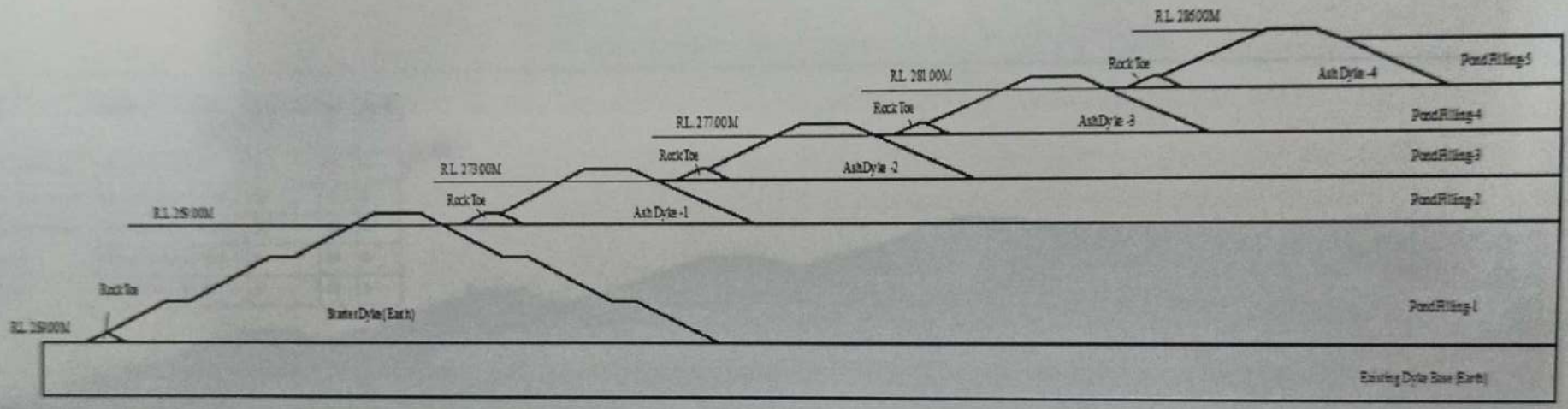


Fig 3.1: Schematic layout of ash dyke stage I to stage IV

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☎ : 0771-4270336; 2255920 (Dept); 🖷: 2255261; URL: www.nitrr.ac.in

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Factor of Safety = 1.881

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)
	Ash Dyke Raising	Mohr-Coulomb	14	6	34	0
	Existing Dyke (Earth)	Mohr-Coulomb	19.6	30	15	0
	Existing Dyke Base	Mohr-Coulomb	19.07	30	15	0
	Pond Ash	Mohr-Coulomb	12.5	3	29	0
	Rock Toe	Mohr-Coulomb	20	0	40	0

1.881

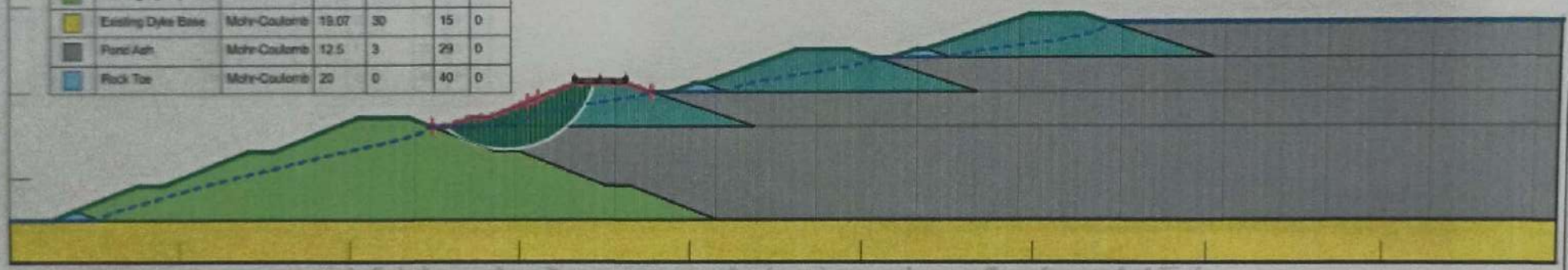


Fig.4.1: Step-2 Local stability analysis of ash dyke raising -1 with fly ash ponding

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Factor of Safety = 1.987

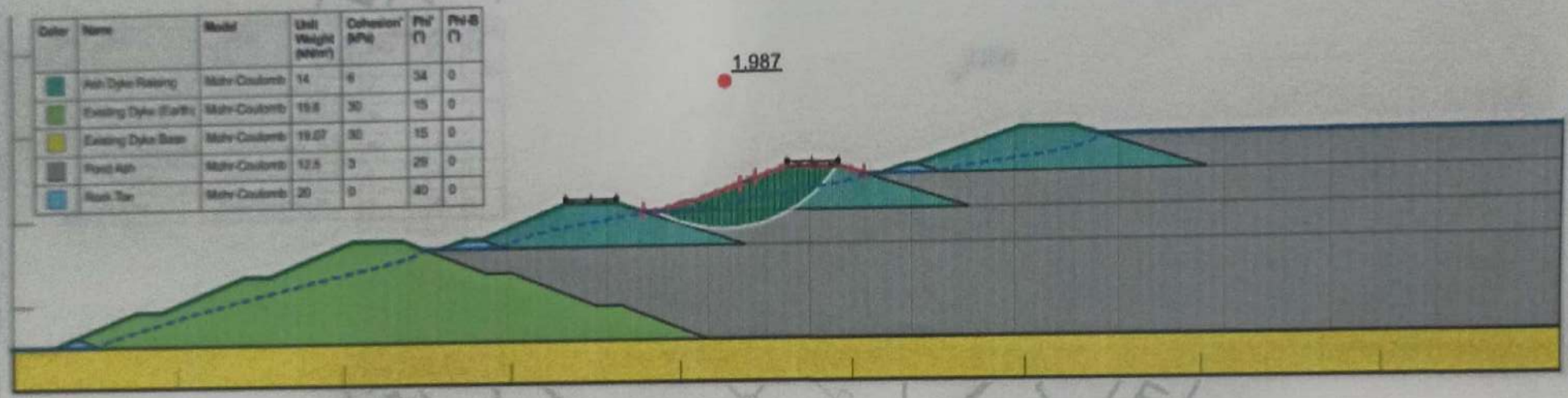


Fig. 4.2: Step-3 Local stability analysis of ash dyke raising -2 with fly ash ponding

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Factor of Safety = 2.206

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)
	Ash Dyke Raising	Mohr-Coulomb	14	6	34	0
	Existing Dyke (Earth)	Mohr-Coulomb	19.6	30	15	0
	Existing Dyke Base	Mohr-Coulomb	19.07	30	15	0
	Pond Ash	Mohr-Coulomb	12.5	3	29	0
	Rock Toe	Mohr-Coulomb	20	0	40	0

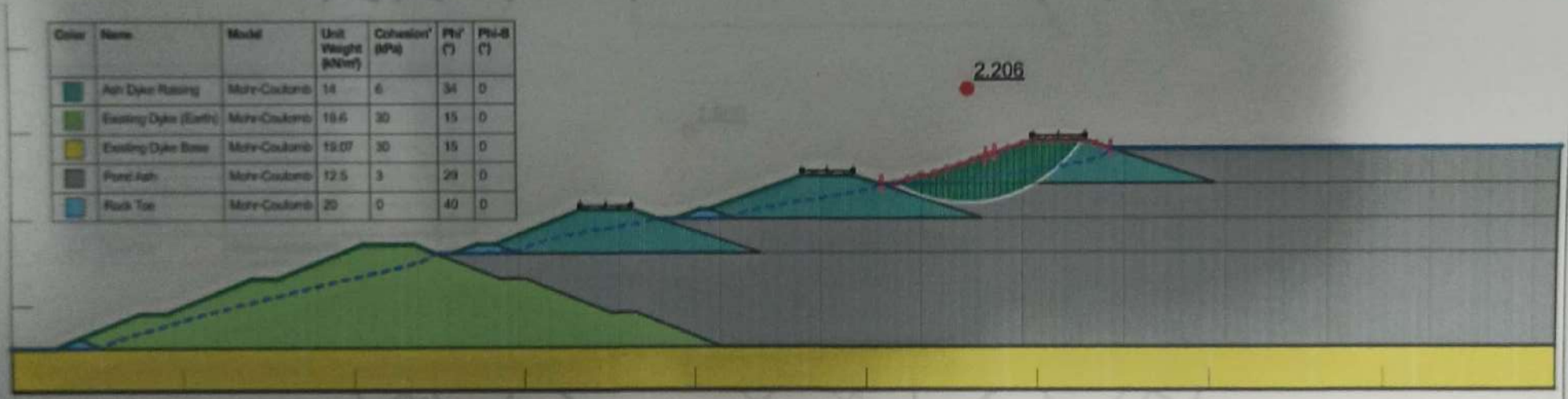


Fig. 4.3: Step-4 Local stability analysis of ash dyke raising -3 with fly ash ponding

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Factor of Safety = 1.880

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)
	Ash Dyke Raising	Mohr-Coulomb	14	6	34	0
	Existing Dyke (Earth)	Mohr-Coulomb	19.6	30	15	0
	Existing Dyke Base	Mohr-Coulomb	19.07	30	15	0
	Pond Ash	Mohr-Coulomb	12.5	3	29	0
	Rock Toe	Mohr-Coulomb	20	0	40	0

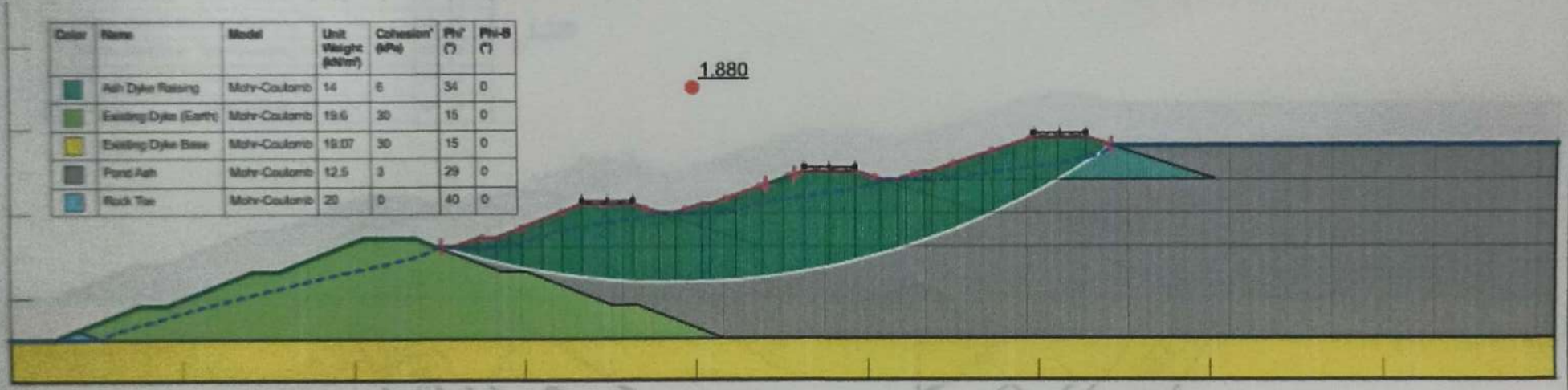


Fig. 4.4: Step-5 Global stability analysis with fly ash ponding

G.E. ROAD, RAIPUR (Chhattisgarh) 492 010
☎ : 0771-4270336; 2255920 (Dept); 昌: 2255261; URL: www.nitrr.ac.in

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Factor of Safety = 1.339

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)
	Ash Dyke Raising	Mohr-Coulomb	14	6	34	0
	Existing Dyke (Earth)	Mohr-Coulomb	19.6	30	15	0
	Existing Dyke Base	Mohr-Coulomb	19.07	30	15	0
	Pond Ash	Mohr-Coulomb	12.5	3	29	0
	Rock Toe	Mohr-Coulomb	20	0	40	0

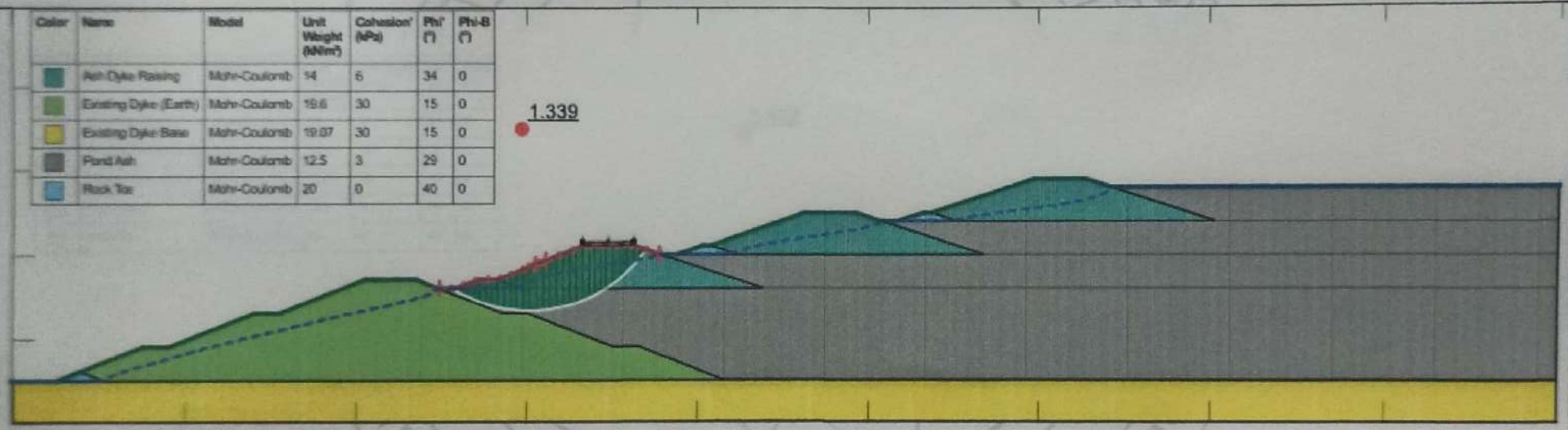


Fig.4.5: Step-2 Local stability analysis of ash dyke raising -1 with fly ash ponding for seismic loading

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Fig. 4.6: Step-3 Local stability analysis of ash dyke raising -2 with fly ash ponding for seismic loading

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Factor of Safety = 1.566

Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)
	Ash Dyke Raising	Mohr-Coulomb	14	6	34	0
	Existing Dyke (Earth)	Mohr-Coulomb	19.6	30	15	0
	Existing Dyke Base	Mohr-Coulomb	19.07	30	15	0
	Pond Ash	Mohr-Coulomb	12.5	3	29	0
	Rock Toe	Mohr-Coulomb	20	0	40	0

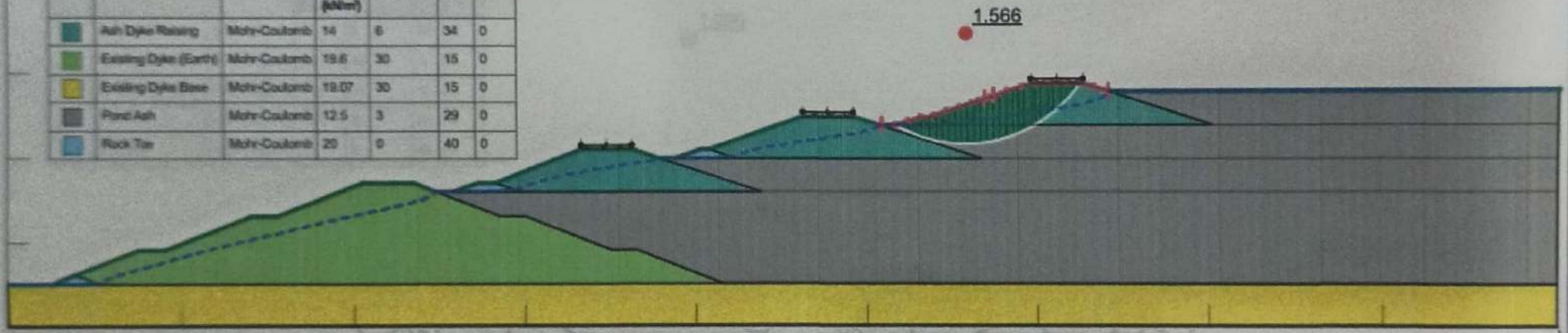


Fig. 4.7: Step-4 Local stability analysis of ash dyke raising -3 with fly ash ponding for seismic loading

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Fig. 4.8: Step-5 Global stability analysis with fly ash ponding for seismic loading

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Fig. 4.9: Step-4 Local stability analysis of ash dyke raising -3 with water ponding

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Fig. 4.10: Step-5 Global stability analysis with water ponding

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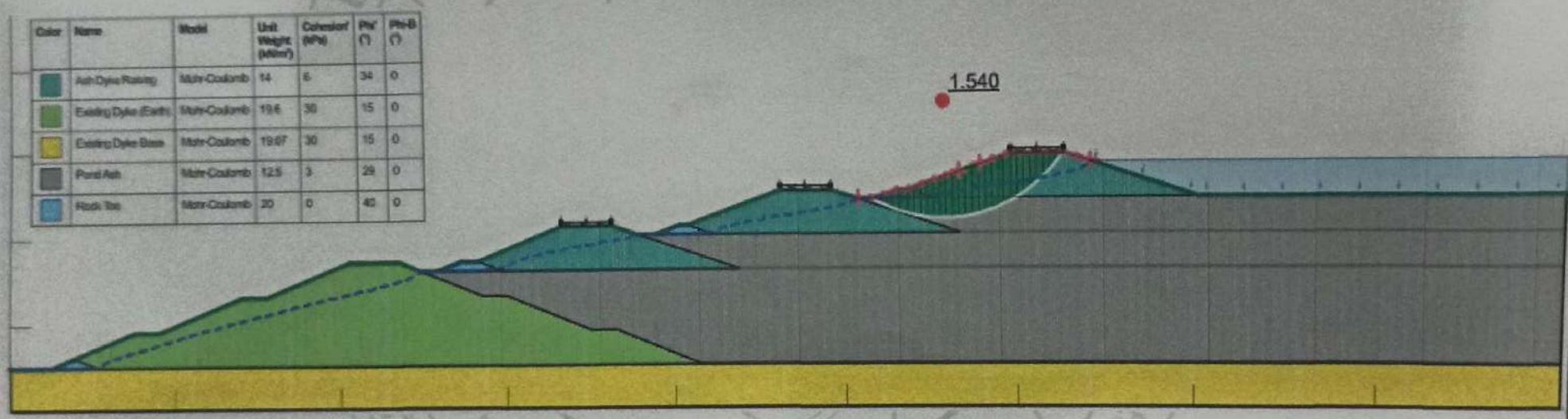


Fig. 4.11: Step-4 Local stability analysis of ash dyke raising -3 with water ponding for seismic loading

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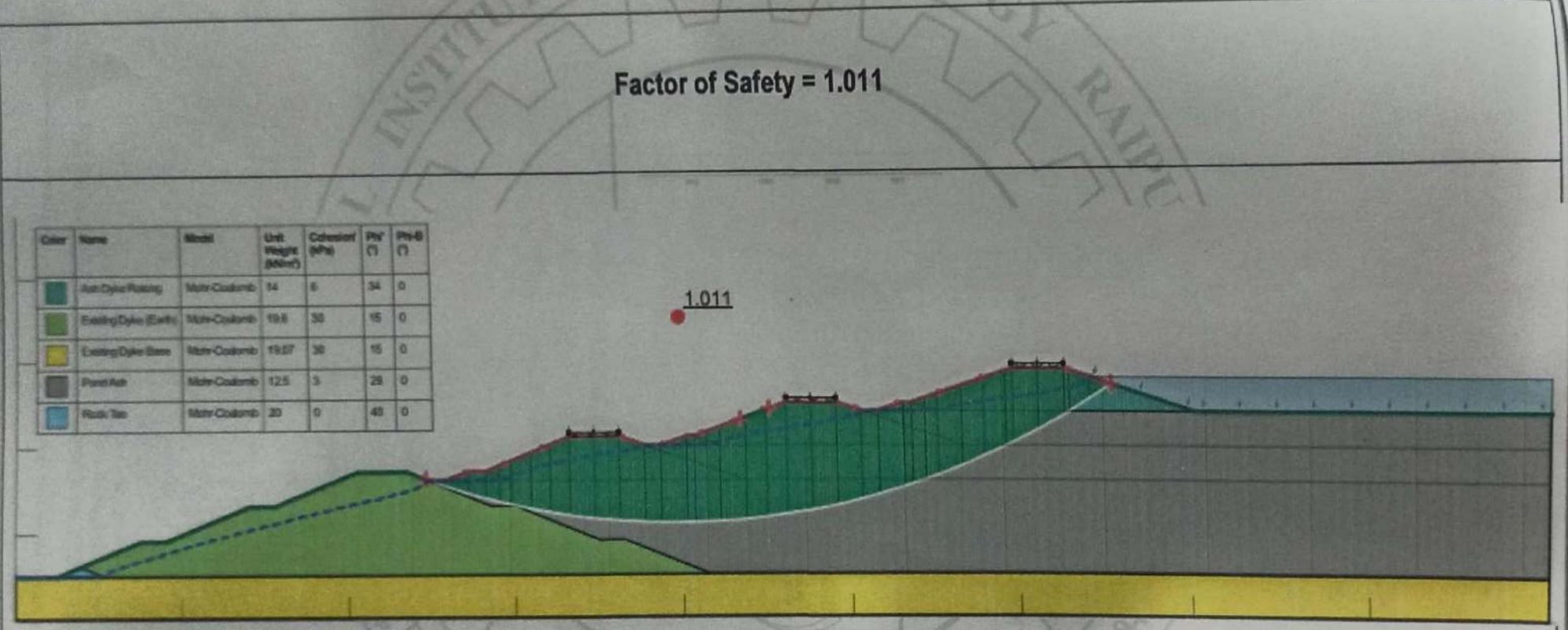


Fig. 4.12: Step-5 Global stability analysis with water ponding for seismic loading

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5.0 Concluding Remarks

5.1 Concluding remarks based on physical observation-

Lagoon 2B was visited by the team on 27.10.2021. During the visit, officials of Jindal Power Ltd has shown the area (chainage between E/w 0.0 to E100 as per drawing No. JPL-HO-ADR-STG-IV- DWG-001, General arrangement for construction of ash pond) where ash boiling was reported in lagoon 2B. During the site visit no ash boiling/leakage was observed in the mentioned area.

5.2 Concluding remarks based on stability analysis of lagoon 2B-

The ash dyke lagoon 2B is analysed for the section of chainage between E/w 0.0 to E100 for steady seepage (normal) condition and steady seepage earthquake (seismic) condition for local and global stability analysis. Factor of safety are obtained more than 1.5 and 1.0 for normal and seismic loading conditions respectively, which fulfills the acceptance criteria for minimum factor of safety required as per IS 7894-1975 (Reaffirmed 2002), Code of practice for stability analysis of earth dams. Based on the stability analysis of ash dyke lagoon 2B as presented in this report, dyke is observed to be safe with fly ash filling and water ponding.

Important Notes:

- Drawings, cross sections, material properties of starter and ash dyke have been provided by the client with referred letter.
- Stability analysis have been checked as per the mentioned standards.
- This report is specifically for the aforementioned work.

References:

(i) IS 7894-1975 (Reaffirmed 2002): code of practice for stability analysis of earth dams.
(ii) U.S. Army corps of engineers "enginering and design: stability analysis of earth and rock fill dams." Engineering manual EM 1110-2-1902.
(iii) IS 1893-1984: Criteria for earthquake resistant design of structures.
(iv) 1893 (Part 1) – 2016: Criteria for Earthquake Resistant Design of Structures Part 1: General Provisions and Buildings (Sixth revision)

16.11.21
(Dr. L.K. Yadu)
Associate Professor

16.11.21
(Dr. G. D. Ramtekkar)
Professor

16.11.21
(Dr. R. K. Tripathi)
Professor

Forwarded by:
16.11.21
Head
Deptt. of Civil Engg
N.I.T. Raipur

G.E. ROAD, RAIPUR (Chhattisgarh) 492 010
☎ : 0771-4270336; 2255920 (Dept); 🖷: 2255261; URL: www.nitrr.ac.in

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ANNEXURE - H

Gmail

Guneet Sidhu <guneet.sidhu@cjslegal.in>

Fwd: Fw: Copy of Status report filed by the oversight committee in NGT - OA No 104/2018 in the matter of Shivpal Bhagat & ors vs Union of India & ors-reg

Priyal Chaturvedi <priyal.chaturvedi@jindalsteel.com> 3 April 2022 at 11:22
To: Guneet Sidhu <guneet.sidhu@cjslegal.in>

---------- Forwarded message ---------
From: **Dr.Mishra** <rpmishra.cpcb@nic.in>
Date: Tue, Dec 21, 2021 at 6:23 PM
Subject: Copy of Status report filed by the oversight committee in NGT - OA No 104/2018 in the matter of Shivpal Bhagat & ors vs Union of India & ors-reg
To: <cghealth706@gmail.com>, Siddhartha Komal Singh Pardeshi <secy.pwd-cg@gov.in>, <secretarypwdcg@gmail.com>, <ps.edu.cg@gamil.com>, K K Bhuarya <us.pwd-cg@gov.in>, Madan Lal Tamrkar <dsadm.pwd-cg@gov.in>, <mecbl@yahoo.co.in>, <trnenergy.raigarh@gmail.com>, <unit-head-garepalma@ambujacement.com>, <dipesh.bhatia@adityabirla.com>, <Devsecseb@gmail.com>, <Civil.cseb@gmail.com>, <arup.pal@jindalsteel.com>, <cn.singh@jindalpower.com>, <shiv.singh@jindalpower.com>
Cc: Nazimuddin <nazim.cpcb@nic.in>, Paras Pujari <pr_pujari@neeri.res.in>, IRO Raipur <iro.raipur-mefcc@gov.in>, Bhim Singh <raigarh.cg@nic.in>, <raigarh.cecb@gmail.com>, Sanjeev Paliwal <paliwalsk@yahoo.com>, Pentani jagan <jagan191.cpcb@gov.in>, rpmishra cpcb <rpmishra.cpcb@gmail.com>

Dear Sir

Hon'ble NGT Principal Bench, New Delhi in its order dated 24.06.2021 in OA No 104/2018 in the matter of Shivpal Bhagat & Ors versus Union of India & Ors have considered the seriousness of the issues involved and its impact on the environment & public health and directed that oversight committee will be now headed by Justice V. K. Srivastava, former judge of Chhattisgarh High Court. His tenure was for six month and the committee headed by him was to submit the compliance status as on 30.11.2021 on or before 15.12.2021. The copy of the order was forwarded to Chief Secretary, Chhattisgarh, MoEF&CC, NEERI, CPCB, CECB, and collector Raigarh.

Accordingly the oversight committee headed by Justice V. K. Srivastava, former judge of Chhattisgarh High Court has submitted the status report to CPCB on 07.12.2021 and the same has been filed by CPCB in NGT, PB, New Delhi on 16.12.2021.

Hon'ble NGT in its same order has also directed to provide copy of the report to the authorities who are required to implement the recommendations of the committee to enable such authorities to file their response, if any before the next date. The next date of hearing in the matter is 11.01.2022.

In compliance of above said direction please find attached herewith copy of the status report filed by the oversight committee headed by Justice V. K. Srivastava, for filing your response, if any before the next date i.e. 11.01.2022.

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Hope you will find the report in order.

Dr. R. P. Mishra, Scientist "D"
Head IFD
Central Pollution Control Board
Regional Directorate (Central)
"Parivesh Bhawan" Paryavaran Parishar
E-5, Arera Colony , Bhopal 462016
Phone- 0755- 2775385 / 86
Fax- 0755-2775587
Cell-09752531049



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Status report- FILED BY CPCB_compressed.pdf
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ANNEXURE - I (COLLY)

JINDAL POWER

WITHOUT PREJUDICE

Date: 11.04.2022

To
The Member Secretary
Chhattisgarh Environment Conservation Board
Paryavas Bhavan, North Block Sec.19
Atal Nagar, Naya Raipur,
Chhattisgarh – 492002

Subject: *- Payment of Environmental Compensation under protest.*

Ref.: *- (i) Letter no. 2567 dated 03.03.2022 issued by Chhattisgarh Environment Conservation Board, Raigarh (CECB) ('Letter'); (ii) Order dated 15.02.2022 issued by the Hon'ble Nation Green Tribunal in the matter of Shivpal Bhagat v. Union of India (O.A. No. 104/ 2018)*

Dear Sir,

1. This is with reference to the abovementioned Letter dated 03.03.2022('**Letter**'), received by the Jindal Power Limited, Tamnar on dated 8th March 2022 whereby the Company has been called upon to deposit the environmental compensation as interim compensation for alleged violations by the Company. However, it is Company's case that the said compensation has been wrongly assessed and affirmed by the Oversight Committee in its Report dated 16.12.2021 and erroneously relied upon by the Hon'ble NGT vide order dated 15.02.2022 ('**Order**').

2. Vide the Order, an amount of Rs. 48,30,000/- has been imposed as interim environmental compensation on the Company. Such imposition/levy is disputed for being patently illegal, without jurisdiction, arbitrary and unreasonable as the same has been levied based on visual assessment and is uncorroborated by scientific evidence/data and the Company is taking requisite steps in this regard to challenge the same.

H.O. C.G. Environment Conservation Board
13/4/22
Atal Nagar, Distt.-Raipur (C.G.)

Jindal Power Limited
CIN N[illegible]995PLC008985
Corp[illegible]al Centre, 12 Bhikaiji Cama Place, New Delhi 110 066
T +91 11 4146 2000 F +91 11 2616 1271 E info@jindalpower.com W www.jindalpower.com
Regist[illegible]amnar 496 107, District Raigarh, Chhattisgarh

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3. Without prejudice to the above and under protest, we are herewith enclosing a Demand Draft No. 512735 dated 11.04.2022 of Rs. 48,30,000/- (Rupees forty eight lakhs thirty thousand only) in favour of MS (EC), C. G. Environment Conservation Board.

4. As noted above, the said payment is being made without prejudice and may not be considered as an admission of any kind. The Company specifically reserves its rights to challenge the imposition of compensation in appropriate legal proceedings, including but not limited to, seeking refund of the amount being paid under the cover of the present letter.

Thanking you.

Yours Sincerely
For Jindal Power Limited

(C. N. Singh)
Executive Director & Plant Head

Cc: The Regional Officer,
Chhattisgarh Environment Conservation Board,
T.V. Tower Road, Raigarh (C.G.)

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भारतीय स्टेट बैंक
State Bank of India

मांगड्राफ्ट
DEMAND DRAFT

Key: TIKMOP
Sr No: 152051

1 1 0 4 2 0 2 2
D D M M Y Y Y Y

9 8 7 6 5 4 3 2 1

करने वाली शाखा
ing Branch:TAMNAR
कोड /CODE No: 03741
No. 07767-281823

मांगे जानेपर MS(EC) C.G. ENVIRONMENT CONSER VATION BOARD**********

या उनके आदेश पर
OR ORDER

ON DEMAND PAY
रुपये RUPEES Forty Eight Lakh Thirty Thousand Only

अदा करें ₹ 4830000.00

SEESHAASA(D) / CTS-2010

DI 000522512735 Key: TIKMOP Sr. No. 152051 AMOUNT BELOW 4830001(0/7) मूल्य प्राप्त VALUE RECEIVED
Name of Applicant JINDAL POWER LIMITED

भारतीय स्टेट बैंक
STATE BANK OF INDIA
अदाकर्ता शाखा / DRAWEE BRANCH:RAIPUR MAIN BRANCH
अदाकर्ता शाखा का कोड / CODE No: 00461

प्राधिकृत हस्ताक्षरकर्ता
AUTHORISED SIGNATORY

शाखा प्रबंधक
BRANCH MANAGER

कम्प्यूटर द्वारा मुद्रित होने पर ही वैध
VALID ONLY IF COMPUTER PRINTED

केवल 3 महीने के लिए वैध/VALID FOR 3 MONTHS ONLY

₹1,50,000/- एवं अधिक के लिखत दो अधिकारियों द्वारा हस्ताक्षरित होने पर ही वैध है।
INSTRUMENTS FOR ₹ 1,50,000/- & ABOVE ARE NOT VALID UNLESS SIGNED BY TWO OFFICERS

⑈512735⑈ 000002000⑆ 000522⑈ 16

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ANNEXURE - J

Item No. 04 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 104/2018
(I.A. No. 382/2020, I.A. No. 25/2021 & I.A. No. 97/2021)

(With report dated 17.03.2021 & 16.04.2021)

Shivpal Bhagat & Ors. Applicant(s)

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 24.06.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE M. SATHYANARAYANAN, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant: Ms. Kanika Agnihotri, Advocate for Applicant no. 1
Mr. Saurabh Sharma, Advocate for Applicants no. 2 to 6

Respondent: Mr. Raj Kumar, Advocate for CPCB
Mr. Ashish Kumar, Advocate for M/s Jindal Steel & Power Ltd.

ORDER

1. The issue for consideration is the remedial action against pollution caused by the Thermal Power Plants and Coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including M/s Jindal Power Limited, M/s Jindal Power and Steel Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s. Hindalco Industries Limited and M/s. Monet Energy Limited, SECL. Operation of said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants. Water and soil have toxic metals, having potential for health hazard, requiring

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monitoring of emissions, making the polluters accountable and regulating the polluting activities.

2. The matter has been considered earlier and under direction of this Tribunal, an Expert Committee furnished its report dated 14.10.2019 after visiting the sites and considering earlier reports on the subject. The Committee considered the mitigation measures required to be adopted by the Thermal Power Plants and the Coal washeries. The Committee found that the issue of ground water depletion, soil pollution, forest loss and livelihood loss were required to be addressed for which short term and long terms measures were suggested. The Tribunal directed remedial action for dealing with the deficiencies accordingly. Further direction was to review the existing arrangements and furnishing a further report. The operative part of directions in the order dated 27.02.2020 is as follows:

> *"3. Accordingly, a report dated 14.10.2019 has been filed by the CPCB on behalf of the Committee on 15.10.2019. The Committee visited various sites and considered the earlier reports, including maps and the data of air quality as well as water pollution. The Committee then considered the mitigation measures prescribed and their current status including installation of Electro-Static Precipitators (ESPs) and Fluidized Gas Desulfurizers (FGDs) in the Thermal Power Plants. The committee also considered ground water depletion, soil pollution, forest loss and livelihood loss and after detailed study of various aspects made following recommendations:*
>
> *"**4. RECOMMENDATIONS:***
>
> *Based on the above observations, the committee recommends a set of short-term and long-term measures.*
>
> *4.1 **Short-term measures***
>
> a. *Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*
>
> b. *Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh*

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district to be directed to stop issuing NOCs for the same.

c. *Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing* ***closed conveyor belts*** *and no such coal transport should be allowed via trucks. (Action by SECL).*

d. *Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically. the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*

e. *Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*

f. *Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*

g. *Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*

h. *Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.*

i. *We also recommend that* ***no further conversion of UG mines to Open Cast mines*** *be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost (rehabilitation).*

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4.2 ***Long-term measures***

a) ***Based on evidence summarised above, the committee is of the opinion that the Tamnar-Gharghoda block region is close to exceeding its environmental carrying capacity.*** *However. the precise extent of current environmental load and the likely impacts of future mining and industrial activities has to be worked out through a detailed and comprehensive* ***environmental load carrying capacity study, to be carried out by a reputed environmental research institute or a consortium of such institutes over a 24-month period.***

i) The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.

ii) Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different subregions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.

iii) Mode of commissioning of this study may please be decided by the Hon'ble NGT, and necessary directions may please be issued accordingly.

b) ***To reduce the pollution and other impacts caused by road transport*** *of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.*

c) ***Condition of greenbelt development*** *may be incorporated at TOR stage of EC application to ensure that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer*

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between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.

d) *Ministry of Coal be directed to include the necessary provisions* ***to ensure the acceptance of fly ash*** *in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009."*

4. We find that the recommendations are based on relevant studies and need to be implemented by the concerned power plants and mines in the area for protection of environment and the public health and the environmental rule of law.

5. The applicants have, while broadly expressing satisfaction with the report, made certain suggestions. First suggestion of the applicants is that carrying capacity assessment must be expeditiously carried out and till such assessment is done, expansion and new projects should be only after thorough evaluation. Further suggestion is that there should be a mechanism to oversee the remedial measures, including oversight of health mitigation measures suggested by the Committee.

6. ***We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the 'Precautionary' and 'Sustainable Development' principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only and mechanism for remedial measures should be in place, including oversight of measures for health mitigation. The Committee already constituted in terms of order of this Tribunal dated 22.07.2019 will act as an Oversight Committee. The nodal agency for the purpose will be the CPCB. Meeting of the Committee may be held atleast once in two months or at such interval as may be decided by the Committee. Mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. The Committee may give a status report on the issue as on 30.06.2020 by 15.07.2020*** *by e-mail at judicial-ngt@gov.in. The Oversight Committee may issue appropriate directions to the project proponents for other remedial measures.*

7. ***The above report may be looked into and acted upon by the Ministry of Coal as well as MoEF&CC for such further action as may be necessary****."*

3. The matter was last considered on 20.11.2020 in the light of CPCB report dated 17.11.2020 giving the compliance status with reference to

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directions of this Tribunal in a tabular form and also making further recommendations inter alia on the subjects of providing health facilities for the victims, construction of roads and availability of abandoned coal mines. Accordingly, the Tribunal issued directions to the Health and PWD Departments of Chhattisgarh Government and South Eastern Coal Fields. The Tribunal also directed consideration of suggestions of the applicants for taking due precautions in the course of dumping in low lying areas. The discussion and recommendations in the said order are reproduced below for ready reference:-

"3. Accordingly, report has been filed by the CPCB on 17.11.2020 giving the status of compliance of the recommendations in a tabular form as follows:

"

S. No.	***Orders of the Hon'ble NGT from recommendations in the report, November 2019***	***Compliance Review Status on 09.11.2020***
01	***Short term measures***	
a)	*Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*	*Three SECL mines are found complying. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. Process of allocation no of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage. Annexure-II*
b)	*Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP*	***District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash.***

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	companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.	***During visit of the committee, disposal of fly ash in low lying area was not observed**. Annexure-III*
c)	*Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).*	*Based on the observation of CECB, RO, Raigarh, it seems to be complied.*
d)	*Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*	*The representative of PHED present during visit of the committee has informed that PHED established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. (Annexure-IV) The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers.* ***In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh**.*
e)	*Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*	*- As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 & 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.* *- In case of installation of CAAQMS all the mines have informed that as per mandatory conditions of EC and CTO fixed location ambient air Quality monitoring is being conducted by the units and reports are regularly submitted to MoEF&CC and CECB.*
f)	*Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load*	*- Letter issued to PS, PWD, S1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA-*

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	carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.	*104/2018/553 dated 07.09.2020. EE PWD was present before committee to appraise the status of PWD roads in the area.* ***Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.*** *- IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia-GharghodaKorichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghodabhalumuda- Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela-Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. (Annexure-V)* ***Compliance in Progress***

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g)	*Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*	***Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements**. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.*
h)	*Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions*	*MoEF&CC has started close monitoring for green belt development in all coal mines. **Compliance in progress**.*
i)	*We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).*	*Letter has been issued to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh.*
02	***LONG TERM MEASURES***	
a)	*Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.*	*The matter was discussed with CPCB HO and got advised to include the project in State EC fund as defined by Hon'ble NGT. In order of this proposal for the same has been prepared by CECB and submitted to CPCB for compilation of all project and submission before Hon'ble NGT. Annexure-VI **Compliance in progress**.*
	Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly	
b)	*To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.*	*As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda-Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.*
c)	*Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC,*	*Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.*

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	which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.	
d)	*Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of 2009.*	*Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Process of allocation of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage.*

"

4. The Committee has also made field observations and recommendations as follows:

"FIELD OBSERVATIONS:

1. *Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Member Secretary CECB has informed about considering mine wise allocation of abandoned coal mines as declared by CEA vide its letter dated 14.02.2020. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*

2. *District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.*

3. *In compliance of letter issued by Nodal Officer of the committee on 07.09.2020 to PS, PHED, Raipur, it was informed that PHED has established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. PHED, Raigarh has also established 06 control rooms and circulated the contact numbers of the concern officers to manage any crisis of drinking water availability in Raigarh District. In order to provide proper treatment for removal of any geogenic contaminants PHED Raigarh has also provided 05 Electrolytic DE fluoridation (EDF) plants in 03 villages (Pata, Mudagaon, Saraitola) of Tamnar Block. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. In addition to above PHED, Raigarh has also*

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proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tap water supply from mine in village and ensure quality of water in coordination with PHED Raigarh. M/s Hindalco Coal Mine shall also submit report on quantity of mine water generation from UG mines to make an assessment for water supply required from PHED.

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma.*

5. *EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.*

   IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and

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made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. (AnnexureVII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.

6. *In reference to instruction on point 2 (a) (ii) regarding carrying capacity study, CPCB has advised CECB to include the project cost in EC fund sponsored project and proposal for same has been prepared by CECB and submitted to CPCB for further essential action.*

7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

In view of the above field observations, the recommendations of oversight committee are as under.

RECOMMENDATIONS :

1. ***In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities.***

2. ***Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 crore (@Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7m width (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) and ensure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.***

3. ***Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite allotment of abandoned coal mines in consultation with CECB and complete it before 31st December 2020."***

5. From the above, it does appear that action so far taken is not adequate and further steps need to be taken in the light of the recommendations made. ***The Principal Secretary, Health and the PWD Department, Chhattisgarh Government and the South Eastern Coalfields Limited (SECL) may act as per recommendations of the Committee. Coal transportation by rail be increased for abatement of air and dust pollution.***

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6. Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect that contaminated sites be seen, ***fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes.*** *The submission of the applicant are:*

" *… …*

…

5. That at the outset it is stated that the Committee did not meet with Applicants during their recent visit which was important as the Applicants would have shown the contaminated sites to the committee which are grossly missing in the present Report dated 17h November,2020. The Committee has only seen the sites which the CECB has shown to it. It is submitted that the Committee should plan an immediate visit after informing the Applicants so that the Applicants can help the Committee to identify the contaminated sites and resolve the environmentally problematic issues as mentioned in the Order dated27.02.2O2O of this Hon'ble Tribunal.

6. That Overall the report does not provide any evidence (in the form of photos, lists of sites visits, descriptions, who did they meet etc) to back up its conclusions. For example in places where the committee has come up with conclusion that fly ash dumping in low lying areas have been restricted. It is stated that no proof has been given for the same. There are no photographs that have been attached or list provided of which sites they have visited and what information they have noted by the Committee. Also the local community members have provided a list of sites and photo documentation of how new fly ash dumping sites have been created in various parts of the region in violation of the Hon'ble NGT's Order/s however till date no action has been taken in any of these cases. The Applicants are annexing the recent photographs showing that the fly ash dumping is still taking place and nothing has been done with respect to removal of legacy fly ash dumps. The non-clean up of legacy fly ash dumps would lead to leachate when it comes in contact with water and would further lead to water and soil pollution.

Photographs alongwith GPS location and date are annexed herewith showing the Fly ash dumps which are annexed herewith as ANNEXURE-B (Collectively).

7. That it is also important to point out that the Coal mines of Gare IV/2 and Gare IV/3 is also witnessing air and land pollution due to fire in Coal mines of Gare lV 12 and

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Gare IV/3. Had the Committee contacted the local community members they would have shown the sites which are witnessing fire in Coal Mines. Recent Photographs showing the fire in Coal mines of Gare IV/2 and Gare IV/3 are annexed herewith as ANN EXURE-C (Collectively).

8. *That on the issue of coal transportation by trucks, the committee has given a vague response of "seems to be complied" which does not make any sense, either the condition is complied or not to be complied. However the committee has once again not provided any details of the transportation of coal via conveyor belts such as trip sheets or how much quantum of coal has been transported by a conveyor belt to provide proof that the condition is being complied with. Mere vague statement of the committee in this regard cannot be accepted as proof.*

9. *That the direction about CAAQMS has NOT BEEN COMPLIED WITH. What is even more shocking that, the committee which has been appointed to oversee the implementation of the direction is justifying the non-compliance by advancing the industry's faulty logic in this regard, It is stated that EC and CTO condition is to provide regular monitoring data which is not the same as a24X7 and 365 day monitoring through OAAQMS.*

l0. *That the committee itself observes bad road in the region hence it is clear that road maintenance direction has NOT been complied with.*

11. *That Directions regarding the mitigation measures of health issues in the region HAVE NOT been complied with. The Principal Secretary-Health, GoW. of Chhattisgarh has not been implementing any health related measures and local community health is in a very precarious situation which fact is observed in a recent Health Assessment RepoG 2019-2020 titled "HEALTH ASSESSMENT OF VILLAGERS OF TAMNAR BLOCK, DISTRICT RAIGARH (C.G.)" submitted to Indian Council of Medical Research, New Delhi, Year 2019-2020. Copy of relevant pages of this study is annexed herewith as ANNEXURE-D.*

12. *That on the issue of green belt development, the committee has pushed the responsibility on MoEF&CC. It is not clear in describing the actual status on the ground. there is no actual evidence provided by the committee to support their "compliance in progress" remark. The committee's vague remark without any submission of documents of the mine wise status of greenbelt development is nothing but mere bald assertions without any proof.*

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13. *That regarding the water testing laboratories at Gharghoda and Raigarh for testing of drinking water quality there is no evidence on record that the same are in fit working condition. Similarly, on the issue of water testing, the Applicants state that in Saraitola area the water contains high fluoride content and there is no evidence on record to show that Electrolytic DE fluoridation(EDF) Plants in 3 villages (Pata, Mudgaon, Saraitola are in fit working condition). The Committee has failed to provide any testing results from the area as to what was found in the drinking water and whether the same was in usable condition by the local villagers. There is no evidence or proof filed by committee regarding the sites where the drinking water is potable and where the same is not potable and need further treatment for the villagers to be used. There should be a timeline provided by the Committee to test the water quality in the Tamnar and Gharghoda blocks and a study regarding the sites of potable water needs to be done in coordination with PHED and the local villagers.*

14. *That the Committee has agreed that there is a problem of frequent lowering of ground water table due to mining activity at page 7 of the Report.*

15. *Inspite of acknowledging the problem of frequent lowering of ground water table due to mining there are no plans or action taken proposed for replenishing the fast depleting water table or curbing the future mining activity.*

16. *It also states that M/s Hindalco has been told to provide Tap water supply from the mine in the village and ensure quality of water in co-ordination with PHED Raigarh. It is stated that the same should be done for Neelupara and adjoining area where there are very few drinking water facilities. The Report is silent on new sites where drinking water facility has been provided.*

17. *That in the long term compliance section the details provided in Annexure VI for the carrying capacity study is grossly insufficient. The proposal of CECB is to just conduct a source apportionment study. A source apportionment study cannot be considered as a carrying capacity study. Source Apportionment (SA) is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels. The concept of carrying capacity describes the relationship between resources, environment and human activities to ensure sustainability. Carrying capacity is also defined as "the growth limits an area can accommodate without violating environmental capacity goals". The carrying capacity study will assess the maximum number of individuals/ industrial activities that an area's resources can sustain indefinitely without significantly depleting or degrading those resources or*

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causing environmental or public health depletion. It is re-iterated that a proper detailed proposal on carrying capacity study has to be done and shared with the community before progressing with the compliance."

The above suggestions may be duly considered by the concerned authorities and the Committee which may be coordinated by the CPCB. *We also direct the Collector, Raigarh will stand inducted as Member of the Committee. The applicant has also filed IA No. 382/2020 for a direction that expansion of the project be allowed only after carrying capacity assessment is done. This aspect may be gone into by the Expert Appraisal Committee (EAC).*

7. A further status report may be furnished after four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF."

4. In pursuance of above, a further report has been filed by CPCB on 16.04.2021. The Committee held meetings during 15th-17th March, 2021 and also conducted field visit. The status of compliance as on 15.03.2021 has been given in a tabular form. Field observations and recommendations have also been mentioned. Relevant extracts from the report are reproduced below:-

"In compliance of Hon'ble NGT order dated 20.11.2020 (Annexure-I), the 3rd virtual meeting of over sight committee was conducted on 27.11.2020. Copy of the minutes of this meeting is placed at Annexure-II.

As decided in the meeting, 3 rd field visit of Gharghoda and Tamnar area in Raigarh was conducted during 15-17th March 2021 to address the suggestions given by the applicant by way of written submission filed on 18.11.2020 and to assess progress on the ground in terms of compliance with short term recommendations. The Oversight committee has conducted meeting with applicant on 15.03.2021 in the meeting hall of Collector Raigarh. Sh. Bhim Singh, IAS, Collector Raigarh was also with other members of the Oversight Committee. As decided in the meeting on 27.1.2020 Sh. Shivpal Bhagat, (Applicant) was informed about schedule of the meeting through e-mail on 12.03.2021 and through phone on 15.03.2021. Copy of the mail is placed at Annexure-III. Three applicants out of six have attended the meeting viz Sh. Sriram Gupta S/O Mansha Ram Gupta (Applicant 4), Ms. Rinchin D/O Bina (Applicant 5) and Janki Sidar W/o Bharat Sidar (Applicant 6).

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All three applicants were then invited to join the Oversight Committee in its field visit on 15th and 16th March 2021. ***Contaminated sites and fly ash disposal sites shown by the applicant were listed and course of action decided / recommended by the committee has also been recorded in field visit report.*** *Copy of the field visit report is placed at Annexure-IV.*

The compliance status of short term and long term measures are presented as under-

S. No	***ORDERS OF THE HON'BLE NGT FROM RECOMMENDATIONS IN THE REPORT, NOVEMBER 2019***	***COMPLIANCE REVIEW STATUS AS ON 15.03.2021***
01	***Short term measures***	
	Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).	*Two SECL mines (IV/2,3) and one JPL mine (IV/1) are accepting fly ash. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. MoEF &CC vide its notification dated 28th August 2019 has modified the conditions stipulated in the EC of TPP and coal mines in line with the fly ash notification and subsequent amendment. It has been mentioned in point no 7 that ministry has stipulated the conditions which prohibited the use of fly ash in abandoned mines/low lying area/ soil conditioner in agriculture following the guide lines prepared by CPCB.* ***Accordingly CECB shall amend the consent conditions of all TPP and Coal Mine.*** *More over CEA vide its letter dated 14.02.2020 has informed about*

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		declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority. Copy of the letter issued to Chairman, CECB, Raipur, is placed at Annexure-V. ***Action from CECB is awaited.***
b)	*Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.*	*District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash. During visit of the committee, disposal of fly ash in low lying area was observed but seems to be disposed before issue of the order by the collector.* ***As per preconditions of SOP Power plant/ land owner/agency shall obtain statutory permission from regulatory authorities such as SPCB as per requirement.*** *CECB is to submit list of the locations of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB.*
c)	*Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and*	*It was informed by Regional officer CECB, Raigarh that Jindal Power limited (JPL) has received 44,25,66*

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	no such coal transport should be allowed via trucks. (Action by SECL).	*MT coal in 2019-20 and 40,24,274 MT coal in 2020-21 through conveyor belt.*
d)	*Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*	*PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area.* ***The residents of the village has informed about frequent lowering of ground water table due to UG mining activity****. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has* ***directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh.*** *M/s Hindalco has submitted detail of mine quantity generation and its mode of treatment to committee. PHED is to submit the quantity of water required for kondkhel village. The committee has also suggested to obtain details from Central Ground Water Authority about water recharge points provided by the coal mines at the time of obtaining NOC.*
e)	*Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*	*As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 & 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.* *In case of installation of CAAQMS committee has instructed Member Secretary, Chhattisgarh Environment Conservation Board to* ***issue directions to all coal mines for***

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		installation of CAAQMS and its connectivity with CPCB/CECB server. *Copy of the letter is placed at Annexure-VI. Status of the same is awaited from MS, CECB, Raipur*
f)	*Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*	*EE PWD, Raigarh Sh R K Kharma has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but* ***due to budget constraint the work is pending since last several years.*** *Letter issued to PS, PWD, S-1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA104/2018/553 dated 07.09.2020 and 6.01.2021 to sanction Rs. 335 crore for construction of 111 km CC road.* ***No response has been received from PS, PWD, Chhattisgarh Government.*** *IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from KharsiaGharghoda- Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda- bhalumuda-Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation.* ***Compliance in Progress.***
g)	*Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu*	*Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the*

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	Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).	*requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.* ***Collector Raigarh has assured to arrange the required medical facility in the area by way arranging health screening camps in all villages within next few months****.*
h)	*Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions*	*MoEF&CC has issued letters to all coal mines for submitting updated status of green belt developed. Responses received are being compiled and submitted in next meeting of the committee.*
i)	*We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).*	*Letter was issued in September 2020 to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh. MoEF&CC representative in the committee has now sent follow-up e-mails to IA division reiterating these recommendations.*
02	***LONG TERM MEASURES***	
a)	*Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.*	*CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*
	Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly	
b)	*To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by*	*As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new*

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	road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.	*rail line between Kharsia-Gharghoda-Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20.* ***SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.***
c)	*Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.*	*Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.* *Continued non-compliance of green belt conditions from EAC of coal is observed. Strict monitoring and follow up action by MoEFF&CC is required.*
d)	*Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of2009.*	*Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh had been submitted to be used for filling of fly ash generated from TPP including 3 in Gare Palma Block. Of these 3 only 01 is actually feasible.* ***No progress reported from CECB for constitution of the State Level Committee as proposed.*** ***No progress reported by CMD, SECL, Bilaspur in spite of several communications from CECB, CPCB and Collector, Raigarh.***

FIELD OBSERVATIONS

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1. *Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. The committee has written to Chairman, CECB, Raipur for constitution of State Level Committee for management of fly ash disposal in the state with implementation of SOP notified by CPCB. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*

2. *District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit unscientific disposal of fly ash were observed at 1) Outside TRN Power ash dyke (By TRN Energy Private Limited) , 2) In Tenda village (By TRN Energy Private Limited) , 3) Outside the Mahaveer Energy (By Mahavir Energy & Coal beneficiation Limited). Onsite observations reveal it as legacy fly ash dump.*

3. *PHED, Raigarh has proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. Hence it has been decided by the committee to obtain data of ground water recharge system in Gharghoda and Tamnar area, from central ground water authority, Raipur along with data of annual ground water level in the area.*

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma. RO CECB Raigarh was requested to physically verify the status of transport of coal in properly covered manner.*

5. *EE PWD, Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharmjaigarh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20.11.2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under-*

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- *Main high way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme*
- *Stretch from Chhal mines to Gharghoda has been approved for two lane*
- *Stretch from Punjipatra to Milupara via Tamnar not yet approved.*

In view of the above committee has instructed to EE, PWD, Raigarh to identify badly damaged patches in this stretch and prepare a budget and get same approved so as to complete the work within three months. Stretch from Punjipatra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

IRCON International Limited, has informed that work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 04 coal siding and made 01 siding operational. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019- 2020. (Annexure-VII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport after completion of the project

SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.

6. *CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. (Annexure-VII)*

7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

8. *In order to make information of the Oversight Committee's work public domain, Collector Raigarh agreed to host a webpage on the Raigarh District website and directed the District information officer (Raigarh) to coordinate with the committee regarding the same.*

In view of the above field observations, the recommendations of Oversight Committee are as under

RECOMMENDATIONS –

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1. *Chhattisgarh Environment Conservation Board shall prepare list of areas where unscientific disposal of fly ash has occurred with specific remark of status about permission granted.*

2. *Chhattisgarh Environment Conservation Board shall also generate data about total quantity of coal mined in Raigarh, total quantity of coal being used by the industries in Raigarh and quantity of locally mined coal available for TPPs and other industries of Raigarh.*

3. *In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.*

4. *Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipatra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of the work*

5. *Directions from Hon'ble NGT may also be issued to Chhattisgarh Environment Conservation Board, Raipur for constitution of State Level Committee to look in to Scientific Utilization of fly ash in the Chhattisgarh State.*

6. *Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite disposal of fly ash in abandoned coal mines declared by Central Electricity Authority, Ministry of Power, Government of India vide letter no. 1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020 in consultation with CECB and complete within three months."*

5. From the report dated 17.03.2021 annexed to the main report as Annexure-IV, violations have been found on the part of JPL, JSPL, M/s HINDALCO Industries Limited, Mahaveer Bio-Energy Premises and CSPGCL. The observations are quoted below:-

"FIELD OBSERVATIONS

1. ***Unscientific dumping of fly ash****- The committee has observed unscientific dumping of fly ash at several places, out of these few are temporary/ intermittent and few old dumping of legacy in nature.*

   - ***Within GP IV/1, outside mine void****: Only fly ash dumping as part of backfilling of mine void along with overburden is*

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permitted. No dumping is permitted in open areas; such dumping is leading to ash flying away into human habitation and ecosystems.

Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process. The process of covering fly ash with overburden/ sweet soil appears to be very slow. JSPL shall ensure that fly ash is covered within 07 days to extent possible and also to ensure daily watering or covering up the flu ash during backfilling process.*

- ***Within GP IV/2-3 outside mine void:*** *Only fly ash dumping as part of mine void covered with overburden is permitted. No dumping without cover by overburden is permitted in open area as such dumping may lead to ash flying away into human habitation and ecosystem. (Pics5-6)*

  Action: *As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process.*

- ***Leakage of fly ash slurry from JPL ash dyke:*** *The ash dyke IIA and IIB of JSPL was observed full and representative of the industry has informed that application for permission to raise the ash dyke height is submitted in MoEF&CC. At the time of visit leakage in the exiting ash dyke was observed and ash laden water was found up to toe drain. Hence possibility of ash dyke breach in future cannot be ruled out. (Pics-07) Action: In compliance of direction from Oversight Committee CECB has inspected the site and directions to the industry is being issued under section 33 of water act. Furthermore, JPL to conduct study through a research organisation of national repute to determine the stability of the exiting ash dyke and take measures required to strengthen as needed. No permission for raising of ash dyke shall be given till safety of the dyke is assured.*

- ***Outside TRN Power Ash dyke****: TRN power has created an ash dump outside its ash dyke in the village of Nawapara Tenda(Pic- 08). The top of dump is at least 10 feet above the GL. This is not as per definition of dumping in low lying area. Moreover, fly ash utilisation report April 2020 – Jan 2021 provided by TRN Power shows that they have continued to dump fly ash in low lying areas during May, June and July 2020. There are physical evidences for breaching of mud wall leading to fly ash flowing in to adjoined fields (Pic-9). More over the situation to ash flying into neighbouring habitants and ecosystem could not be ruled out. The dumping of fly ash in Tenda Village is seems to be a legacy dump (Pre-February 2020). This unscientific dumping is*

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visibly eroding in the rain and may flow in to nearby fields and water streams. (Pic-10)

***Action**: CECB to instruct TRN power to desist from any further dumping, to strengthen the mud dykes, to regularly watering the dump to prevent fly ash dispersal by wind, to prevent any erosion by covering the dump with soil. Actions for the long term remediation of this legacy dump will be determined once mine voids are made available for fly ash disposal.*

- ***Outside Mahaveer Bio Energy Premises**: Mahaveer Bio energy has created an ash dump behind its premises. (Pics- 11) The top of the dump is at least 10 feet above the GL and does not confirm to the SOP for dumping in low lying area. More over there is not even a proper retaining wall around the dump creating a public hazard.*

  ***Action:** CECB shall issue show cause notice for improper disposal of fly ash and instruct for removal of the fly ash within 07 days*

- ***Fire in coal mine/coal dump:** The committee observed smoke in gare Palma IV/2-3 (SECL). (Pic-12) SECL assured the committee that they have followed instructions provided by CIMPHER but measure advised as covering with clay have not worked. Fires/ smoke is constant hazard in coal mining. Nevertheless, fires close to human habitation need to be immediately put on to prevent pollution and health hazard.*

  ***Action:** CECB to direct SECL to arrest all fire within 500 m of kausampalli and Sarasmal village within 7 days and approach DGMS immediately for obtaining better solution to deal with issues*

- ***Discharge of untreated waste water**- The committee has observed discharge of untreated water from mine of M/s HINDALCO Industries Limited at Gare Palma IV/4 in to a drain leading to agriculture fields (Pic-13). The mine owner has also not demarcated mining lease area that OB dump activity could be assessed.*

  ***Action:** As this constitutes a violation of EC conditions, CECB shall direct M/s Hindalco to immediately stop the discharge of effluents, and to install necessary wastewater treatment facilities and have them inspected by CECB within 1 month, show that it meets discharge quality standards set in the EC, and seek approval of neighboring village Gram Sabha before releasing any further (treated) wastewater out of its mine lease area*

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The committee also received public representation in field to the effect that the captive coal washery with in the JPL premises was releasing untreated effluents in to the Kelo River that adjoins it. The committee could not visit the visit the site to examine the situation.

Action: *CECB has visited the site and reported non-operational status of coal washery, however water samples from River Kelo has been collected and final report will be submitted after completion of sample analysis.*

2. ***Green belt and safe distance from public road/settlement****- The committee has found green belt issue and indiscriminate storage of OB dump in CSPGCL (Chhattisgarh State Power Generation Company limited) mine at Gare Palma sector 3. It was observed that dumping of OB was done on both sides of public road without safe distance.*

Action: *Committee has instructed CECB to inspect the GP III mine and verify the actual location of OB dump as per mining plan. In case of any deviation found strict action shall be initiated in consultation with state mining department as well as Director General of Safety and Mines (DGMS). Regarding Gare Palma IV/5 MoEF&CC to verify and issue appropriate direction.*

3. ***Making abandoned mines available for disposal of fly ash****- Update: Ministry of power has identified 3 mines for fly ash dumping in Tamnar-Gharghoda region. Chhaal mine is actually not available because it is being worked. Mand mine is an UG mine has already been decommissioned. It is not easy to reuse it for fly ash dumping. DGMS will be requested to suggest ways in which it can be made available for fly ash dumping. OCP mine at Domnara is found suitable for disposal fly ash available for which SECL, Raigarh has moved the letter to its HO at Bilaspur office seeking permission. In case of permission granted for Domnara mine preference shall be given to TRN Energy Private Limited and some other power producers that generate fly ash and have limited area for fly ash disposal.*

Action: *Collector Raigarh shall pursue the matter with CMD, SECL, Bilaspur for an early outcome.*

4. ***Public health facilities and disease screening****- The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area. Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis-JPL multispeciality hospital at Tamnar. Collector Raigarh has also assured to organise 'health camps' within the next 3 months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.*

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Action: *CECB RO Raigarh with DC, Raigarh to reconfirm that JPL hospital is open to all villagers for free of cost treatment.*

5. ***Improve Road quality to reduce spillage and air pollution***- *Gharghoda and Tamnar area of Raigarh is extremely rich in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for exiting industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. In order to ensure better ambient air quality an statistical balance is to be developed between road transport and rail transport. It was found satisfactory that development of rail network with five coal siding in the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only especially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.*

   EE, PWD, Raigarh has informed the committee that main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chhal mines to Gharghoda has been approved for two-lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and Stretch from Milupara to Lailung not yet approved.

   Action: *Since the actual process of constructing the NH will take at least two years, PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As far as constructions of other stretches are concerned PWD shall take highest priority because these are the stretches with heaviest traffic density.*

6. ***Inadequate quality of drinking water supply to Kondkhel village***- *This could not be verified in this visit, but Hindalco was already instructed to stop providing water from Bendra nala, and to provide water from coal mine after proper filtration and treatment. Hindalco has yet to comply.*

   Action: *Direction from collector Raigarh may be issued to M/s HINDALCO and PHED, Raigarh for compliance within three months."*

6. Before discussing the report and issuing further directions, we may dispose of IAs which have been filed. I.A. No. 97/2021 has been filed on behalf of M/s Jindal Steel and Power Limited (JSPL) seeking direction for short term measures for transportation of coal. The Expert Committee having already gone into the matter, we do not find any scope for piecemeal direction in isolation when the matter is being dealt with holistically based

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on recommendations of a credible committee, which are not shown in any manner to be erroneous. I.A. No. 97/2021 is disposed of accordingly. I.A. No. 25/2021 was filed by the applicant for modification of the constitution of the Committee. We do not find any merit in the said application as report has already been submitted which is being considered. The IA stands disposed of. I.A. No. 382/2021 is for direction to the MoEF&CC not to permit expansion of Hindalco Industrial Limited project for underground mine being converted to Opencast mine. We are of the view that instead of granting the injunction sought, the concerned authorities may look into desirability or otherwise of such expansion, in the first instance and if the applicant is aggrieved, he will be at liberty to take remedies against the permission if so taken. I.A. No. 382/2021 stands disposed of accordingly.

7. We may also note the response of the applicants to the report of the Committee. It is submitted that dumping of fly ash in low lying areas needs to be avoided in view of earlier order of this Tribunal dated 27.02.2020, based on the recommendations of the Committee as required monitoring is not viable. Further, any such unscientific dumping which may have already taken place needs to be remedied. It is further submitted that no timeline has been provided in the recommendations of the Committee for remedying long pending and continuing problems. Actions suggested on behalf of the applicants under different heads are reproduced below:-

> *"A. Dumping in low lying areas:*
>
> *(i) The Applicants reiterate that there should be No dumping of fly ash in low lying area as has been accepted by this Hon'ble Tribunal vide it's Order dated 27.02.2020 and the Order dated 20.12.2020 be clarified in this regard and directions be issued to the Oversight Committee in this regard.*
>
> *(ii) CECB be directed to amend the consent conditions of all TPP and Coal Mine as per MoEF&CC's notification dated 28th*

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August 2019 as mentioned in the Report of the Oversight Committee

(iii) The Hon'ble NGT should direct for a clean up of the Fly Ash, since the monsoon rains will start soon and again the legacy ash dump sites will pollute the river and agricultural land."

B Repairing and Maintenance of roads inside and outside the mine area:

Committee had also visited the new operations at Gare Pelma Sector 3 which is under the Chhattisgarh State Power Generation limited and there too the trucks are using the said road, which the Hon'ble NGT had directed to be made form Raigarh to Milupara, but no mention of such violations have been made in the Report. It is suggested that there should be proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles"

C. Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case.

D. MoEF&CC be directed to forthwith submit the data on Green Belt development before the Hon'ble Tribunal with respect to District Raigarh.

E. Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages.

F. Installation of adequate number of CCTV and CAAQM stations in coal mining area.

G. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks.

H. Comments on the field observations:

a. *Impose Environmental damages on the units found in violation of EC conditions as several EC violations have been recorded by the committee but no action has been proposed /recommended by the Committee against the violators*
b. *Address the issue of fires in the overburden dumps in all operations, which has been left unaddressed.*
c. *Committee be directed to present plan for water recharge*
d. *Effluents and coal discharge was noticed in the river and nallas. No measure and punitive action has been suggested for that. This issue may kindly be addressed.*
e. *The field visit reports of the Oversight Committee should be cross verified with the actual action taken and compliance of the recommendations.*
f. *The field visits should be more regular and the report of the Oversight Committee should be placed in Public Domain so that the work done so far and the status of action taken is made public."*

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8. We have given due considerations to the report of the Committee as well as suggestions made on behalf of the applicants. The recommendations of the Committee need to be accepted. The State Board should prepare list of areas where unscientific disposal of fly ash has taken place and generate data about the quantity of the coal mined, used in the industries and available for TPPs. Steps need to be taken expeditiously for development of health facilities, constructing necessary road from Raigarh to Dharamjaygarh and from Punjipatra to Milupara, disposal of fly ash in abandoned coal mines and constitution of State Level Committee to look into scientific utilization of the fly ash. Taking such steps is undoubtedly necessary for protection of the environment. The suggestions of the applicants reproduced above also need to be considered by the Oversight Committee.

9. The Oversight Committee may make assessment of compensation for the violations on the basis of which the statutory State Board may take further action, following due process of law. The Committee may continue to oversee remedial measures in terms of directions of this Tribunal. The Committee may undertake field visit and also interact with all the stakeholders. The Committee will be at liberty to take assistance from any other Expert/Institution.

10. We regret to note failure of the concerned departments of the State of Chattisgarh to respond to the Committee and to perform their Constitutional obligation to protect environment and public health. Pending taking coercive measures for such failures in due course, we direct the Chief Secretary, Chhattisgarh to ensure necessary action on the part of the concerned departments, including PWD and Health on the

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subject of construction of road and providing health care facilities and drinking water to the victims in the area. Any negligence by the State authorities may result in rendering the concerned senior officers personally accountable by way of prosecution under the provisions of the NGT Act, imprisonment under section 25 NGT Act read with section 51 CPC and exemplary costs out of their salaries.

11. Having regard to the seriousness of the issues involved and their impact on the environment and public health, we direct that the Oversight Committee will now be headed by Justice V.K. Shrivastava, former Judge of Chhattisgarh High Court, available at Bilaspur. He will be entitled to honorarium at the rate of Rs. 2 lakhs per month, apart from logistic support for the purpose of work of the Committee. His tenure will be for six months from the date he joins the first meeting of the Committee, which may be done within one month from today. The amount will be payable by the State PCB - Chhattisgarh Environment Conservation Board.

12. The report about the compliance status as on 30.11.2021 may be furnished to this Tribunal on or before 15.12.2021 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. A copy of the report may also be provided to the authorities who are required to implement the recommendations of the Committee to enable such authorities to file their response, if any, before the next date.

List for further consideration on 11.01.2022.

A copy of this order be forwarded to Chief Secretary, Chhattisgarh, MoEF&CC, NEERI, CPCB, State PCB, the Collector, Raigarh and Justice

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V.K. Shrivastava, former Judge of Chhattisgarh High Court by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

June 24, 2021
Original Application No. 104/2018
(I.A. No. 382/2020, I.A. No. 25/2021 & I.A. No. 97/2021)
SN

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ANNEXURE - K

Name & Address Of The Customer			
To, **Jindal Power Limited** **P.O. Tamnar,** **District: Raigarh** **496107 (C.G.)**	Report No	UES/TR/21-22/04741	
	Lab Ref No	UES/21-22/W/08469-08470	
	Date of Sampling	04/12/2021	
	Date of Receipt	05/12/2021	
	Date of Report	13/12/2021	
	Date of analysis	Start:06/12/2021	END: 13/12/2021

SAMPLE DETAILS			
Customer Sample Id /Sampling Location	1. Piezometer – 01 (Near Gate No. 03)	Latitude	22.13197
		Longitude	83.45947
	2. Piezometer – 02 (SW near Ash Dyke S.V.2)	Latitude	22.11586
		Longitude	83.45075
Customer Ref. No. & Date	4400014853, Dated :07/10/2021		
Sample Type	GroundWater		
Packing Of Sample	Plastic Bottle (5.0 ltr.), Glass Bottle (1.0 ltr.)		
Sample Collected By	Laboratory Chemist		
Sample Condition At Receipt	Ok		

REPORT NO.04741

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT	
				Acceptable Limit	Permissible limit	Piezometer 01	Piezometer 02
A.	Organoleptic & Physical Parameters						
1	Colour	Hazen	IS:3025:(Part-4)	5	15	<1	<1
2	Odour	-	IS 3025(part-5)	Agreeable	Agreeable	Agreeable	Agreeable
3	pH Value at 25.4°C	-	IS:3025:(Part-11)	6.5-8.5	No Relaxation	7.78	8.04
4	Taste	-	IS 3025(part-8)	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	IS 3025:(Part-10)	1	5	7.70	6.84
6	Total Dissolved Solids	mg/L	IS:3025:(Part-16)	500	2000	271.5	215.8
B.	General Parameters Concerning Substances undesirable in excessive amounts						
1	Aluminium (as Al)	mg/L	IS 3025(part-55)	0.03	0.2	N.D.	N.D.
2	Ammonia (as total ammonia-N)	mg/L	IS 3025(part-34)	0.5	No Relaxation	N.D.	N.D.
3	Anionic Detergent (as MBAS)	mg/L	Annex K of IS:13428	0.2	1.0	N.D.	N.D.
4	Barium (as Ba)	mg/L	Annex F of IS:13428	0.7	No Relaxation	N.D.	N.D.
5	Boron (as B)	mg/L	IS 3025:(Part-57)	0.5	1.0	N.D.	N.D.

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TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT	
				Acceptable Limit	Permissible limit	Piezometer 01	Piezometer 02
6	Calcium (as Ca)	mg/L	IS 3025:(Part-40)	75	200	41.6	34.46
7	Chloramines (as Cl_2)	mg/L	IS 3025:(Part-26)	4.0	No Relaxation	N.D.	N.D.
8	Chloride (as Cl)	mg/L	IS 3025:(Part-32)	250	1000	57.9	18.9
9	Copper (as Cu)	mg/L	IS 3025(part-42)	0.05	1.5	N.D.	N.D.
10	Fluoride (as F)	mg/L	IS 3025(part-60)	1	1.5	0.14	0.18
11	Free Residual Chlorine	mg/L	IS 3025:(Part-26)	0.2	1	N.D.	N.D.
12	Iron (as Fe)	mg/L	IS 3025(part-53)	0.3	No Relaxation	N.D.	N.D.
13	Magnesium (as Mg)	mg/L	IS 3025:(Part-46)	30	100	22.8	18.4
14	Manganese (as Mn)	mg/L	IS 3025(part-59)	0.1	0.3	N.D.	N.D.
15	Mineral Oil	mg/L	Clause 6 of IS 3025 (Part-39) Infrared partition method	0.5	No Relaxation	N.D.	N.D.
16	Nitrate (as NO_3)	mg/L	IS 3025(part-34)	45	No Relaxation	1.13	0.77
17	Phenolic Compound (as C6H5OH)	mg/L	IS 3025(part-43)	0.001	0.002	N.D.	N.D.
18	Selenium (as Se)	mg/L	IS 3025(part-56)	0.01	No Relaxation	N.D.	N.D.
19	Silver (as Ag)	mg/L	Annex J of IS 13428	0.1	No Relaxation	N.D.	N.D.
20	Sulphate (as SO_4)	mg/L	IS 3025:(Part-24)	200	400	17.13	40.9
21	Sulphide (as H_2S)	mg/L	IS 3025:(Part-29)	0.05	No Relaxation	N.D.	N.D.
22	Total Alkalinity (as $CaCO_3$)	mg/L	IS 3025:(Part-23)	200	600	158.0	154.0
23	Total Hardness (as $CaCO_3$)	mg/L	IS 3025:(Part-21)	200	600	198.0	162.0
24	Zinc (as Zn)	mg/L	IS 3025(part-49)	5	15	N.D.	N.D.
C.	Parameters concerning toxic substances:-						
1	Cadmium (as Cd)	mg/L	IS 3025(part-41)	0.003	No Relaxation	N.D.	N.D.
2	Cyanide (as CN)	mg/L	IS 3025(part-27)	0.05	No Relaxation	N.D.	N.D.
3	Lead (as Pb)	mg/L	IS 3025(part-47)	0.01	No	N.D.	N.D.

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REPORT NO.04741

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT	
				Acceptable Limit	Permissible limit	Piezometer 01	Piezometer 02
					Relaxation		
4	Mercury (as Hg)	mg/L	IS 3025(part-48)	0.001	No Relaxation	N.D.	N.D.
5	Molybdenum (as Mo)	mg/L	IS 3025(part-2)	0.07	No Relaxation	N.D.	N.D.
6	Nickel (as Ni)	mg/L	IS 3025(part-54)	0.02	No Relaxation	N.D.	N.D.
7	Polychlorinated biphenyls	mg/L	ASTM 5175	0.0005	No Relaxation	N.D.	N.D.
8	Polynuclear aromatic hydrocarbons (as PAH)	mg/L	APHA 6440	0.0001	No Relaxation	N.D.	N.D.
9	Arsenic (as As)	mg/L	IS 3025(part-37)	0.01	0.05	N.D.	N.D.
10	Chromium (as Cr)	mg/L	Annex J of IS:13428	0.05	No Relaxation	N.D.	N.D.
11	Trihalomethanes:						
a)	Bromoform	mg/L	APHA 6232	0.1	No Relaxation	N.D.	N.D.
b)	Dibromochloromethane	mg/L	APHA 6232	0.1	No Relaxation	N.D.	N.D.
c)	Bromodichloromethane	mg/L	APHA 6232	0.06	No Relaxation	N.D.	N.D.
d)	Chloroform	mg/L	APHA 6232	0.2	No Relaxation	N.D.	N.D.
D.	Pesticides:-						
1	Alpha HCH	µg/l	USEPA 508	0.01		N.D.	N.D.
2	Beta HCH	µg/l	USEPA 508	0.04		N.D.	N.D.
3	Delta HCH	µg/l	USEPA 508	0.04		N.D.	N.D.
4	Alachlor	µg/l	USEPA 525.2, 507	20		N.D.	N.D.
5	Aldrin / Dieldrin	µg/l	USEPA 508	0.03		N.D.	N.D.
6	Atrazine	µg/l	USEPA 525.2,8141 A	2		N.D.	N.D.
7	Butachlor	µg/l	USEPA 525.2,8141 A	125		N.D.	N.D.
8	Chlorpyriphos	µg/l	USEPA 525.2,8141 A	30		N.D.	N.D.
9	DDT (o,p and p, p-Isomers of DDT, DDE and DDD)	µg/l	USEPA 508	1		N.D.	N.D.
10	Gamma HCH	µg/l	USEPA 508	2		N.D.	N.D.
11	2,4-Dichlorophenoxy acetic Acid	µg/l	USEPA 515.1	30		N.D.	N.D.
12	Endosulphan (alpha, beta	µg/l	USEPA 508	0.4		N.D.	N.D.

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TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT	
				Acceptable Limit	Permissible limit	Piezometer 01	Piezometer 02
	and sulphate)						
13	Ethion	µg/l	USEPA 1657 A	3		N.D.	N.D.
14	Isoproturon	µg/l	USEPA 532	9		N.D.	N.D.
15	Malathion	µg/l	USEPA 8141 A	190		N.D.	N.D.
16	Methyl Parathion	µg/l	USEPA 8141 A	0.3		N.D.	N.D.
17	Monocrotophos	µg/l	USEPA 8141 A	1		N.D.	N.D.
18	Phorate	µg/l	USEPA 8141 A	2		N.D.	N.D.
E.	Microbial Parameters						
1	Total Coliform	MPN/100ml	IS:1622:1981:RA:2019	-		Absent	Absent
2	E. Coli	MPN/100ml	IS:1622:1981:RA:2019	-		Absent	Absent

Note: mg/lit.: milligram per liter, N.D.: Not Detected.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- *The use of the report for publication, arbitration or as legal dispute is forbidden.*
- *Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.*
- *This is for information as the party has asked for above test(s) only.*

13/12/21
REVIEWED BY

ULTIMATE ENVIROLYTICAL SOLUTIONS PHASE-3, KABIR NAGAR RING ROAD NO.2, RAIPUR (C.G.)

For ULTIMATE ENVIROLYTICAL SOLUTIONS

13/12/21
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----------End of the test report----------

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Name & Address Of The Customer			
To, **Jindal Power Limited** **P.O. Tamnar,** **District: Raigarh** **496107 (C.G.)**	Report No	UES/TR/21-22/04742	
	Lab Ref No	UES/21-22/W/08471-08473	
	Date of Sampling	04/12/2021	
	Date of Receipt	05/12/2021	
	Date of Report	13/12/2021	
	Date of analysis	Start:06/12/2021	End: 13/12/2021

SAMPLE DETAILS

Customer Sample Id /Sampling Location	1. Borewell – 06 (NW Near ash Dyke Reagan Village Side)	Latitude	22.11468
		Longitude	83.46731
	2. Piezometer – 07 (NE Near ash Dyke village pata village)	Latitude	22.13273
		Longitude	83.45694
	3. Piezometer – 08 (SE Near ash Dyke in front of SBI bank)	Latitude	22.11468
		Longitude	83.45507
Customer Ref. No. & Date	4400014853, Dated :07/10/2021		
Sample Type	GroundWater		
Packing Of Sample	Plastic Bottle (5.0 ltr.) Glass Bottle (1.0 ltr.)		
Sample Collected By	Laboratory Chemist		
Sample Condition At Receipt	Ok		

REPORT NO.04742

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT		
				Acceptable Limit	Permissible limit	Borewell 06	Piezometer 07	Piezometer 08
A.	**Organoleptic & Physical Parameters**							
1	Colour	Hazen	IS:3025:(Part-4)	5	15	<1	<1	<1
2	Odour	-	IS:3025:(part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH Value at 25.2°C	-	IS:3025:(Part-11)	6.5-8.5	No Relaxation	7.41	7.76	7.82
4	Taste	-	IS:3025:(part-8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	IS:3025:(Part-10)	1	5	4.47	8.03	2.66
6	Total Dissolved Solids	mg/L	IS:3025:(Part-16)	500	2000	167.6	122.2	267.4
B.	**General Parameters Concerning Substances undesirable in excessive amounts**							
1	Aluminium (as Al)	mg/L	IS:3025:(part-55)	0.03	0.2	N.D.	N.D.	N.D.
2	Ammonia (as total ammonia-N)	mg/L	IS:3025:(part-34)	0.5	No Relaxation	N.D.	N.D.	N.D.
3	Anionic Detergent (as MBAS)	mg/L	Annex K of IS:13428	0.2	1.0	N.D.	N.D.	N.D.

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REPORT NO.04742

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT		
				Acceptable Limit	Permissible limit	Borewell 06	Piezometer 07	Piezometer 08
4	Barium (as Ba)	mg/L	Annex F of IS:13428	0.7	No Relaxation	N.D.	N.D.	N.D.
5	Boron (as B)	mg/L	IS 3025:(Part-57)	0.5	1.0	N.D.	N.D.	N.D.
6	Calcium (as Ca)	mg/L	IS 3025:(Part-40)	75	200	24.04	20.0	40.5
7	Chloramines (as Cl_2)	mg/L	IS 3025:(Part-26)	4.0	No Relaxation	N.D.	N.D.	N.D.
8	Chloride (as Cl)	mg/L	IS 3025:(Part-32)	250	1000	6.99	1.99	31.9
9	Copper (as Cu)	mg/L	IS 3025(part-42)	0.05	1.5	N.D.	N.D.	N.D.
10	Fluoride (as F)	mg/L	IS 3025(part-60)	1	1.5	0.08	0.14	0.14
11	Free Residual Chlorine	mg/L	IS 3025:(Part-26)	0.2	1	N.D.	N.D.	N.D.
12	Iron (as Fe)	mg/L	IS 3025(part-53)	0.3	No Relaxation	N.D.	N.D.	N.D.
13	Magnesium (as Mg)	mg/L	IS 3025:(Part-46)	30	100	16.5	13.12	24.3
14	Manganese (as Mn)	mg/L	IS 3025(part-59)	0.1	0.3	N.D.	N.D.	N.D.
15	Mineral Oil	mg/L	Clause 6 of IS 3025 (Part-39) Infrared partition method	0.5	No Relaxation	N.D.	N.D.	N.D.
16	Nitrate (as NO_3)	mg/L	IS 3025(part-34)	45	No Relaxation	0.55	0.81	2.8
17	Phenolic Compound (as C6H5OH)	mg/L	IS 3025(part-43)	0.001	0.002	N.D.	N.D.	N.D.
18	Selenium (as Se)	mg/L	IS 3025(part-56)	0.01	No Relaxation	N.D.	N.D.	N.D.
19	Silver (as Ag)	mg/L	Annex J of IS 13428	0.1	No Relaxation	N.D.	N.D.	N.D.
20	Sulphate (as SO_4)	mg/L	IS 3025:(Part-24)	200	400	9.44	10.3	39.9
21	Sulphide (as H_2S)	mg/L	IS 3025:(Part-29)	0.05	No Relaxation	N.D.	N.D.	N.D.
22	Total Alkalinity (as $CaCO_3$)	mg/L	IS 3025:(Part-23)	200	600	152.0	110.0	228.0
23	Total Hardness (as $CaCO_3$)	mg/L	IS 3025:(Part-21)	200	600	128.0	104.0	246.0
24	Zinc (as Zn)	mg/L	IS 3025(part-49)	5	15	N.D.	N.D.	N.D.
C.	Parameters concerning toxic substances:-							
1	Cadmium (as Cd)	mg/L	IS 3025(part-41)	0.003	No Relaxation	N.D.	N.D.	N.D.
2	Cyanide (as CN)	mg/L	IS 3025(part-27)	0.05	No Relaxation	N.D.	N.D.	N.D.

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TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT		
				Acceptable Limit	Permissible limit	Borewell 06	Piezometer 07	Piezometer 08
3	Lead (as Pb)	mg/L	IS 3025(part-47)	0.01	No Relaxation	N.D.	N.D.	N.D.
4	Mercury (as Hg)	mg/L	IS 3025(part-48)	0.001	No Relaxation	N.D.	N.D.	N.D.
5	Molybdenum (as Mo)	mg/L	IS 3025(part-2)	0.07	No Relaxation	N.D.	N.D.	N.D.
6	Nickel (as Ni)	mg/L	IS 3025(part-54)	0.02	No Relaxation	N.D.	N.D.	N.D.
7	Polychlorinated biphenyls	mg/L	ASTM 5175	0.0005	No Relaxation	N.D.	N.D.	N.D.
8	Polynuclear aromatic hydrocarbons (as PAH)	mg/L	APHA 6440	0.0001	No Relaxation	N.D.	N.D.	N.D.
9	Arsenic (as As)	mg/L	IS 3025(part-37)	0.01	0.05	N.D.	N.D.	N.D.
10	Chromium (as Cr)	mg/L	Annex J of IS:13428	0.05	No Relaxation	N.D.	N.D.	N.D.
11	Trihalomethanes:							
a)	Bromoform	mg/L	APHA 6232	0.1	No Relaxation	N.D.	N.D.	N.D.
b)	Dibromochloromethane	mg/L	APHA 6232	0.1	No Relaxation	N.D.	N.D.	N.D.
c)	Bromodichloromethane	mg/L	APHA 6232	0.06	No Relaxation	N.D.	N.D.	N.D.
d)	Chloroform	mg/L	APHA 6232	0.2	No Relaxation	N.D.	N.D.	N.D.
D.	Pesticides:-							
1	Alpha HCH	µg/l	USEPA 508	0.01		N.D.	N.D.	N.D.
2	Beta HCH	µg/l	USEPA 508	0.04		N.D.	N.D.	N.D.
3	Delta HCH	µg/l	USEPA 508	0.04		N.D.	N.D.	N.D.
4	Alachlor	µg/l	USEPA 525.2, 507	20		N.D.	N.D.	N.D.
5	Aldrin / Dieldrin	µg/l	USEPA 508	0.03		N.D.	N.D.	N.D.
6	Atrazine	µg/l	USEPA 525.2,8141 A	2		N.D.	N.D.	N.D.
7	Butachlor	µg/l	USEPA 525.2,8141 A	125		N.D.	N.D.	N.D.
8	Chlorpyriphos	µg/l	USEPA 525.2,8141 A	30		N.D.	N.D.	N.D.
9	DDT (o,p and p, p-Isomers of DDT, DDE and DDD)	µg/l	USEPA 508	1		N.D.	N.D.	N.D.
10	Gamma HCH	µg/l	USEPA 508	2		N.D.	N.D.	N.D.

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REPORT NO.04742

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	AS PER IS 10500:2012		RESULT		
				Acceptable Limit	Permissible limit	Borewell 06	Piezometer 07	Piezometer 08
11	2,4-Dichlorophenoxyacetic Acid	µg/l	USEPA 515.1	30		N.D.	N.D.	N.D.
12	Endosulphan (alpha, beta and sulphate)	µg/l	USEPA 508	0.4		N.D.	N.D.	N.D.
13	Ethion	µg/l	USEPA 1657 A	3		N.D.	N.D.	N.D.
14	Isoproturon	µg/l	USEPA 532	9		N.D.	N.D.	N.D.
15	Malathion	µg/l	USEPA 8141 A	190		N.D.	N.D.	N.D.
16	Methyl Parathion	µg/l	USEPA 8141 A	0.3		N.D.	N.D.	N.D.
17	Monocrotophos	µg/l	USEPA 8141 A	1		N.D.	N.D.	N.D.
18	Phorate	µg/l	USEPA 8141 A	2		N.D.	N.D.	N.D.
E.	**Microbial Parameters**							
1	Total Coliform	MPN/100ml	IS:1622:1981:RA:2019	-		Absent	Absent	Absent
2	E. Coli	MPN/100ml	IS:1622:1981:RA:2019	-		Absent	Absent	Absent

Note: mg/lit.:milligram per liter, N.D.: Not Detected.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- *The use of the report for publication, arbitration or as legal dispute is forbidden.*
- *Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.*
- *This is for information as the party has asked for above test(s) only.*

13/12/21
REVIEWED BY

ULTIMATE ENVIROLYTICAL SOLUTIONS HDD-272, PHASE-3, KABIR NAGAR RING ROAD NO.2, RAIPUR (C.G.)

For ULTIMATE ENVIROLYTICAL SOLUTIONS
13/12/21
AUTHORIZED SIGNATORY

----------End of the test report----------

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BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

I.A. NO. _____ OF 2022

IN

ORIGINAL APPLICATION NO: 104 OF 2018

IN THE MATTER OF:

SHIVPAL BHAGAT & ORS. **...APPLICANT(S)**

VERSUS

UNION OF INDIA & ORS. **...RESPONDENT(S)**

VAKALATNAMA

KNOWN ALL to whom these presents shall come that I Rajesh Maurya, Authorized Representative of Jindal Power Limited do hereby appoint:

NAMAN JOSHI GUNEET SIDHU YUVRAJ FRANICS

Herein after called Advocates to be my/ our advocates in the above noted case and authorized them.

To act appear and plead in the above noted case in the court or in any court in which the same may be tried or heard and also in the appellate courts including High Court.

To sign, verify and present pleadings application, appeals, cross objections or petitions for execution, review, restoration, withdrawal, compromise or other petitions, including contempt petition, replies, objections or affidavits or documents as may be deemed necessary or proper for the prosecution of the said case in all its stages.

To file and take back documents.

To withdraw or compromise the said case or submit to arbitration any difference of disputes that may arise touching or in any manner relating to the said case.

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To take out execution proceedings.

To deposit, draw and receive moneys, cheques and grant receipts there and to all other acts and things which may be necessary to be done for the progress and in the course of prosecution of that said case.

To appoint and instruct other legal practitioners authorizing him to exercise the power and authorize hereby confer upon the advocate whenever he may think fit to do so and sign the power of attorney on our behalf.

And I/ We undersigned do hereby agree ratify and confirm acts done by the advocates or his substitute in the matter is my/ our acts as if done by me/us to all intents and purposes.

And I/ We undersigned do hereby agree that in the event of any part of the fees agreed by me/ us to be paid to the Advocate remaining unpaid, he shall be entitled to withdraw from the prosecution and would be entitled to the same.

IN THE WITNESS WHEREOF I/ We do hereby upto put my/ our hand to these presents the contents to which have been understood by me / us on the **30** day of April, 2022.



Accepted

PH/3539/2021

N. Joshi
01/09/2014

G-46, L.G.F.,
JANGPURA EXTENSION,
NEW DELHI – 110014
+91 98100 57280

JINDAL POWER LIMITED

Client

Identified and Certified

N. Joshi

True Copy

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED BY CORPORATE MANAGEMENT COMMITTEE OF BOARD OF DIRECTORS OF JINDAL POWER LTD. IN ITS MEETING HELD ON AUGUST 9, 2021

"RESOLVED THAT Mr. Souvik Khamrui, DGM and Mr. Rajesh Maurya, DGM of the Company to represent/defend the Company in all the legal/ regulatory proceedings/ cases/ matters filed/ pending/ to be filed before any Court(s), Regulatory Commission(s), Tribunal(s) and/or any other Adjudicating Authority and in this respect, sign, verify, file and pursue sign petition, caveats, affidavits, counter affidavits, replies, applications, undertakings, documents, submissions, appeals, reviews, revisions, amendments, settlements etc. including to appoint / remove Advocate(s) / Counsel(s) for this purpose, make deposition(s), sign vakalatnama(s) and take all necessary steps and do all other acts, things and deeds as may be required from time to time for effectively pursuing/ supplement the above said matters in the best interest of the Company."

For Jindal Power Limited

Deepak Nathani
Company Secretary

Certified to be true.../-

Issued on: September 4, 2021
Place: Gurgaon

Jindal Power Limited
CIN: U04010CT1995PLC008985
Address: Plot No. 2, Sector 32, Gurgaon- 122001
T +91 0124 6612000
W www.jindalpower.com **E:** info@jindalpower.com
Registered Office: Tamnar – 496 107, District Raigarh, Chhattisgarh

True Copy

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Gmail

Guneet Sidhu <guneet.sidhu@cjslegal.in>

Service: Objections on behalf of JPL in OA 104/2018

Guneet Sidhu <guneet.sidhu@cjslegal.in> 11 May 2022 at 18:03
To: hocecb@gmail.com, secy-moef@nic.in, rahulchoudharyy@gmail.com, ps-forest.cg@gov.in, raigarh.cg@gov.in

Dear Sir,

Please find attached, herewith, the objections on behalf of Jindal Power Limited which are being filed in the matter of ***Shivpal Bhagat vs UOI & Ors. OA 104/2018*** before the Hon'ble National Green Tribunal, Principal Bench, New Delhi.

A copy of the same is, hereby, served upon your goodself.

JPL OL Binder_Final.pdf

Best Regards,

Guneet Singh Sidhu
Associate
Chambers of Joshi & Singh
G-46,L.G.F.,
Jangpura Extension,
New Delhi - 110014
+91 8283818896

True Copy