

Item Nos. 05 to 12

(Court No. 1)

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

(By Video Conferencing)

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

Ashwani Kumar Dubey Applicant

Versus

Union of India & Ors. Respondent(s)

WITH

Original Application No. 194/2020
(Earlier O.A.No.47/2020(CZ)
(I.A. No. 90/2020)

Suresh Kumar Pandey & Anr. Applicant(s)

Versus

Union of India & Ors. Respondent(s)

WITH

Original Application No. 94/2020
(I.A. No. 188/2020 I.A. No. 189/2020
& I.A. No. 205/2020)

Ashwani Kumar Dubey Applicant

Versus

Sasan Ultra Mega Power Plant & Ors. Respondent(s)

WITH

Original Application No. 148/2020
(Earlier O.A. No. 31/2020 (CZ))

Hiralal Bais Applicant

Versus

Reliance Sasan Power P. Ltd. & Ors. Respondent(s)

WITH

Original Application No. 107/2020 (CZ)

Jagnarayan Shah & Ors. Applicant(s)

Versus

Sasan Power Ltd. & Ors. Respondent(s)

WITH

Original Application No. 117/2014

Shantanu Sharma Applicant

Versus

Union of India & Ors. Respondent(s)

WITH

Original Application No. 499/2014

Anupam Raghav & Anr. Applicant(s)

Versus

U.O.I. & Ors. Respondent(s)

WITH

Original Application No. 102/2014

Sandplast (India) Ltd. & Ors. Applicant(s)

Versus

MoEF & Ors. Respondent(s)

Date of hearing: 18.01.2022

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER**

Applicant(s): Mr. Ashwani Kumar Dubey, Advocate for Applicant in OA Nos. 164/2018 & OA 94/2020
Mr. Dharamvir Sharma, Advocate for Applicant in OA 148/2020
Ms. Srishti Agnihotri, Advocate for Applicant in OA 107/2020 (CZ)

Respondent(s): Mr. K.M Nataraj, ASG with Mr. Sailesh Madiyal, Advocate for R-10
Mr. Sanjay Jain, ASG with Mr. Adarsh Tripathi, Advocate for R - 19 & 20
Mr. Nalin Kohli, Advocate for Sasan Power Ltd.
Mr. Ashish Prasad, Advocate for Hindalco Ltd.
Mr. Rajat Jariwal, Advocate for R-17

Mr. A.K. Prasad, Adv. for R - 4 in OA 194/2020
Dr. Sapna Aggarwal, Adv. for MoEF & CC in OA 148/2020
Mr. Raj Kumar, Advocate for CPCB
Mr. Pradeep Misra & Mr. Daleep Dhyani, Advocates for UPPCB
Mr. Rahul Khurana, Adv. for HSPCB
Mr. Soumyajit Pani Adv. for the State of Odisha

ORDER

The Issue

1. The common issue in all the above eight matters is the remedial action against violation of environmental norms by the Thermal Power Plants (TPPs) in the light of facts found and recommendations of the fact-finding committees, set out inter alia in para 15 of this order. There is resultant air water and land pollution due to not installing requisite air pollution control and monitoring devices (FGDs and CAAQMS) to mitigate air pollution during operation of TPPs, unscientific handling and storage of fly ash beyond capacity of flyash dykes/ponds resulting in devastating accidents due to their breach. Such breaches have resulted in contamination of water sources, damage to crops, loss of human lives and flora and fauna. Accumulated fly ash has been found to be **1670.602 Million Tonnes as on 31.12.2021**. The same is source of continuing damage to public health and environment. Several Industrial areas (about 100), particularly Singrauli and Sonebhadra in Madhya Pradesh and Uttar Pradesh about which factual reports are on record of present case are categorized as polluted industrial clusters on the basis of Comprehensive Environment Pollution Index (CEPI) prepared by CPCB. Associated issue of Pollution by stone crushers, coal mining and transportation in the area is also for consideration.

Procedural History and scope of today's proceedings

2. Main orders passed by the Tribunal are in OA 117/2014, OA No. 164/2018 and OA No. 148/2020. Other matters are covered by the said orders. Though the said three matters have been dealt with separately, principal issue in all three matters is common and overlapping. In OA No. 117/2014, the issue dealt with relates to compliance of mandate for scientific management and utilization of fly ash by the TPPs in Sonebhadra and Singhrauli. In OA 164/2018, apart from the said issue, additional issue in the context of **breach of Rihand Reservoir on 07.08.2019 and 06.10.2019** has been raised. Further, breach of fly ash pond in Sasan Ultra Mega Power Plant on 15.04.2020 resulting in death of six persons and injuries to others, apart from damage to crops has been raised.

3. On appointing Expert Committees and considering reports submitted based on study on the spot, the Tribunal found serious gaps in storing of fly ash in ponds and dykes and failure to prevent fugitive emissions, failure to install FGDs, failure to install OCEMS at appropriate locations. Such failures have been found to have resulted in serious damage to the environment and the public health which need to be remedied in a Mission Mode as per mandate of Constitution of India and the NGT Act. Accordingly, directions have been earlier given and further compliance reports sought. **Scope of today's proceedings is ascertainment of updated status and need for further directions in the interest of environment and public health.**

Last orders

OA No. 117/2014 – order dated 4.11.2020

4. OA No. 117/2014, *Shantanu Sharma vs. Union of India & Ors.*, OA No. 499/2014, *Anupam Raghav & Anr. vs. U.O.I. & Ors.* and OA No. 102/2014, *Sandplast (India) Ltd. & Ors. vs. MoEF & Ors.* were last dealt

with vide order dated 04.11.2020. The Tribunal noted earlier proceedings of the Tribunal, the notification of the MoEF&CC on the subject and impact of non-utilization and improper disposal of fly ash on the health and recipient environment, including surface and ground water, horticulture and agriculture crops in violation of provisions of the Air (Prevention and Control of Pollution) Act, 1981; Water (Prevention and Control of Pollution) Act, 1974 and Environment (Protection) Act, 1986 (EP Act) and Notifications issued thereunder. The Tribunal noted that the report of the Working Group constituted by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Govt. of India submitted in the year 2011, recommending requirement of 100% fly ash disposal and enforcement strategies, including condition for grant of loan and incentives. It was further noted that the MoEF&CC directed 100% utilization of fly ash by 31.12.2017. The Tribunal also referred to Judicial and Executive orders for utilization of the fly ash in construction activities, brick making, road construction and constitution of Monitoring Committees in every State and also at the level of Central Government. The Tribunal also referred to statistics of generation and utilization of the fly ash and need for invoking 'Polluter Pays' principles as a component of 'Sustainable Development' principle, also incorporated under Section 20 of the NGT Act, 2010. In terms of orders of this Tribunal dated 20.11.2018, a Joint Committee was constituted to determine the amount of compensation required to be paid by individual TPPs and also interim compensation fixed by this Tribunal. In the light of report of the Joint Committee dated 20.12.2019, the Tribunal issued further directions about the mode of disposal/utilization of fly ash for reclamation of low-lying areas and in using of abandoned mines/Quarries. It was noted that several TPPs had preferred appeals to the Hon'ble Supreme Court against

the order of interim compensation passed by this Tribunal. The Tribunal directed further steps for scientific disposal of the fly ash and coercive measures by the statutory regulators against the violators, subject to orders of the Hon'ble Supreme Court in matters pending therein. Relevant extracts from the order are:

“xxxxxx.....xxx

15. *On the last date i.e. 12.02.2020, the Tribunal reviewed the matter further in the light of the report of the joint Committee filed on 20.12.2019. It was observed:-*

“21. Pursuant to order dated 20.11.2018, the joint Committee has filed its report on 20.12.2019 on the subject of action plan to achieve 100% fly ash utilization by the TPPs and liability of the TPPs to pay compensation. The report mentions the meetings held for the purpose and consideration of the enhanced utilization of fly ash by way of Ash based building construction material such bricks/blocks/tiles; road, flyover embankment construction, Development of low- laying areas, Reclamation of abandoned mine voids, Ash utilization as soil conditioners of agriculture. As per CPCB, about 77% of total fly ash generated per annum is utilized. This indicates a gap in terms of 23% which needs immediate action. In terms of legacy waste, the total quantum is 1647 million tonnes as on 31.03.2019.

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

16. *It was further observed that this Tribunal has noticed repeated and continuous defaults by the TPPs resulting in damage to the environment and public health for which compensation has been assessed by the experts under orders of the Tribunal.*

In O.A. No. 453/2019, Anjani Jaiswal vs. Union of India & Ors., vide order dated 11.10.2019, this Tribunal considered reports of the MPPCB and UPPCB in respect of pollution by the TPPs in districts Singrauli and Sonebhadra respectively. It was found that damage was being caused to the water bodies including Rihand reservoir, surface and ground water and rivers like Son, Renu, Bijul, Kanhar, Gopad, Pankagan, Kathauta Kachan, etc. and streams/nalas like Ballia Nala, Chatka Nala, Kahuwa Nala, Tippa Jharia, Dongia Nala,

etc. water was contaminated by toxic effluents discharged and was not fit for consumption.

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

“Details of imposed Environmental compensation

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

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

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

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

“Abridged Status of Environmental Compensation (EC)

S.No.	Name of industry (M/s)	EC in Rs.
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1.	<i>NTPC Thermal Power Plant, at Shaktinagar, Sonebhadra (U.P)</i>	<i>27,00,000</i>
2.	<i>Northern Coal Fields Limited (NCL) Project Dudhichua, Sonebhadra (U.P.)</i>	<i>1,30,20,000</i>
3.	<i>Northern Coal Fields Limited (NCL) Project Khadia, Sonebhadra (U.P.)</i>	<i>1,24,80,000</i>
4.	<i>Northern Coal Fields Limited (NCL) Project Krishnashila, Sonebhadra (U.P.)</i>	<i>6,11,40,000</i>
5.	<i>Northern Coal Fields Limited (NCL) Project Bina, Sonebhadra (U.P.)</i>	<i>64,50,000</i>
6.	<i>Northern Coal Fields Limited (NCL) Project Kakri, Sonebhadra (U.P.)</i>	<i>64,50,000</i>
	<i>NTPC Thermal Power Plant at Rihandnagar, Sonebhadra (U.P.)</i>	<i>45,90,000</i>
7.	<i>U.P. Power Corporation Ltd, Thermal Power Plant, Obra, Sonebhadra (U.P.)</i>	<i>6,11,40,000</i>
8.	<i>U.P. Power Corporation Ltd, Thermal Power Plant, Anpara, Sonebhadra (U.P.)</i>	<i>6,11,40,000</i>
10.	<i>LANCO Anpara Power Ltd, Thermal Power Plant, Anpara, Sonebhadra (U.P.)</i>	<i>23,70,000</i>

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

“11. Recommendations

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

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

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

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

17. The Tribunal also considered the subject of parameters for determining environmental compensation. Apart from the said issues, there was specific consideration with regard to the breach of fly ash dyke of ESSAR Thermal Power Plant and NTPC, Vindhya Nagar at Singrauli, M.P. In O.A. No. 164/2019, with reference to breach of fly ash dyke of ESSAR Thermal Power Plant and NTPC, Vindhya Nagar at Singrauli, M.P., the Committee appointed by this Tribunal headed by Justice Rajes Kumar, former Judge of Allahabad High Court, in its report dated 03.11.2019 observed:-

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

(3) Construction of the Fly Ash Dyke and its maintenance was not found technically sound and proper. Recently, two Fly Ash Dykes – one of ESSAR Thermal Power Plant and another of NTPC, Vindhyanagar were breached, causing heavy environmental damages. The Committee has taken serious note about this happening and has given direction to all Thermal Power Plants to get the certificate of the third party expert about the construction and stability of the Fly Ash Dyeke. The Committee is seriously monitoring.

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

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

18. Finally, the Tribunal passed following operative order:-

“30. We have considered the written submissions filed by the individual TPPs. In view of earlier orders dealing with the contentions of the TPPs, there is no merit in the stand that the said plants are not liable for 100% fly ash disposal. Difficulties pointed out are of no relevance as the same are to be resolved by the administration and not by the victims of pollution whose rights are being affected. Environment cannot be violated against statutory norms. Violation of statutory notifications needs to be visited sternly in terms of enforcing the same, recovering compensation and prosecuting the violators. Whatever be the individual circumstances, it cannot be a ground to disobey law and to commit criminal offence under the Water Act, Air Act and EP Act. There is no discretion available with this Tribunal to dispense with the mandate of law. Statutory provisions are binding on every TPP without any exception. It is, thus, not necessary to go into the justification or otherwise of such impermissible defence of the TPPs.

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

32. Thus, our directions are as follows:-

- a. The TPPs may take prompt steps for scientific disposal of fly ash in accordance with the statutory notification issued by the MoEF&CC under the provisions of EP Act requiring 100% utilization and disposal of fly ash.

- b. *For the non-compliant TPPs, environmental compensation needs to be determined w.e.f. the cut-off date of 31.12.2017 as stipulated in the Notification dated 27.01.2016.*
- c. *CPCB may accordingly compute and levy Environmental Compensation in accordance with the formula referred to above w.r.t. individual TPPs in accordance with law and submit compliance report to this Tribunal before the next date.*
- d. *CPCB Guidelines of May 2019 for Utilization/Disposal of Fly ash for Reclamation of Low Lying Areas and in Stowing/Back filling of Abandoned Mines/Quarries may be complied.*
- e. *Task Force of Ministry of Power and Ministry of Coal may recommend list of abandoned mines/quarries for mine back filling purposes to the CPCB. CPCB may notify the same accordingly for use by the TPPs as per applicable guidelines and permission from State PCBs/PCCs.*
- f. *A Committee comprising of CPCB and IIT Roorkee may assess the environmental damage with regard to the breach sites at Vidhyanchal TPP an Essar TPP in Singrauli area and submit its recommendation within three months. CPCB shall be at liberty to engage any other technical expert for this purpose.*
- g. *The Committee comprising of Collector, CPCB and Member Secretary of MP State Pollution Control Board may assess the damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area to the crop and agricultural productivity and ensure effective restoration/remediation of affective sites within three months.*
- h. *CPCB may ensure implementation of action plans approved by it in accordance with timeline as provided in the statute.*
- i. *A joint Committee comprising of MoEF&CC, CPCB, IIT Roorkee and any other member considered necessary may submit quarterly progress report on recommendations of Expert Committee of Niti Aayog for enhanced utilization of fly ash in various sectors: mines, roads, cement, industries and bricks etc., along with its implementation status.*
- j. *The present order is subject to proceedings pending before the Hon'ble Supreme Court and where stay is operative, this order will not operate till stay*

continues and thereafter abide by orders of Hon'ble Supreme Court."

19. Accordingly, compliance reports have been filed by the MoEF&CC, the CPCB and the joint Committees.

20. The report filed by the MoEF&CC on 03.11.2020 with regard to enhanced utilisation of fly ash is that guidelines for disposal/utilization of the fly ash for reclamation of low lying areas and in using of abandoned mines/Quarries, in consultation with Central Pollution Control Board and Central Institute of Mining and Fuel Research, Dhanbad has been published in March, 2019. As per policy decision dated 28.08.2019, restriction on backfilling of fly ash in abandoned mines and low lying areas has been removed. National Highways Authority has given an action plan on 30.09.2019 for enhanced utilization of fly ash. Direction has been issued on 02.03.2020 to Ministry of Power, Ministry of Road Transport & Highways, Ministry of Coal, Ministry of Housing and Urban affairs, Central Pollution Control Board, National Thermal Power Corporation and National Highways Authority of India requesting them to furnish the progress report/action taken report. Ministry of Coal has submitted ATR via email dated 06.11.2019, 08.04.2020, 03.09.2020 respectively on the recommendations of Expert Committee i.e. "mining companies should share their experience of mines backfilling to enhance fly ash utilisation in this sector". MoEF & CC has shared the report on fly ash filling experience in CIL mines and also the list of mines identified by Ministry of Coal for fly ash filling with CPCB and Ministry of Power with request to furnish progress report in this regard vide letter dated 27.04.2020. Ministry has issued a reminder letter vide email dated 07.07.2020 to Ministry of Power, Ministry of Road Transport and Highways, Ministry of Housing and Urban affairs, Central Pollution Control Board, National Thermal Power Corporation, National Highways Authority of India requesting to furnish the progress report/action taken report at the earliest.

21. Report of CPCB filed on 04.09.2020 is to the effect that environmental compensation has been computed. Out of 112 plants, two have paid while 102 plants have sought exemption. List of 21 abandoned mines has been finalized for utilization of the fly ash. Action with regard to the directions (f) and (g) is pending finalization. Utilization status for 2018-2019 and 2019-20 has been monitored.

22. A report has been filed by the joint Committee constituted in terms of direction (f) of order dated 12.02.2020 on 06.09.2020 regarding Environmental Compensation for Vidhyanchal TPP and Essar TPP. The assessment of compensation is as follows :-

"3. Damage assessment fir M/s Essar Power MP Ltd & M/s NTPC Vindhagar

The Committee has assessed the environmental damage based on the available monitoring reports, field reports and literature. The brief on damage cost is as tabulated below:-

<i>Industrial Unit</i>	<i>GHG emission damage cost in Crore Rs.,</i>	<i>Water pollution/environmental property/other damage cost in Crore Rs.</i>	<i>Total In Crore Rs.</i>
<i>M/s Essar Power MP Ltd</i>	<i>0.0711</i>	<i>7.28</i>	<i>7.3511</i>
<i>M/s NTPC Vindhnapar</i>	<i>0.0384</i>	<i>104.13</i>	<i>104.1684</i>

23. *The recommendations in the report are as follows:-*

“i. Industrial units have engaged professional institute NEERI, Nagpur to assess the damage; the institute needs to assess the site specific long term direct or indirect impact on the flora fauna, human health and consumptive cost.

ii. Industrial units need to comply for 100 % fly ash utilization to avoid such incidence in future.

iii. To install monitoring stations on the affected sites, to continuously monitor the movement of plume underground or the leaching of toxic heavy metals from the sediment

iv. Industrial units need to take care for the health of worker s employed for spill clean-up working.”

24. *Second report is by the Committee constituted in terms of direction (g) for assessment of compensation to the crop and agricultural productivity by Vidhyanchal TPP and Essar TPP. The Compensation has been assessed, for which recommendation is as follows:-*

“3. Restoration/remediation of the site

a. Restoration of site by M/s Essar Power MP Ltd.

The team of district administration and Madhya Pradesh Pollution Control Board has visited the ash dyke breached data area on 02.02.2020 to physically verify the status of restoration work of the site. The report submitted vide letter no. 1125/RO/PCB2020 dated 17.02.2020 by MPPCB, Singraulli states that the ash spread over the field and water bodies was collected and dumped at ash dyke no. 3. The photographs attached with the report show that ash spread over the fields was removed and site is restored. Copy of the report is enclosed as Annexure-IX. Further after the site collection of ash from the fields by M/s Essar Power MP Ltd., farmers have sown the Kharif crop during this monsoon.

b. Restoration of site by M/s NTPC Vindhnapar

As there was no agricultural activity is in practice inside the NTPC ash dumping area; no crop damage was reported and same was recorded by district administration. As per the status report submitted by M/s NTPC Vindhnagar on 27.07.2020; the ash spread over the land and in drains and near pond were collected that was about 1 Lac ton. The collection of ash deposited near the Rihand reservoir is delayed due to swampy land and problems of machinery movement, which is likely to be completed by 15-09.2020. The dredging of the affected portion of the Rihand Reservoir is also being started. Copy of the status report submitted by NTPC is enclosed as Annexure-X.”

Recommendation:

- a. *The Essar Power M.P. Ltd. Village Bandhaura, Distt. Singrauli (M.P) shall be directed to compensate for indirect loss of Rabi Crop of Rs. 2014200/-*
- b. *The Essar Power M.P. Ltd. Village Bandhaura, Distt. Singrauli (M.P) may depute an agricultural institute for the assessment of damage to the crop productivity w.r.t. the Kharif and Rabi crop cultivated in 41 Ha of Village Karsualal and Karsuaraja for 2020-21 & 2021-22.”*

25. Let further steps be taken in terms of the above reports subject to the orders of the Hon’ble Supreme Court in matters pending therein. Further progress report may be compiled by the MoEF in terms of direction (i) in the order dated 12.2.2020. CPCB may finalise the issue of compensation determination. We approve the reports of the joint Committees. Recovery of compensation will be as per directions of the Hon’ble Supreme Court wherever there is stay.

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The CPCB, the MoEF&CC and the joint Committees may file their further status reports with regard to the status as on 30.4.2021 before the next date 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. The joint Committee is at liberty to take assistance of such other experts as they find necessary.”

OA No. 164/2018 – order dated 14.07.2020

5. In OA No. 164/2018, *Ashwani Kumar Dubey vs. Union of India & Ors.*, the matter was last considered vide order dated 14.07.2020. The Tribunal inter alia considered the **issue of breach of fly ash dykes due to storage beyond capacity or otherwise and adverse impact on public**

health and water bodies in the area of Singrauli and Sonebhadra Districts of Madhya Pradesh and Uttar Pradesh respectively. **There was damage to Rihand Reservoir which was major source of water supply in the area.** The Tribunal had constituted an Oversight Committee headed by Justice Rajesh Kumar, former Judge of the Allahabad High Court to furnish a factual report in the matter with recommendations for remedial action. In the light of recommendations of the said Committee and the response of the concerned TPPs, the Tribunal issued directions for scientific management and disposal of fly ash as well as payment of compensation and also directed further monitoring by Joint Committee of CPCB, State PCB and District Magistrate and filing of quarterly status reports before the Tribunal. Relevant extracts from the said order are reproduced below:

“1. The order is being passed in continuation of order dated 05.11.2019. The issue for consideration is remedial action against pollution and violation of environmental norms by Thermal Power Stations operating in Singrauli and Sonebhadra Districts of Madhya Pradesh and Uttar Pradesh respectively, resulting inter-alia in air pollution, water contamination and large scale of damage to public health. The areas figure in the list of polluted industrial clusters based on comprehensive environment pollution index, prepared by the CPCB as per available data of pollution.

2. After considering the report of the joint Committee, constituted by the Tribunal, to the effect that damage to environment was being caused by the thermal power stations in Singrauli and Sonebhadra in M.P/U.P and that water bodies, including the Rihand Reservoir (main source of supply of drinking water in the area) were adversely affected, the Tribunal directed remedial action and also constituted an oversight committee (OC) headed by Justice, Rajesh Kumar, former Judge of the Allahabad High Court.

*3. The Committee gave its reports about the status of compliance upon which the Tribunal passed further orders. The reports considered by this Tribunal include reports dated 14.12.2018 (Ist report), 28.06.2019 (IInd report), 21.08.2019 & 23.08.2019 (IIIrd report) and 29.10.2019 (IVth Report). The IVth report pointed out **damage to the Rihand Reservoir on account of breach of fly ash dykes of Essar Power and NTPC on 07.08.2019 and 06.10.2019 respectively.** Slurry travelled upto the reservoir giving rise to emergent situation. The concerned plants were required to take suitable remedial measures by the Committee.*

4. In the earlier orders, the Tribunal directed consideration of recommendations of the Committee and appropriate further action, adopting appropriate safeguards. The Tribunal also directed the CPCB to have an action plan prepared by the power plants for de-silting of the reservoir and improvement of the dykes. The issue of recovery of compensation was deferred to the extent that there was stay by the Hon'ble Supreme Court. The term of Committee headed by Justice Rajesh Kumar was initially for six months but was extended till 31.12.2019. The NTPC and Essar power were directed to initiate steps for restoration of their respective ash dykes by 31.12.2019.

5. In pursuance of the above, we have considered the matter further in the light of following:-

- I) Report of Justice Rajesh Kumar dated 20.12.2019
- II) Report of the CPCB dated 28.02.2020
- III) Objections to the report by the Vindhyachal Super Thermal Power Station, R-10
- IV) Comments to the observations of the OC report dated 20.12.2019 by the UPVUN.

6. Report dated 20.12.2019 by the OC is based on the minutes of meeting held on 17.12.2019 which record the status report furnished by the concerned power plants. With regard to the NTPC, the Committee observed that on account of the breach of its ash dyke, the fly ash travelled up to the reservoir for which interim compensation of Rs. 10 Crore was liable to be deposited. NTPC was also required to take remedial measures. UPVUN was also found to be liable as follows:

“On the spot inspection, the Committee found that a large portion of Ash Dyke had been breached with the result huge quantity of fly ash had spread all over the land. It has travelled up to the Rihand reservoir. Prima facie, the interim environmental compensation demanded by the MPPCB at Rs. 10.00 Crore cannot be said to be excessive. The said amount ought to be deposited. We are of the view that the furnishing of bank guarantee of Rs. 1.00 Crore is not sufficient. MPPCB may issue the notice asking the Plant to deposit the entire Rs. 10.00 Crore. Bank guarantee cannot be said to be deposit, it can only be treated as the security.

The committee is of the view that to strengthen the ash dyke the plant should consider to develop RCC wall around the fly ash dyke. The structure should be of RCC having a layer of PVC, tiles to ensure the stability of the dyke. At present the dyke is being made out of the fly ash putting boulder pitching outside wall and brick lining inside the dyke. The storage of fly ash is very important aspect in the context of Environment. Improper storage of fly ash results in air pollution and water pollution affecting the Environment In the last meeting we have asked

the thermal power plants to explore the possibility of developing the fly ash mount as has been developed by NTPC Dadri. Neither any interest has been shown in this regard nor any step has been taken to develop the fly ash mount. In the face of status stated above, we direct NTPC-Vindhyachal to be very sincere and implement the directions given by the committee and by the Hon'ble NGT in a shorter time.

Committee directs the MPPCB to assess the Environment Compensation finally within one month. Plant is also directed to give the status report time to time, preferably within 15 days each time.

UPVUN, Anpara:

On the information being received from the various sector that there is a continuous flow of the water carrying fly ash from two sides towards Rihand Reservoir since last more than one year. On 15.12.2019 night at about 6:30 PM committee visited the spot and found that the information given is true. There is continuous flow of water coming from plant along with the fly ash filling in Rihand Reservoir. On a query being made that why this is happening, Shri Pradhul Gupta, Senior Engineer states that this flow is not continuous, it is mainly during the rainy season and this happened because of fulfilment of the ash dyke therefore the water is overflowing. It also carries catchment water. It is stated that they are raising the height of the dyke which may likely to take one year at least. He further submitted that they are also developing another compartment which may likely to take six months and they are also making effort to divert the nala which carries natural water to reduce the quantity of water.

We do not find explanation satisfactory. The fact is that the water carrying fly ash are continuously flowing towards the Rihand Reservoir, the volume of the flowing water is very high and it carries fly ash, it is continuous since last more than one year. Discharge of fly ash to the Rihand Reservoir pollutes the water of reservoir which is the only source of water of the area. We find that the information about the flow of huge water along with fly ash had not been conveyed to SPCB authorities and they have deliberately concealed the facts. It is mentioned here that these two areas are in a very interior and we have to reach these places after travelling about 18 KM kaccha road through forest. Act of pollution amounts to violation of various laws and polluter is liable to be punished. The committee is of the

view that since the flow of water along with fly ash is continuous, and there is no possibility for its immediate stoppage. The only way to stop the flow is to close operation of the unit and their unit is liable to be closed until they make arrangements and ensure that no water with ashes may go to the Rihand Reservoir. The committee is also of the view that they are liable for the environment compensation as well as cost of desilting of the ashes from the reservoir on the principle of polluter pay. The UPPCB is directed to assess environmental compensation and take all stringent actions under the provision provided in the various Acts.”

7. Report of the CPCB is on the issue of de-silting and restoration of Rihand Reservoir. It refers to pre-existing guidelines of CPCB on **ash disposal in mounds and backfilling of ash in abandoned mines**. With regard to the cost apportionment for de-silting/restoration of Rihand Reservoir, The CPCB has concluded as follows:

“In absence of verified records in these respects, an assessment of contribution of each plant by this approach is difficult. Therefore, the contribution of each power plant might also be revealed by the proposed study to assess sediment volume at various places in the reservoir.

To begin with, the total ash slurry volume generated by each plant on the periphery of Rihand reservoir can be considered as the basis of sharing of the cost of the study to assess sediment volume at various places in the reservoir. For this purpose, the information on annual power generation and coal consumption, average ash content, and annual ash generation as well as annual ash slurry generation based on ash to water ration power plants and collated (Annexure-III). **Total ash quantity and ash slurry volume generated over the years by individual thermal power plants located on the periphery of Rihand reservoir on the basis of information collected is presented below:**

Table 1

Thermal Power Plant	Capacity (MW)	Total ash disposed in Ash Pond till 31.03.2019 (MMT)	Total ash slurry disposed in Ash Pond till 31.03.2019 (MMT)	Relative share in total Ash of plants (multiple of least)	Relative share in total Ash Slurry of plants (multiple of least)	Share in total Ash of plants (% of total)	Share in total Ash Slurry of plants (% of total)
Anpara TPS UPRVUNL	2630	81.313	569.225	31.7	66.3	22.9%	19.6%
Lanco Anpara	1200	10.870	46.395	4.2	5.4	3.0%	1.6%
Renusagar, Hindalco	820	2.564	8.584	1	1	0.7%	0.3%
Singrauli NTPC	2000	89.295	803.654	34.8	93.6	25.1%	27.6%

Vindhyachal NTPC	4760	104.937	953.855	40.9	111.1	29.6%	32.8%
Rihand NTPC	3000	66.136	529.008	25.8	61.6	18.6%	18.2%
Total / combined	12610	355.115	2910.801	138.4	339	100%	100%

It is submitted that U.P. Irrigation Department may be directed to coordinate the study to assess sediment volume at various places in the reservoir.

It is further submitted that Anpara TPS and Lanco-Anpara power plants may be directed to stop ash pond overflow discharge into Rihand reservoir.”

8. According to the Vidhyachal Super Thermal Power Station, R-10, the observation of the oversight Committee are completely erroneous and unsubstantiated. Breach was plugged within 30 hours. PFL wall was repaired and it is also incorrect that fly ash transfer to the Reservoir and that the raising of the height was without expert opinion. It is further submitted that compensation of Rs. 10 Crores was not justified. Cash payment of Rs. 1 Crore has been made towards interim compensation. With regard to developing fly ash mound, it is stated that it is not necessary. Comments of the UPVUN are that necessary action has been taken which may be verified. There is zero discharge from the ash dyke. Reference has also been made to the inspection report by the joint Committee of the CPCB and the State PCB recommending as follows:

“Recommendations

1. M/s NTPC Shaktinagar to repair the AWRS desloped pipeline within 07 days & to stop discharge of decant water of S1 & S2 dyke immediately by pumping in M/s NTPC Vindhnagar AWRS 03 system immediately.
2. M/s NTPC Vidhnagar shall **collect back the spread over ash from 53 Ha area with minimal fugitive emission & dispose it in operating dyke. Unit shall submit the time bound action plan in this regard.**
3. M/s NTPC Vindnagar to **stop the probable mixing of slurry in Rihand reservoir & Surya drain near decanting pond with no further delay.**
4. M/s NTPC Vindhnagar may be asked to deposit 01 Crore to CPCB or MPPCB towards an interim environmental compensation w.r.t Aryavart Foundation v. M/s Vapi Green Enviro Ltd & Ors. Hon’ble NGT O.A 95/2018 order dated 11.1.2019”

9. We have duly considered the stand of the NTPC- Vidhyachal Super Thermal Power Station as well as the UPUVN. Mere self-serving denial in the face of report based on site visit by a Committee appointed by this Court headed by a former judge of the High Court has no legs to stand. Responsible organisations should

refrain from adopting such attitude. We uphold the report of the OC. We also note that the Tribunal has been considering the issue of compliance of Notification dated 31.12.2018 issued by the MoEF&CC requiring 100% utilization of fly ash vide order dated 12.02.2020 in Original Application No.117/2014, Shantanu Sharma v. Union of India & Ors. In the said order, following directions were issued:-

“32. Thus, our directions are as follows:-

- a. **The TPPs may take prompt steps for scientific disposal of fly ash in accordance with the statutory notification issued by the MoEF&CC under the provisions of EP Act requiring 100% utilization and disposal of fly ash.**
- b. For the non-compliant TPPs, environmental compensation needs to be determined w.e.f. the cut-off date of 31.12.2017 as stipulated in the Notification dated 27.01.2016.
- c. **CPCB may accordingly compute and levy Environmental Compensation in accordance with the formula referred to above w.r.t. individual TPPs in accordance with law and submit compliance report to this Tribunal before the next date.**
- d. **CPCB Guidelines of May 2019 for Utilization/Disposal of Fly ash for Reclamation of Low Lying Areas and in Stowing/Back filling of Abandoned Mines/Quarries may be complied.**
- e. Task Force of Ministry of Power and Ministry of Coal may recommend list of abandoned mines/quarries for mine back filling purposes to the CPCB. CPCB may notify the same accordingly for use by the TPPs as per applicable guidelines and permission from State PCBs/PCCs.
- f. **A Committee comprising of CPCB and IIT Roorkee may assess the environmental damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area and submit its recommendation within three months. CPCB shall be at liberty to engage any other technical expert for this purpose.**
- g. The Committee comprising of Collector, CPCB and Member Secretary of MP State Pollution Control Board may assess the damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area to the crop and agricultural productivity and ensure effective restoration/remediation of affected sites within three months.

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

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

10. *In view of the above, we direct:*

- i. *Fly ash disposal may be undertaken as per the directions in the order of this Tribunal dated 12.02.2020 referred to above.*
- ii. *Fly ash disposal in mounds and backfilling of ash in abandoned mines may be undertaken as per the CPCB guidelines. If necessary, Indian Bureau of Mines, Dhanbad may also be consulted so that latest technology is utilized and all necessary safeguards are adopted.*
- iii. *Report of the CPCB regarding Cost apportionment for de-silting/restoration of Rihand Reservoir is accepted and further steps, including further study be undertaken as recommended by the CPCB. The U.P Irrigation Department may coordinate such study.*
- iv. *Anpara TPS and Lanco-Anpara power plants may stop ash pond overflow discharge into Rihand Reservoir to the extent the work remains unexecuted.*
- v. *The NTPC, Vidhyachal may deposit amount of Rs. 10 Crores as recommended by the Oversight Committee with the State PCB towards interim compensation, deducting the mount already deposited. The plant may also develop RCC wall around the plant in the matter recommended.*
- vi. *The liability for environmental compensation in respect of UPVUN, Anpara and NTPC Vidhyachal may be assessed by joint Committee of CPCB and the State PCB within two months. The nodal agency will be the State PCB for coordination and compliance.*

vii. *The transportation measures may be adopted as per suggestions of the Committee and directions of the Hon'ble Supreme Court.*

11. *Since the term of the Committee has expired, **further oversight work may be undertaken by a joint Committee of the CPCB with respective State PCB and the District Magistrates.** The State PCBs will be the nodal agency for the respective States.*

12. ***The newly constituted OC may furnish its reports quarterly** by 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. First such report may be furnished giving status as on 31.10.2020 by 15.11.2020 with copies to concerned stake holders for their response if any by 30.11.2020."*

OA No. 148/2020 – order dated 29.06.2020

6. In OA No. 148/2020 (earlier OA No. 31/2020(CZ), *Hiralal Bais vs. Reliance Sasan Power P. Ltd. & Ors.*, CZ Bench of this Tribunal dealt with the incident dated 15.04.2020 of death of six persons, washed away in fly ash slurry and contamination of mercury in air, water and soil on account of negligence by the TPP - Sasan Ultra Mega Power Plant vide order dated 29.6.2020 and constituted a joint Committee to furnish a factual and action taken report. OA No. 94/2020, *Ashwani Kumar Dubey vs. Sasan Ultra Mega Power Plant & Ors.* also relates to the same incident which was filed before PB. Vide order dated 14.7.2020, the Tribunal noted the order of the Central Zone Bench dated 29.06.2020 in OA No. 148/2020 (earlier OA No. 31/2020(CZ)) constituting a Joint Committee to ascertain facts and give report and directed hearing of both matters together. The operative part of the order dated 29.6.2020 in OA 148/2020 (earlier OA No. 31/2020(CZ)) is reproduced below:

“By way of filing this application, the applicant has raised the issue of the incident of collapsing of Fly ash pond constructed by Reliance Power’s Ultra Mega Power Project’s (UMPP) Singrouli (MP) on 10.04.2020 around 3 PM during COVID 19 pandemic, leading to flood of the toxic ash slurry located in adjoining Harrhava village, washed away six persons, including three kids, a woman and two men living

in the adjoining villages. All the Respondents are severely and jointly responsible for the loss of human and animal's lives as well as severe damages to the nearby rivulets Goiwahai, vegetations, biodiversity, fertile agricultural lands, due to their negligence. A substantial issue of environment has been raised.

We deem it just and proper to call a report from a Joint Committee consisting of:-

- 1. Representative of MoEF & CC*
- 2. Representative of CPCB*
- 3. District Collector, Singrouli*
- 4. Madhya Pradesh Pollution Control Board through its Regional Officer, Singrouli.”*

Status reports for consideration in today's proceedings

OA 117/2014 and connected matters

7. A report dated 23.08.2021 in pursuance of order of this Tribunal dated 04.11.2020 which also includes compliance status of earlier orders of the Tribunal dated 27.01.2020/12.02.2020 has been filed in the form of two annexures (Annexure -1 and Annexure-2). Annexure-1 deals with status of utilization of fly ash by Power Plants in 2020-2021 as follows:

“Status of Utilization of Fly Ash by Thermal Power Plants during year 2020-2021

Sl. No.	Name of Thermal Power Plants	State	Capacity (MW)	Coal / Lignite Consumption (Million Tonnes)	Total Ash Gen. (T)	Total Ash Utilization (T)	% Ash Utilization in 2020-21	Unutilised ash up to 31.03.2020 (Mill. Ton)	Unutilised ash up to 31.03.2021 (Mill. Ton)
1.	Vijayawada, APPGCL, Dr. Narla Tata Rao TPS	A.P.	1760	6.640436	2941374	2963370	100.75%	42	42
2.	Rayalseema, APPGCL	A.P.	1650	1.676004	730093	921480	126.21%	15.9	15.65
3.	Simhadri, NTPC	A.P.	2000	6.447	2448817	3024865	123.52% (121.69%)	16.55	15.15
4.	Simhapuri Energy Limited	A.P.	600	0	0	0	-	-	-
5.	Thamminapatnam, Meenakshi Energy Pvt. Ltd.	A.P.	300	0.109107	7439	495	6.65%	0	0.006944
6.	Damodaram Sanjeevaiah TPS	A.P.	1600	4.027513	1195286	1096090	91.70%	2.55	2.649197
7.	Sembcorp Energy India Ltd. P-2 (Sembcorp Gayatri TPP)	A.P.	1320	4.72585	458383	459422	100.23%	0.885	0.8835
8.	Sembcorp Energy India Ltd., P-1 Painampuram	A.P.	1320	5.262925	1339535	1389723	103.75%	2.882	2.832
9.	Vizag TPP, Hinduja	A.P.	1040	0.820631	324503	351912	108.45%	1.194492	1.167083
10.	Bongaigaon Thermal Power Project, NTPC	Assam	750	1.714175	524429	328996	62.73%	1.143005	1.338438
11.	Kahalgaoon, NTPC	Bihar	2340	10.82	4016797	4154861	103.44% (86.09%)	66.52	66.5
12.	Muzaffarpur, NTPC Kanti Bijlee Utpadan Nigam Limited	Bihar	610	1.864	710083	749366	105.53%	1.979	1.94
13.	Barh, NTPC	Bihar	1320	5.367553	2039670	2204213.61	108.07%	6.372	6.2076
14.	Nabi Nagar TPS, BRBCL	Bihar	750	3.122168	1334947	379252	28.41%	0.775	1.730696
15.	Nabi Nagar Power G.C. NPGC Ltd.,	Bihar	660	2.87	1043130	538144	51.59%	0.81	1.314986

16.	Barauni TPS, NTPC	Bihar	720	0.851998	330445.6	198617.17	60.11%	0.059504	0.07523
17.	Hasdeo Thermal Power Station, Korba West	Chhattisgarh	1340	6.793113	2749477	1289482	46.90% (45.24%)	54.956	56.415995
	Korba, NTPC	Chhattisgarh	2600	13.96	4792714	3462532	72.25% (34.76%)	52.26	53.590183
	Korba, EAST CSPGCL	Chhattisgarh	240	0.915885	423074.97	138294.42	32.69% (16.74%)	33.442043	33.726824
	Raigarh Energy Gen. (KWPC), Adani Power	Chhattisgarh	600	2.230091	852208	305756	35.88%	0.985	1.531452
	Marwa, CSPGCL Atal Bihari Vajpayee, TPS	Chhattisgarh	1000	3.512433	1470253	1000313.43	68.04% (38.87%)	3.663709	4.133647
	Sipat, NTPC	Chhattisgarh	2980	15.026601	5247332	3025841.05	57.66% (48.17%)	35.05	37.271491
	Lara STPP, NTPC	Chhattisgarh	1600	3.705321	1352233	1005608	74.37% (65.86%)	0.564535	0.911197
	Jindal Power Tamnar, OP Jindal Power STPP Stage-1	Chhattisgarh	1000	3.498075	1582074	246699	15.59%	8.807	10.142376
	Tamnar, OP Jindal Power STPP Stage-2	Chhattisgarh	2400	6.798548	3063582	556019	18.15%	2.849436	5.357
	Lanco Amarkantak	Chhattisgarh	600	2.999343	1156533.06	515880.12	44.61% (42.88%)	5.563	6.473
	Kasaipalli, ACB	Chhattisgarh	270	1.2151	596424	655563	109.92%	0.746294	0.687155
	D B Power	Chhattisgarh	1200	5.81823	2645733	2600861	98.30%	2.283984	2.328855
	Akaltara, Mahanadi Power	Chhattisgarh	3600	6.695931	2356652	2907443	123.37%	1.0364	0.48561
	Balco TPS	Chhattisgarh	1200	5.645516	2214680.95	2306719.89	104.16% (78.81%)	2.713787	2.621748
	Uchpinda, RKM Power	Chhattisgarh	1440	3.27493	1406638	1406638	100.00% (99.60%)	0.526499	0.526499
	Raipur Energen (GMR) Adani	Chhattisgarh	1370	4.803733	1601531	1665253	103.98%	0.191	0.1275

	<i>Maruti Clean Coal & Power Ltd</i>	<i>Chhattisgarh</i>	<i>300</i>	<i>1.400746</i>	<i>630330</i>	<i>649936</i>	<i>103.11%</i>	<i>0.348181</i>	<i>0.328574</i>
	<i>SV Power Pvt Ltd, Hardibazar ACB</i>	<i>Chhattisgarh</i>	<i>60</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>SCPL Ratija, Spectrum Coal & Power</i>	<i>Chhattisgarh</i>	<i>100</i>	<i>0.602071</i>	<i>333186.06</i>	<i>333186.06</i>	<i>100.00%</i>	<i>0.411</i>	<i>0.411</i>
	<i>Nawapara TPS, TRN Energy</i>	<i>Chhattisgarh</i>	<i>600</i>	<i>1.588552</i>	<i>681364</i>	<i>201332</i>	<i>29.55%</i>	<i>0.888972</i>	<i>1.369004</i>
	<i>Dr. Shyama Prasad Mukherjee TPS, Korba</i>	<i>Chhattisgarh</i>	<i>500</i>	<i>2.305889</i>	<i>973085.16</i>	<i>426815.66</i>	<i>43.86% (24.10%)</i>	<i>17.652885</i>	<i>18.19478</i>
	<i>Bhilai TPS, NTPC & SAIL</i>	<i>Chhattisgarh</i>	<i>500</i>	<i>2.43547</i>	<i>1048080</i>	<i>617616</i>	<i>58.93%</i>	<i>3.67</i>	<i>3.879716</i>
	<i>SKS Ispat, Binjkote TPS</i>	<i>Chhattisgarh</i>	<i>1200</i>	<i>1.328831</i>	<i>582147.908</i>	<i>400675.98</i>	<i>68.83%</i>	<i>0.2</i>	<i>0.3814719</i>
	<i>ACBIL Chakabura</i>	<i>Chhattisgarh</i>	<i>60</i>	<i>0.406934</i>	<i>229769</i>	<i>229769</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
	<i>Gandhinagar, GSPCL</i>	<i>Gujarat</i>	<i>630</i>	<i>1.012327</i>	<i>355215</i>	<i>1116983.87</i>	<i>314.45%</i>	<i>6.50797764</i>	<i>5.74621</i>
	<i>Ukai, GSPCL</i>	<i>Gujarat</i>	<i>1110</i>	<i>3.112938</i>	<i>1198610.43</i>	<i>1176249.07</i>	<i>98.13%</i>	<i>12.9324</i>	<i>12.954761</i>
	<i>Wanakbori, GSPCL</i>	<i>Gujarat</i>	<i>2270</i>	<i>4.269501</i>	<i>1636490.14</i>	<i>1848476.21</i>	<i>112.95%</i>	<i>38.3416831</i>	<i>38.129697</i>
	<i>Sabarmati TPP, Torrent</i>	<i>Gujarat</i>	<i>362</i>	<i>0.7845</i>	<i>190406</i>	<i>220916</i>	<i>116.02%</i>	<i>1.034</i>	<i>1.003</i>
	<i>Sikka, GSPCL</i>	<i>Gujarat</i>	<i>500</i>	<i>0.908359.67</i>	<i>78539.27</i>	<i>298612.99</i>	<i>380.21%</i>	<i>1.180216</i>	<i>0.960143</i>
	<i>Kutch Lignite, GSECL</i>	<i>Gujarat</i>	<i>150</i>	<i>1.093297</i>	<i>276349</i>	<i>353529.1</i>	<i>127.93%</i>	<i>0.21112</i>	<i>0</i>
	<i>GSECL, Bhavnagar TPP</i>	<i>Gujarat</i>	<i>500</i>	<i>1.390182</i>	<i>142471</i>	<i>156630.01</i>	<i>109.94%</i>	<i>0.01683092</i>	<i>0.0056175</i>
	<i>OPG Power Gujarat Ltd, Bhadreshwar VPL</i>	<i>Gujarat</i>	<i>300</i>	<i>0.953286</i>	<i>40678.93</i>	<i>32962.06</i>	<i>81.03%</i>	<i>0.1966502</i>	<i>0.2049933</i>
	<i>Surat Lignite</i>	<i>Gujarat</i>	<i>500</i>	<i>3.070057</i>	<i>477176.88</i>	<i>477176.88</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>

	<i>Adani, Mundra</i>	<i>Gujarat</i>	<i>4620</i>	<i>13.959881</i>	<i>679228</i>	<i>716479</i>	<i>105.48%</i>	<i>0.08</i>	<i>0.043</i>
	<i>Mundra, Tata Power, Coastal Gujarat</i>	<i>Gujarat</i>	<i>4150</i>	<i>10.304531</i>	<i>759538</i>	<i>636930</i>	<i>83.86%</i>	<i>1.635215</i>	<i>1.757822</i>
	<i>ESSAR Power, Hazira</i>	<i>Gujarat</i>	<i>270</i>	<i>0.694808</i>	<i>70502</i>	<i>70502</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
	<i>Essar Power, Gujarat Ltd., Salaya</i>	<i>Gujarat</i>	<i>1200</i>	<i>2.08599</i>	<i>221607</i>	<i>221809</i>	<i>100.09%</i>	<i>0</i>	<i>0</i>
	<i>Akrimota, GMDC</i>	<i>Gujarat</i>	<i>250</i>	<i>0.584566</i>	<i>155554.041</i>	<i>155554.041</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
	<i>Panipat, HPGCL</i>	<i>Haryana</i>	<i>710</i>	<i>0.826514</i>	<i>323754.45</i>	<i>3235278</i>	<i>999.30%</i>	<i>32.8</i>	<i>29.9</i>
	<i>Rajeev Gandhi, Hisar</i>	<i>Haryana</i>	<i>1200</i>	<i>1.15364</i>	<i>446387.82</i>	<i>694123.342</i>	<i>155.50%</i>	<i>5.042</i>	<i>4.8</i>
	<i>Indira Gandhi, Jhajjar</i>	<i>Haryana</i>	<i>1500</i>	<i>2.45</i>	<i>852456</i>	<i>1902232</i>	<i>223.15%</i>	<i>5.92</i>	<i>4.87</i>
	<i>Mahatma Gandhi, CLP Jhajjar</i>	<i>Haryana</i>	<i>1320</i>	<i>2.863124</i>	<i>1039831</i>	<i>1040635.62</i>	<i>100.08%</i>	<i>0.0003</i>	<i>0.0003</i>
	<i>Yamunanagar, Deenbandhu Chhoturam TPS</i>	<i>Haryana</i>	<i>600</i>	<i>1.801665</i>	<i>742466.546</i>	<i>1406831.671</i>	<i>189.48%</i>	<i>2.603</i>	<i>1.8007</i>
	<i>Bokaro A & B, DVC</i>	<i>Jharkhand</i>	<i>710</i>	<i>1.866791</i>	<i>796069.14</i>	<i>1003122.2</i>	<i>126.01%</i>	<i>1.461349</i>	<i>0.077</i>
	<i>Tenughat Thermal Power Station</i>	<i>Jharkhand</i>	<i>420</i>	<i>1.592463</i>	<i>517868.96</i>	<i>477327.69</i>	<i>92.17%</i>	<i>8.032</i>	<i>8.0725413</i>
	<i>Chandrapura, DVC</i>	<i>Jharkhand</i>	<i>500</i>	<i>1.91759</i>	<i>908564</i>	<i>1299730</i>	<i>143.05%</i>	<i>5.392</i>	<i>5.0008</i>
	<i>Koderma, DVC</i>	<i>Jharkhand</i>	<i>1000</i>	<i>4.41995</i>	<i>1960810.23</i>	<i>2373884.92</i>	<i>121.07%</i>	<i>1.35</i>	<i>1.11</i>
	<i>Maithon, DVC</i>	<i>Jharkhand</i>	<i>1050</i>	<i>4.020482</i>	<i>1648299.63</i>	<i>2187899.31</i>	<i>132.74%</i>	<i>0.62893812</i>	<i>0.089338</i>
	<i>Mahadeo Prasad STPP, Adhunik Power</i>	<i>Jharkhand</i>	<i>540</i>	<i>2.106947</i>	<i>871616.2</i>	<i>892717.9</i>	<i>102.42%</i>	<i>0.021102</i>	<i>0</i>
	<i>Jojobera T.P.CO.</i>	<i>Jharkhand</i>	<i>427.5</i>	<i>1.719285</i>	<i>621896</i>	<i>709368</i>	<i>114.07%</i>	<i>0.534082</i>	<i>0.44661</i>

	<i>Raichur, KPCL</i>	<i>Karnataka</i>	<i>1720</i>	<i>2.648665</i>	<i>1048960.96</i>	<i>1551044.73</i>	<i>147.86%</i>	<i>40.43311</i>	<i>39.931025</i>
	<i>Bellari, KPCL</i>	<i>Karnataka</i>	<i>1700</i>	<i>2.03704</i>	<i>804941</i>	<i>922584.12</i>	<i>114.62%</i>	<i>6.34</i>	<i>6.22</i>
	<i>Toranagallu TPS JSW Energy Ltd.</i>	<i>Karnataka</i>	<i>260</i>	<i>0.238</i>	<i>30749</i>	<i>30749</i>	<i>100.00%</i>	<i>0.11967</i>	<i>0.11967</i>
	<i>Toranagallu Extn TPS JSW Energy Ltd.</i>	<i>Karnataka</i>	<i>600</i>	<i>0.581612</i>	<i>82871</i>	<i>82871</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
	<i>NTPC Kudgi</i>	<i>Karnataka</i>	<i>2400</i>	<i>2.886931</i>	<i>981557</i>	<i>447293</i>	<i>45.57%</i>	<i>0.8187</i>	<i>1.352964</i>
	<i>Yermarus TPP</i>	<i>Karnataka</i>	<i>1600</i>	<i>1.977167</i>	<i>666899.19</i>	<i>449615.96</i>	<i>67.42%</i>	<i>0.56189</i>	<i>0.9478705</i>
	<i>Udupi Power Corp. Ltd., Adani</i>	<i>Karnataka</i>	<i>1200</i>	<i>0.988112</i>	<i>69326</i>	<i>69504</i>	<i>100.26%</i>	<i>0.03361296</i>	<i>0.033613</i>
	<i>Amarkantak, MPPGCL</i>	<i>M.P</i>	<i>210</i>	<i>0.998828</i>	<i>336514.59</i>	<i>218111.15</i>	<i>64.81% (56.35%)</i>	<i>3.199148</i>	<i>3.3175514</i>
	<i>Birsingpur, MPPGCL, Sanjay Gandhi TPS</i>	<i>M.P</i>	<i>1340</i>	<i>5.812747</i>	<i>2046282</i>	<i>2048429</i>	<i>100.10% (49.38%)</i>	<i>16.421123</i>	<i>15.64669</i>
	<i>Satpura, MPPGCL</i>	<i>M.P</i>	<i>1330</i>	<i>3.178191</i>	<i>1289011</i>	<i>1214194</i>	<i>94.20% (51.98%)</i>	<i>84.970154</i>	<i>85.044971</i>
	<i>Vindhyachal, NTPC</i>	<i>M.P</i>	<i>4760</i>	<i>25.009768</i>	<i>8713680</i>	<i>3285888</i>	<i>37.71%</i>	<i>74.7469</i>	<i>80.174691</i>
	<i>Gadarwara STPP, NTPC</i>	<i>M.P</i>	<i>1600</i>	<i>2.73</i>	<i>943940</i>	<i>78085</i>	<i>8.27%</i>	<i>0.286925</i>	<i>1.154335</i>
	<i>Khargone STPS, NTPC</i>	<i>M.P</i>	<i>1320</i>	<i>2.55337</i>	<i>900633</i>	<i>462158</i>	<i>51.31%</i>	<i>0.109392</i>	<i>0.547867</i>
	<i>Sasan, RPL</i>	<i>M.P</i>	<i>3960</i>	<i>18.22</i>	<i>5027016</i>	<i>2217552</i>	<i>44.11% (2.38%)</i>	<i>19.349039</i>	<i>22.158503</i>
	<i>Mahan, Essar Power MP</i>	<i>M.P</i>	<i>1200</i>	<i>2.056416</i>	<i>695545</i>	<i>284727</i>	<i>40.94% (33.77%)</i>	<i>0.11752</i>	<i>0.528338</i>
	<i>Bina, J P Power</i>	<i>M.P</i>	<i>500</i>	<i>13.057736</i>	<i>431577.08</i>	<i>432778.43</i>	<i>100.28%</i>	<i>0.2</i>	<i>0.2</i>
	<i>SHREE SINGAJI MPPGCL</i>	<i>M.P</i>	<i>2520</i>	<i>4.049333</i>	<i>1481555.993</i>	<i>645599.9</i>	<i>43.58%</i>	<i>6.882567</i>	<i>7.7185223</i>

	<i>Nigrie, J P Associates</i>	<i>M.P</i>	<i>1320</i>	<i>4.589386</i>	<i>1439906</i>	<i>1440500.37</i>	<i>100.04%</i>	<i>0.219</i>	<i>0.218457</i>
	<i>Jhabua Power Ltd., Seioni</i>	<i>M.P</i>	<i>600</i>	<i>2.583464</i>	<i>1033385</i>	<i>722001</i>	<i>69.87%</i>	<i>0.581104</i>	<i>0.892489</i>
	<i>M. B Power Annupur</i>	<i>M.P</i>	<i>1200</i>	<i>4.626009</i>	<i>1540524</i>	<i>1751585.64</i>	<i>113.70%</i>	<i>1.63437724</i>	<i>1.4233066</i>
	<i>Trombay, Tata Power</i>	<i>Maharashtra</i>	<i>750</i>	<i>1.675293</i>	<i>41524.64</i>	<i>42200.64</i>	<i>101.63%</i>	<i>0</i>	<i>0</i>
	<i>Khaperkheda, Mahagenco</i>	<i>Maharashtra</i>	<i>1340</i>	<i>6.856487</i>	<i>2873718.94</i>	<i>1421983.05</i>	<i>49.48%</i>	<i>25.984519</i>	<i>27.436255</i>
	<i>Nasik, Mahagenco</i>	<i>Maharashtra</i>	<i>630</i>	<i>0.643532</i>	<i>249370</i>	<i>4189115</i>	<i>1679.88%</i>	<i>14.309027</i>	<i>10.3792</i>
	<i>Koradi , Mahagenco</i>	<i>Maharashtra</i>	<i>2400</i>	<i>6.709392</i>	<i>2811456</i>	<i>2276198</i>	<i>80.96%</i>	<i>30.67</i>	<i>31.205258</i>
	<i>Bhusawal, Mahagenco</i>	<i>Maharashtra</i>	<i>1210</i>	<i>3.736826</i>	<i>1445027.16</i>	<i>1529904.65</i>	<i>105.87%</i>	<i>6.82</i>	<i>6.7496</i>
	<i>Chandrapur Super TPS, Chandrapur</i>	<i>Maharashtra</i>	<i>2920</i>	<i>12.711374</i>	<i>5000964</i>	<i>857720</i>	<i>17.15%</i>	<i>73.164</i>	<i>77.328</i>
	<i>Paras, Mahagenco</i>	<i>Maharashtra</i>	<i>500</i>	<i>2.627329</i>	<i>1014591</i>	<i>1006404.45</i>	<i>99.19%</i>	<i>1.75709345</i>	<i>1.76528</i>
	<i>Parli, Mahagenco</i>	<i>Maharashtra</i>	<i>750</i>	<i>1.789326</i>	<i>781774</i>	<i>4334819</i>	<i>554.48%</i>	<i>22.1399</i>	<i>20.419616</i>
	<i>Dahanu, Adani Power</i>	<i>Maharashtra</i>	<i>500</i>	<i>1.788032</i>	<i>375348</i>	<i>422833</i>	<i>112.65%</i>	<i>0.11</i>	<i>0.0622</i>
	<i>Sai Wardha, Warora</i>	<i>Maharashtra</i>	<i>540</i>	<i>1.355476</i>	<i>381997.56</i>	<i>410412.1</i>	<i>107.44%</i>	<i>0.028415</i>	<i>0</i>
	<i>Solapur NTPC</i>	<i>Maharashtra</i>	<i>1320</i>	<i>2.37</i>	<i>758118</i>	<i>743579</i>	<i>98.08%</i>	<i>0.000461</i>	<i>0.015</i>
	<i>JSW Ratnagiri, Nandiwade</i>	<i>Maharashtra</i>	<i>1200</i>	<i>2.54</i>	<i>286287</i>	<i>286287</i>	<i>100.00%</i>	<i>0.049625</i>	<i>0.049625</i>
	<i>Mihan, Abhijeet</i>	<i>Maharashtra</i>	<i>246</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>Mouda, NTPC</i>	<i>Maharashtra</i>	<i>2320</i>	<i>4.49</i>	<i>1706152</i>	<i>2196867</i>	<i>128.76% (110.80%)</i>	<i>1.53</i>	<i>1.04</i>

	<i>Bela, Purti Grpoup</i>	<i>Maharashtra</i>	<i>270</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>Amarawati, RattanIndia</i>	<i>Maharashtra</i>	<i>1350</i>	<i>1.63769</i>	<i>528556</i>	<i>603461</i>	<i>114.17%</i>	<i>0.745269</i>	<i>0.670367</i>
	<i>Nashik RattanIndia, Sinnar TPS</i>	<i>Maharashtra</i>	<i>1350</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>GMR Warora Energy Ltd.</i>	<i>Maharashtra</i>	<i>600</i>	<i>2.498498</i>	<i>834199</i>	<i>1120158</i>	<i>134.28%</i>	<i>0.648</i>	<i>0.263</i>
	<i>Butibori, Vidarbha Ind. Power</i>	<i>Maharashtra</i>	<i>600</i>	<i>0</i>	<i>0</i>	<i>0.03</i>	<i>-</i>	<i>0.03</i>	<i>0</i>
	<i>Tirora, Adani Power</i>	<i>Maharashtra</i>	<i>3300</i>	<i>11.47015</i>	<i>3780001</i>	<i>4540392</i>	<i>120.12%</i>	<i>7.64</i>	<i>6.8902</i>
	<i>Dhariwal, Dhariwal Infrast. Ltd</i>	<i>Maharashtra</i>	<i>600</i>	<i>2.744739</i>	<i>931326</i>	<i>945976</i>	<i>101.57%</i>	<i>0.01465</i>	<i>0</i>
	<i>GEPL TPP Gupta Energy Pvt. Ltd</i>	<i>Maharashtra</i>	<i>120</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>Vedanta Jharsuguda TPS</i>	<i>Odisha</i>	<i>2400</i>	<i>11.47</i>	<i>4873137</i>	<i>5998863.575</i>	<i>123.10% (106.88%)</i>	<i>7.523</i>	<i>6.397</i>
110.	<i>Kamalanga, GMR</i>	<i>Odisha</i>	<i>1050</i>	<i>5.166811</i>	<i>2060592.321</i>	<i>2382151</i>	<i>115.61%</i>	<i>1.075</i>	<i>1.075</i>
111.	<i>Talcher Kaniha, NTPC</i>	<i>Odisha</i>	<i>3000</i>	<i>16.49</i>	<i>6844278</i>	<i>4808775</i>	<i>70.26% (29.59%)</i>	<i>85.77</i>	<i>87.54</i>
112.	<i>Talcher, NTPC</i>	<i>Odisha</i>	<i>460</i>	<i>3.05</i>	<i>1187122</i>	<i>1189164</i>	<i>100.17%</i>	<i>2.471</i>	<i>2.471</i>
113.	<i>IB Valley, Jharsuguda (U-1,2)</i>	<i>Odisha</i>	<i>420</i>	<i>2.468</i>	<i>1096385</i>	<i>730990</i>	<i>66.67%</i>	<i>7.624</i>	<i>9.94</i>
114.	<i>IB Valley, Jharsuguda (U-3,4)</i>	<i>Odisha</i>	<i>1320</i>	<i>4.76</i>	<i>2125576</i>	<i>484577</i>	<i>22.80%</i>	<i>1.019</i>	<i>0.928</i>
115.	<i>Derang , JIPL Jindal India TP Ltd.,</i>	<i>Odisha</i>	<i>1200</i>	<i>4.348308</i>	<i>1782120</i>	<i>1034711</i>	<i>58.06% (30.23%)</i>	<i>3.83</i>	<i>4.577409</i>
116.	<i>Ind Bharath TPP</i>	<i>Odisha</i>	<i>350</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
117.	<i>Darlipalli STPP, NTPC Ltd.</i>	<i>Odisha</i>	<i>800</i>	<i>3.329238</i>	<i>1365977</i>	<i>54618</i>	<i>4.00%</i>	<i>0</i>	<i>1.311359</i>

118.	Ropar PPCL, Guru Gobind Singh TPS	Punjab	840	0.610447	216957.51	1721216.62	793.34%	22.12	20.62
119.	Lehra Mohabbat,PPCL	Punjab	920	0.606079	231423	244161	105.50%	6.644	6.631
120.	Rajpura, Nabha Power	Punjab	1400	4.23676	1420316	1426963	100.47%	0.02	0.01
121.	Talwandi sabo TPS, Vedanta	Punjab	1980	4.883791	1935129	1167432	60.33%	2.499	3.266698
122.	Goindwal Sahib, GVK Power	Punjab	540	0.854497	288491	245487	85.09%	0.288	0.332023
123.	Kota, STPS RRVUNL	Rajasthan	1240	3.67829	1376549.51	1766447.3	128.32%	0.336225	0.336225
124.	Suratgarh, RRVUNL	Rajasthan	1500	0.656021	235960	1414288.8	599.38%	9.07	7.897
125.	Chhabra TPS, RRVUNL	Rajasthan	1000	4.013017	1292030	1127284	87.25%	0.273854	0.43845
126.	Chhabra STPS, RRVUNL	Rajasthan	1320	4.508651	1485205.2	741548.25	49.93%	0.815786	1.559443
127.	Barsing Sagar Lignite, NLC	Rajasthan	250	1.258991	184309.35	184309.35	100.00%	0	0
128.	Giral Lignite TPP, RRVUNL	Rajasthan	250	0	0	0	-	-	-
129.	JSW Energy Barmer (Raj West Power) Jalippa-Kapurdi,	Rajasthan	1080	5.942559	889480.05	915367.4	102.91%	0.167	0.142
130.	Kalisindh TPP, RRVUNL	Rajasthan	1200	3.539528	1113162.21	1324647	119.00%	0.277014	0.054445
131.	Kawai, Adani Power	Rajasthan	1320	4.846916	1413446	1612183	114.06%	0.3512298	0.152114
132.	Tuticorin , Tangedco	Tamilnadu	1050	3.438814	1052489	735430	69.88%	40.620905	40.937964
133.	North-Chennai, Tangedco, NCTPS	Tamilnadu	630	2.332509	908477	2332848	256.79%	2.594	1.15
134.	North-Chennai, Tangedco, Stage -II	Tamilnadu	1200	2.945551	1110023	1775993	160.00%	3.72	3.05403

135.	Mettur TPS, Tangedco	Tamilnadu	840	2.7602	902507.929	1345906.15	149.13%	19.19	18.746
136.	Mettur Extn. Tangedco	Tamilnadu	600	1.031769	305653.115	305653.115	100.00%	0	0
137.	Neyveli Lignite, NLC TPS-1	Tamilnadu	500	0.81175	39208	28468	72.61% (71.35%)	0	0.01123
138.	Neyveli Lignite, NLC TPS-1 Expn	Tamilnadu	420	2.842	176533.74	176533.74	100.00% (95.79%)	0	0
139.	Neyveli Lignite, NLC TPS-2	Tamilnadu	1470	7.618978	455667.6	1611252.6	353.60% (333.49%)	9.31	8.15
140.	Neyveli Lignite, NLC TPS-2 Expn	Tamilnadu	500	2.0314	135634	135633.59	100.00%	0	0
141.	Neyveli New TPS, NLC	Tamilnadu	1000	3.36723	208854	208854	100.00% (94.20%)	0	0
142.	NLC Tamilnadu Power Ltd, JV	Tamilnadu	1000	3.509459	1144904.71	1144904.71	100.00%	0	0
143.	Vallur, NTPC	Tamilnadu	1500	3.222	1276783	1567903	122.80%	5.098	3.648
144.	TAQA Neyveli (ST-CMS)	Tamilnadu	250	0.899534	50340	114060	226.58%	0.308727	0.245007
145.	Mutiara, Coastal Energy	Tamilnadu	1200	1.457818	63182	66562	105.35%	0.00015	0
146.	IL&FS TPP, Cuddalore	Tamilnadu	1200	2.389612	125951.74	112302.57	89.16%	0.02105	0.0346992
147.	Ind Bharath Thermal Power Ltd, Tuticorin	Tamilnadu	300	0	0	0	-	-	-
148.	Ramagundem, NTPC	Telangana	2600	10.54	3857530	4285024	111.08% (106.65%)	69.65	69.22
149.	Ramagundam B, TSGENCO	Telangana	62.5	0.210412	88966.84	101500	114.09%	0.9	0.887466
150.	Kothagudem O&M TPS, TSGENCO (1-4 stage)	Telangana	720	0	0	0	-	22.73	22.73
151.	Kothagudem V Stage TPS, TSGENCO	Telangana	500	2.15126	1005094.9	456614.32	45.43% (34.30%)	77.7	78.24848

152.	<i>Kothagudem VI Stage TPS, TSGENCO</i>	<i>Telangana</i>	<i>500</i>	<i>1.933165</i>	<i>684584.01</i>	<i>508285.71</i>	<i>74.25%</i>	<i>0</i>	<i>0</i>
153.	<i>Kothagudem VII Stage TPS, TSGENCO</i>	<i>Telangana</i>	<i>800</i>	<i>2.794311</i>	<i>814163.65</i>	<i>442623.6</i>	<i>54.37%</i>	<i>0.803013</i>	<i>1.1745531</i>
154.	<i>SINGARENI TPP, SCCL</i>	<i>Telangana</i>	<i>1200</i>	<i>4.304218</i>	<i>1571274</i>	<i>1686450</i>	<i>107.33%</i>	<i>0.505</i>	<i>0.505</i>
155.	<i>Kakatiya. TSGENCO</i>	<i>Telangana</i>	<i>1100</i>	<i>3.305352</i>	<i>1128086.7</i>	<i>883697.49</i>	<i>78.34%</i>	<i>4.33519</i>	<i>4.5768795</i>
156.	<i>Singrauli, NTPC</i>	<i>U.P.</i>	<i>2000</i>	<i>9.483648</i>	<i>2984279</i>	<i>997051</i>	<i>33.41%</i>	<i>73.62</i>	<i>75.607228</i>
157.	<i>Anpara A, B & D, UPVUNL</i>	<i>U.P.</i>	<i>2630</i>	<i>9.895275</i>	<i>3360942.32</i>	<i>918990.1</i>	<i>27.34%</i>	<i>55.6764252</i>	<i>58.118377</i>
158.	<i>NCTPS, Dadri, NTPC</i>	<i>U.P.</i>	<i>1820</i>	<i>2.7</i>	<i>940543</i>	<i>941341</i>	<i>100.08%</i>	<i>0</i>	<i>0</i>
159.	<i>Rihand, NTPC</i>	<i>U.P.</i>	<i>3000</i>	<i>14.023336</i>	<i>3921761</i>	<i>2039947</i>	<i>52.02%</i>	<i>36.74</i>	<i>38.621814</i>
160.	<i>Unchahar, NTPC</i>	<i>U.P.</i>	<i>1550</i>	<i>5.17</i>	<i>1977162</i>	<i>3290260</i>	<i>166.41%</i>	<i>7.2</i>	<i>7.2</i>
161.	<i>Tanda, NTPC</i>	<i>U.P.</i>	<i>1760</i>	<i>4.01182</i>	<i>1674248</i>	<i>2810265</i>	<i>167.85%</i>	<i>3.58</i>	<i>3.58</i>
162.	<i>Paricha, UPVUNL</i>	<i>U.P.</i>	<i>920</i>	<i>2.622034</i>	<i>1084433.88</i>	<i>1085255</i>	<i>100.08%</i>	<i>8.5675</i>	<i>8.5675</i>
163.	<i>Obra B, UPVUNL</i>	<i>U.P.</i>	<i>1000</i>	<i>3.473854</i>	<i>1408922</i>	<i>80727</i>	<i>5.73%</i>	<i>1.027</i>	<i>2.355196</i>
164.	<i>Harduaganj, UPVUNL</i>	<i>U.P.</i>	<i>610</i>	<i>1.400699</i>	<i>558997</i>	<i>1390925</i>	<i>248.83%</i>	<i>8.512331</i>	<i>7.680403</i>
165.	<i>Rosa, Power Supply RPL</i>	<i>U.P.</i>	<i>1200</i>	<i>4.016799</i>	<i>1406092</i>	<i>5012037</i>	<i>356.45%</i>	<i>1.005423</i>	<i>1.005423</i>
166.	<i>Barkhera, Piliphit, Bajaj Energy</i>	<i>U.P.</i>	<i>90</i>	<i>0.139178</i>	<i>45939</i>	<i>45939</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
167.	<i>Khambarkhera, Lakhimpur, Bajaj Energy</i>	<i>U.P.</i>	<i>90</i>	<i>0.138986</i>	<i>43517</i>	<i>43517</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
168.	<i>Kundarkhi, Bajaj Energy</i>	<i>U.P.</i>	<i>90</i>	<i>0.1794348</i>	<i>58178</i>	<i>58178</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>

169.	<i>Utraula, Balarampur, Bajaj Energy</i>	<i>U.P.</i>	<i>90</i>	<i>0.195644</i>	<i>62476</i>	<i>62476</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
170.	<i>Maqsoodpur, Bajaj Energy</i>	<i>U.P.</i>	<i>90</i>	<i>0.143237</i>	<i>44789</i>	<i>44789</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
171.	<i>Anpara C, Lanco Power</i>	<i>U.P.</i>	<i>1200</i>	<i>5.394845</i>	<i>1749338</i>	<i>295285</i>	<i>16.88%</i>	<i>12.128948</i>	<i>13.583</i>
172.	<i>Lalitpur, Bajaj Energy</i>	<i>U.P.</i>	<i>1980</i>	<i>4.266</i>	<i>1440171</i>	<i>1743024</i>	<i>121.03%</i>	<i>0.21</i>	<i>0.159</i>
173.	<i>Prayagraj Power Generation C, Ltd</i>	<i>U.P.</i>	<i>1980</i>	<i>6.384331</i>	<i>2002185</i>	<i>2007902</i>	<i>100.29%</i>	<i>1.962929</i>	<i>1.957212</i>
174.	<i>NTPC Meja, MUNL</i>	<i>U.P.</i>	<i>1320</i>	<i>2.7325</i>	<i>1024916</i>	<i>572211.6</i>	<i>55.83%</i>	<i>0.2487</i>	<i>0.69718</i>
175.	<i>Farakka, NTPC</i>	<i>West Bengal</i>	<i>2100</i>	<i>8.203905</i>	<i>2849588</i>	<i>3616166.71</i>	<i>126.90%</i>	<i>40.009</i>	<i>39.28</i>
176.	<i>Budge-Budge, CESCL</i>	<i>West Bengal</i>	<i>750</i>	<i>3.165809</i>	<i>1043093</i>	<i>1043093</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
177.	<i>Titagarh, CESCL</i>	<i>West Bengal</i>	<i>240</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>	<i>-</i>	<i>-</i>
178.	<i>Southern, CESCL</i>	<i>West Bengal</i>	<i>135</i>	<i>0.063913</i>	<i>21117</i>	<i>21117</i>	<i>100.00%</i>	<i>0</i>	<i>0</i>
179.	<i>Mejia TPS Bankura, DVC</i>	<i>West Bengal</i>	<i>2340</i>	<i>8.470244</i>	<i>3954689.39</i>	<i>2724786.21</i>	<i>68.90%</i>	<i>1.17484828</i>	<i>2.4047</i>
180.	<i>Durgapur Steel TPS, DVC Andal</i>	<i>West Bengal</i>	<i>1000</i>	<i>3.746896</i>	<i>1731184</i>	<i>1507283</i>	<i>87.07%</i>	<i>5.03</i>	<i>5.250289</i>
181.	<i>Durgapur, DVC</i>	<i>West Bengal</i>	<i>210</i>	<i>0.108646</i>	<i>53615.85</i>	<i>106715.95</i>	<i>199.04%</i>	<i>3.18135</i>	<i>3.12825</i>
182.	<i>Raghunathpur, DVC</i>	<i>West Bengal</i>	<i>1200</i>	<i>3.167467</i>	<i>1389251.152</i>	<i>193550.35</i>	<i>13.93%</i>	<i>1.214936</i>	<i>2.4106368</i>
183.	<i>Durgapur Projects Ltd.</i>	<i>West Bengal</i>	<i>550</i>	<i>1.732701</i>	<i>633486.87</i>	<i>564975.98</i>	<i>89.19%</i>	<i>0.699</i>	<i>0.767511</i>
184.	<i>Santalalih, WBPDC</i>	<i>West Bengal</i>	<i>500</i>	<i>2.279047</i>	<i>1042268</i>	<i>1207853</i>	<i>115.89%</i>	<i>3.97</i>	<i>3.805</i>
185.	<i>Sagardighi, WBPDC</i>	<i>West Bengal</i>	<i>1600</i>	<i>6.066456</i>	<i>2158236</i>	<i>1498730</i>	<i>69.44%</i>	<i>6.757118</i>	<i>7.416625</i>

186.	Barkeshwar, WBPDC	West Bengal	1050	4.68827	1750143.15	1468440.95	83.90%	8.305	8.5703328
187.	Kolaghat, WBPDC	West Bengal	1260	1.387082	592095	954178	161.15%	0.327	0.024
188.	Bandel, WBPDC	West Bengal	335	0.808247	325022	329914	101.51%	0.196946	0.195819
189.	Hiranmaye Energy India Limited, Haldia Power	West Bengal	300	0.336531	146088.16	146088.16	100.00%	0	0
190.	Dishergarh TPS	West Bengal	12	0.30552	16092.9	16092.9	100.00%	0	0
191.	Haldia, Coastal Energen	West Bengal	600	2.811396	958691	958691	100.00%	0	0

Note: There are 27 TPPs which have mentioned the quantity of ash disposal in 'ash dyke raising' as utilization. In such cases % utilization excluding ash disposal in ash dyke raising has been mentioned under the brackets.

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 based ash stored till 31.03.2021 : 1670.602 Million Tonnes”**

8. The status of earlier order dated 12.02.2020 with regard to environmental damage due to breach of fly ash dykes at Vindhyanchal TPP and ESSAR TPP in Singrauli area is mentioned as follows:

S. No.	Recommendation	Status
1.	<i>Industrial Units have engaged NEERI, Nagpur to assess the damage; the institute needs to assess the site specific long term direct or indirect impact on the flora fauna, human health and consumptive cost</i>	<i>NEERI has submitted the pre-lim report In Nov'20. Final draft of the report is expected by 31st Mar'21.</i>
2.	<i>Industrial units need to comply for 100 % fly ash utilisation to avoid such incidence in future.</i>	<i>Road map for achieving 100% ash utilisation has been prepared and is attached as Annexure 1. May please note that NTPC Vindhyanchal is making all efforts to comply with all the provisions of the MoEF notification on fly ash for TPPs, like doorstep delivery of fly ash to fly ash based industry and for road construction work and has even gone beyond that by providing financial incentive to cement industry to lift ash from its premises. Due to the continuous efforts of NTPC Vindhyanchal, fly ash filling in the abandoned coal mine of GORBI of NCL, which was declared abandoned sometime in 1996-97, and which is now filled with about 14-17 Million m3 of acidic water, may soon be started, The endeavor will not only enhance ash utilization of NTPC Vindhyanchal but will mitigate a major environment hazard created due to acidic water in the mine pit and will eventually help In reclamation of a vast expanse of abandoned land. But in spite of its efforts, the non-fulfillment of consumption-side provisions of the fly ash notification like mandatory mixing of 25 % flyash in over-burden by coal mines (which alone is enough for ensuring 100 % ash utilisation), mandatory use of fly ash based construction material within 300 kms of the TPPs, mandatory use of fly ash in road construction within 300 kms of TPPs, mandatory use of fly ash in reclamation and compaction of low lying areas etc has seriously affected the actual ash utilization.</i>
3.	<i>To install monitoring stations on the affected sites, to continuously monitor the movement of plume underground or the leaching of toxic heavy metals from the sediment.</i>	<i>Regular monthly monitoring of the ground water quality around the site of ash spill is being done. First monitoring was done in November</i>
4.	<i>Industrial Units need to take care for the health of workers employed for spill clean-up working.</i>	<i>Complied.</i>

With regard to the damage cost deposition, Hon'ble NGT under Para 25 of order states the following:

"Let further steps be taken in terms of the above reports subject to the orders of the Hon'ble Supreme Court in matters pending therein.

Further progress report may be compiled by the MoEF in terms of direction (i) in the order dated 12.2.2020. CPCB may finalise the issue of compensation determination. We approve the reports of the joint Committees. Recovery of compensation will be as per directions of the Hon'ble Supreme Court wherever there is stay."

The committee report placed before the Hon'ble NGT did not state that the Environmental Damage was of Rs. 104 Crores. The report specifically mentions that in as much as the environmental damages at 104 crores was concerned, the same contains a specific limitation that it is just preliminary in nature and further discussion/vetting is to be initiated once a report by NEER1 is received.

The limitation clause of the report is reproduced below:

"4. Limitations

- i. The above assessment is just preliminary for a guidance purpose. As per the information, NEERI has been professionally engaged by both the industrial units to perform a detailed assessment. **Further discussion/vetting on such report may be initiated when the same is made available to the committee.***
- ii. In absence of long term site specific studies in Indian context, one time monitoring, sampling is not adequate to assess the damage cost."*

Moreover, NTPC Vindhyachal has also filed an Appeal before the Hon'ble Supreme Court challenging the order passed by Hon'ble NGT and the reports submitted therein; listing is awaited."

OA 164/2018 and connected matters

9. Quarterly status reports have been filed by the Joint Committee comprising of CPCB, State PCB and the District Magistrate, in pursuance of order dated 14.07.2020 and a report dated 14.01.2022 has also been filed by the Oversight Committee (OC) headed by Justice S.V.S. Rathore, former Judge of Allahabad High Court constituted by this Tribunal on suggestion of State of UP to oversee compliance of directions of this Tribunal on certain environmental issues. It will suffice to refer to the 5th

Quarterly Report of the Joint Committee filed on 15/01/2022 and the Joint Committee comprising of CPCB, State PCB and SDM Sonebhadra. The Committee undertook field visit on October 16 - 21, 2021 and looked into the compliance status of TPPs, coal mines and other industries. The status found is reported as follows:

“1. Thermal Power Plants

1.1. M/s NTPC Limited Shakti Nagar Sonbhadra.

1.1.1. Compliance status of action points identified in Hon’ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon’ble NGT order	Compliance Status/ Remark (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB Server for online data transmission.	<ul style="list-style-type: none"> • It has been noted that effective operation of ESP is being ensured. To achieve the prescribed limit of the particulate matter, the retrofitting of ESPs installed in unit No 01 to 06 has been carried out whereas it is likely to be completed by 28.02.2022 in unit No 07. • The unit has installed OCEMS to monitor stack emissions and is connected to CPCB and UPPCB servers. However, OCEMS are installed on the duct connecting to the stack and the required iso-kinetic sampling to monitor particulate matter is not being ensured. • OCEMS has been asked to relocate to a suitable location at the earliest for obtaining the isokinetic sample.
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	<ul style="list-style-type: none"> • The unit has already installed 02 CAAQMS for ambient air monitoring. Whereas, the location for setting up the third CAAQM station has been identified. The installation work is likely to be completed within a quarter. • The committee asked the unit to ensure the connectivity of the CAAQMS with CPCB/SPCB server at the earliest.
c)	To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and Hon’ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.	<ul style="list-style-type: none"> • As per the details provided, the unit has utilized 24.17% of the total fly ash generated during March to October 2021. The fly ash has been mainly utilised in NHAI road projects, ash brick construction, land development, and ash dam augmentation. • The reported fly ash utilization is much less than the desired utilization percentage. Also, they are mainly

		<p>using legacy fly ash which was already stored in old ash dyke and the fresh fly ash generated is being stored in new ash dyke.</p> <ul style="list-style-type: none"> The committee asked to submit a time bound action plan for 100% utilization of fly ash generated at the earliest to Hon'ble NGT.
d)	To ensure continuous operations of AWRS	<ul style="list-style-type: none"> As per records, the unit has discharged 8437402.36 KL of ash slurry into the ash dyke during August to October 2021, and recycled 6834295.91 KL of water from it. Thus, the ash to water ratio calculated is 1:4 and considering the claimed ash to water ratio of 1:9, the unaccounted ash water quantity is about 7,59,366.214 KL which has likely been discharged into Rihand reservoir during the reported quarter by the unit.
e)	Necessary renovation of the ash dykes needs to be carried Out in order to prevent breaching of ash pond and Spreading of slurry in to Surrounding environment and Rihand Reservoir	<ul style="list-style-type: none"> During the visit, the committee observed that the water from the overflow pond of Ash Dyke was flowing into the Rihand reservoir. The unit has installed CCTV camera near the discharge point for the purpose of Continuous monitoring. However, its connectivity cable was found damaged. It has been reported that it was broken since September 2021. As per the CCTV footage of August 2021, water leakage is visible in Rihand reservoir after 10th August 2021. Thus, the unit has failed to take adequate measures to not allow water from the ash pond to discharge into the Rihand reservoir.
f)	Control of pollution during coal storage, transportation and handling	<ul style="list-style-type: none"> As per information, the unit receives coal through MGR rail system. The unit has provided a cover shed and sprinkler system to contain the dust released during unloading. Water sprinklers have also been installed in coal storage areas and dust suppression systems have been provided at transfer sites. Excessive fugitive emission has been observed from the road provided in the ash dyke area.

1.1.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2021)
a)	Achieving ZLD in ETP & STP	<ul style="list-style-type: none"> The unit is fully utilizing the treated effluent from ETP. The unit has provided polishing pond to treat the sewage generated through its residential area. The treated wastewater is mainly used for horticultural purposes. The unit is in the process of providing a new STP of 1800 KLD capacity based on MBBR technology.
b)	Installation of FGD for control of gaseous emissions	<ul style="list-style-type: none"> The unit is in the process of setting up FGDs to achieve the notified standards for gaseous emissions. Approx. 30% of the work for the construction of three multi-flue chimneys has been completed and the work of casting the chimney above ground level, absorber foundation, and other related works is in progress.

c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> The Solid waste generated from the residential colony is dumped at the site located near Jayant Road. The scientific method is not been adopted for the proper segregation and disposal of MSW.
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1.3.2. Calculation for environmental compensation

a. The unit was found discharging the ash pond overflow water into the Rihand reservoir. The CCTV footage confirms the discharge since the month of August 2021. Hence, environmental compensation is being calculated based on the 'Polluters Pay Principle'. Calculation of Environmental Compensation is as demonstrated below

- $$EC = PI \times N \times R \times S \times LF$$

$$= 80 \times 92 \times 250 \times 1.5 \times 1$$

$$= 27,60,000/-$$

Where,

- PI = Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')
- N = number of days of violation took place (From 01.08.2021 to 31.10.2021 i.e., 92 days)
- R = A factor in Rupees (taken as '250')
- S = Factor for scale of operation ('1.5' considering scale of operation being 'Large')
- LF = location factor ('1.0' considering population of area being < 1 million)

1.1.3. Recommendations of the Committee

- The unit should immediately take required measures to stop the discharge of ash pond overflow into the Rihand reservoir.
- The unit may be asked to relocate the OCEMS in order to achieve the desired iso-kinetic sampling for particulate matter.
- The unit may be asked to complete the installation of the third CAAQMS at the earliest.
- The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.
- The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.
- The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.
- The unit may be asked to properly treat the MSW generated from their residential colony.
- The unit shall take immediate measures to control fugitive emission in ash dyke area.

Further, the committee recommends for imposing environmental compensation (EC) of Rs 27,60,000/- for discharging ash pond overflow water into the Rihand reservoir.

1. .2. M/s NTPC Limited Rihand Super Thermal Power (Power Plant)

1.2.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No	Issues identified in Hon'ble NGT order	Compliance Status/ Remark (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB server for online data transmission.	<ul style="list-style-type: none"> • It has been informed that effective operation of ESP is being ensured. To achieve the prescribed limit of the particulate matter, the retrofitting of ESPs installed in unit No 01 has been completed. Unit No 02 and 03 are the new units having a design to achieve the prescribed limit. • The unit has installed OCEMS to monitor the stack emission and connected it with CPCB & UPPCB server. • It was informed that they have built up an interdepartmental team that analyzes the reasons for SMS generated through OCEMS on daily basis and also takes the necessary corrective action.
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server.	<ul style="list-style-type: none"> • The unit has installed three CAAQMS for ambient air quality monitoring. • The committee asked the unit to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.
c)	To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and Hon'ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.	<ul style="list-style-type: none"> •As per the details provided, the unit has utilized 41.69 % (i.e., total Ash generated is 2328055 MT and ash utilized is 970676 MT) of total fly ash generated from April 2021 to October 2021. The Ash has been mainly consumed in NHAI road projects, ash brick manufacturing, land development, and ash dyke raising. The unit has also taken initiatives for the supply of fly ash through BTAP wagons. • However, further efforts are required to utilize the remaining 58.31 % of ash that is presently being disposed of in the ash dyke. • The unit is in the process to establish a 15 MW solar plant on the

		<p>old ash dyke area. The installation of panels was in process.</p> <ul style="list-style-type: none"> • The committee asked to submit the timebound action plan for utilization of 100% fly ash generated at the earliest.
d)	To ensure continuous operations of AWRS	<ul style="list-style-type: none"> • As per records, the unit has discharged 85,56,219 KL of ash slurry into the ash dyke during August to October 2021, and recycled 78,44,400 KL of water from it. • Thus, the ash to water ratio calculated is 1:9 against the claimed ash to water ratio of 1:7.
e)	Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash pond and spreading of slurry in to surrounding environment and Rihand Reservoir	<ul style="list-style-type: none"> • The ash dyke raising work in one of the ash ponds was in progress at the time of visit. • The unit has also installed 04 cameras for monitoring purpose.
f)	Control of pollution during coal storage, transportation and handling.	<ul style="list-style-type: none"> • The unit receives coal through rail transportation only and covered shed has been provided for unloading. • The effective system to trap the dust during the unloading of the coal from wagons has not been provided in the sheds. • It was informed by NTPC representative, the proper system to trap the dust during unloading of the coal from wagons, will be installed by December 2021.

1.2.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2021)
a)	Achieving ZLD in ETP & STP	<ul style="list-style-type: none"> • The unit is recycling the treated wastewater from ETP & STP. • However, the flowmeter at the outlet of STP is not been installed to measure the amount of treated wastewater reused/recycled.
b)	Installation of FGD for control of gaseous emissions.	<ul style="list-style-type: none"> • The unit is in the process to install an FGD system for achieving standards Notified for gaseous emissions. The civil/construction work was found in progress during the visit and it has been informed that the FGD installation will be completed by December 2023.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • Approx. 500 kg of MSW is generated per day from the residential colony. • They have developed a system for the collection and segregation of the MSW. • The organic waste is disposed of through composting. The compost generated is used for in-house gardening purposes.

		<ul style="list-style-type: none"> • The segregated plastic waste is being sent to Ultratech cement, Dalla.
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1.2.3. Recommendations of the Committee

1. The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.
2. The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.
3. The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.

1. 3. M/s Anpara Thermal Power Plant (Power Plant)

1.3.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon'ble NGT order	Compliance Status/ Remark (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB server for online data transmission.	<ul style="list-style-type: none"> • It has been informed that effective operation of ESP is being ensured. • To achieve the prescribed limit of the particulate matter, the retrofitting of ESPs installed in stages A & B is required. • The work has been started for Stage - B in November 2021 and is likely to be completed by December 2022. • Stage A is a very old unit and its retrofitting is in the review of techno-physical feasibility through UPRVUN Head Quarter.
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	<ul style="list-style-type: none"> • The unit has installed 03 CAAQMS for Ambient Air Quality Monitoring. But, the sites of the two CAAQMS are not open from all directions. • The unit is in the process of shifting the said CAAQMS to a suitable location in compliance with the observations made by the committee during the earlier visits. However, the work has been delayed due to the COVID pandemic and is expected to be completed by December 2021. • All the three CAAQMS are linked with the CPCB server from June-2020.
c)	To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and	<ul style="list-style-type: none"> • As per the information, the fly ash utilization from April 2021 to September 2021 is only 4.2% and

	<p>Hon'ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.</p>	<p>for the month of October 2021, it is only 1.35 %.</p> <ul style="list-style-type: none"> • The reported fly ash utilization is much lesser than the desired utilization percentage. • It has been informed that they are in the process to enter an MoU with NCL for the allotment of a pit of the Gorbi mines for disposal of fly ash. • The committee asked to submit the timebound action plan for utilization of 100% fly ash generated at the earliest.
d)	<p>To ensure continuous operations of AWRS</p>	<ul style="list-style-type: none"> • Irrespective of the repetitive recommendations of the committee, the unit has not yet installed a flow meter to measure the amount of ash slurry discharged into the ash dyke and the amount of water recycled from the ash pond. It has been informed that its installation will be completed by December 2021. • The committee asked the unit to immediately install the flow meters and provide the water balance chart for the ash slurry during the next visit of the committee.
e)	<p>Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash pond and spreading of slurry in to surrounding environment and Rihand Reservoir</p>	<ul style="list-style-type: none"> • The ash dyke raising work for one of the lagoons has been completed in June 2021, whereas the work for the other lagoon is expected to be completed by December 2021. • The deposition of fly ash was visible on the surface of Rihand reservoir near the discharge channel from the ash pond overflow lagoon which was mainly due to discharge in the past. Though the unit has removed some ash, the work has been interrupted due to the rain. The unit needs to carry out the restoration activity in a time-bound manner. • The unit has disposed of ash at the identified area at Dibulganj for filling the low-lying area. The unit has stopped the flow from this area to the Rihand reservoir which was seen during the previous visit of the committee. The soil capping was in process at the time of the visit. • The committee also asked the unit to complete the capping work in an environment-friendly manner and develop a green belt in the said area. • The Morcha Nala is passing through the designed ash pond area that carries water during the rainy season into the ash dyke.

		<ul style="list-style-type: none"> • It has been informed that the feasibility study for the diversion of Morcha Nala has been conducted through the IIT BHU. • It has also been submitted that the Morcha drain has seasonal flow and keeping in view the safety purpose, discharge through the ash dyke may be allowed during the rainy season.
f)	Control of pollution during coal storage, transportation and handling	<ul style="list-style-type: none"> • The unit receives coal through the rail system. The unit has provided a cover shed and a sprinkling system to trap the dust released during the unloading. However, the Water sprinkling system was found non-operational at the time of visit. • Water sprinklers have also been installed in the coal storage area. However, the said system was not found effective to control fugitive emissions from the storage area.

1.3.3. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2021)
g)	Achieving ZLD in ETP & STP	<ul style="list-style-type: none"> • The wastewater generated through Units A & B is discharged into Rihand Reservoir after the treatment. This effluent also carries the ash content. • Similarly, the treated wastewater from the STP is also discharged into the Anpara Nalla which finally meets the Rihand reservoir. • It has been informed that ETP of 30 MLD capacity is proposed to achieve the prescribed ZLD condition.
h)	Installation of FGD for control of gaseous emissions	<ul style="list-style-type: none"> • Around 40% of installation work has been completed for Stage-D whereas they are in process of retendering for Stages A & B.
i)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • The MSW generated from the residential colony is dumped in the low-lying area located within colony premises and any scientific method is not adopted for the proper segregation and disposal of MSW.

1.3.4. Calculation for environmental compensation

The unit was asked to achieve ZLD for process effluent and reuse treated effluent from STP for irrigation

purpose. However, the unit has not been found to comply with both of the conditions. Hence, environmental compensation is being calculated based on 'Polluters Pay Principle'. The present committee is reviewing the matter for the period starting from 01.08.2021. And hence, the same date has been considered as reference for calculation of period of non-compliance.

Calculation of Environmental Compensation is as demonstrated below:

$$\begin{aligned} \bullet \quad EC &= PI \times N \times R \times S \times LF \\ &= 80 \times 456 \times 250 \times 1.5 \times 1 \\ &= 01,36,80,000/- \end{aligned}$$

Where,

- PI = Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')*
- N = number of days of violation took place (From 01.08.2020 to 31.10.2021 i.e., 456 days)*
- R = A factor in Rupees (taken as '250')*
- S = Factor for scale of operation ('1.5' considering scale of operation being 'Large')*
- LF = location factor ('1.0' considering population of area being < 1 million)*

1.3.5. Recommendations of the Committee

- The unit may be asked to install flow meters to measure the amount of ash slurry discharged into the ash pond and the amount of water recovered and recycled from it.*
- The unit may be asked to trap the discharge of wastewater containing ash into the Rihand reservoir through the drain at power house area.*
- The unit may be asked to furnish explanation regarding not achieving ZLD in ETP & STP and also can be asked to submit a time-bound action plan for achieving ZLD.*
- The unit may be asked to ensure complete restoration activity by removing deposited fly ash on the surface of the Rihand reservoir near the ash pond overflow lagoon area in time-bound manner.*
- The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.*
- The unit may be asked to make such a provision that the surface runoff water from the surrounding area does not reach the ash dyke.*
- The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for not complying the condition of ZLD for ETP & STP.

1. .4. M/s Anpara ‘C’ Lanco Thermal Power Station

1.4.1. Compliance status of action points identified in Hon’ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon’ble NGT order	Compliance Status/ Remarks (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB server for online data transmission	<ul style="list-style-type: none"> • It has been informed that the effective operation of the ESPs is being ensured. • The unit has installed OCEMS for monitoring the stack emissions and connected it to CPCB and UPPCB servers. • The committee asked the unit to furnish the details of SMS generated through OCEMS during the last two quarters along with clarifications
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	<ul style="list-style-type: none"> • The unit has installed 02 CAAQMS for ambient air monitoring. • Earlier, the committee had asked the unit to install the 3rd CAAQMS in a timebound manner and ensure the connectivity of all the CAAQMS with CPCB/SPCB server. However, no fruitful progress has been seen on the ground.
c)	To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and Hon’ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.	<ul style="list-style-type: none"> • As per the information, the unit has utilized 15.88 % (i.e., Fly ash generation is 685784 MT and utilization is 108885 MT) of total fly ash generated during April – September 2021. • The Ash has been mainly consumed in cement manufacturing, ash brick manufacturing, land development, and ash dyke raising. • The reported fly ash utilization is much lesser than the desired utilization percentage. • The committee asked to submit the timebound action plan for utilization of 100% fly ash generated at the earliest.
d)	To ensure continuous operations of AWRS	<ul style="list-style-type: none"> • Irrespective of the recommendation of the committee in every quarterly report, the unit has not yet installed a flow meter to measure the amount of ash

		<p>slurry discharged into the ash dyke and the amount of water recycled from the ash pond. It has been informed that its installation will be completed within two months.</p> <ul style="list-style-type: none"> • The committee asked the unit to immediately install the flow meters and provide the water balance chart for the ash slurry during the next visit of the committee. • The committee during its earlier visit had directed to take necessary steps immediately near the Dibulgarj area to avoid accidents in the pipelines carrying ash slurry. However, the unit is yet to initiate any action for the safeguard of the said pipelines.
e)	Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash pond and spreading of slurry in to surrounding environment and Rihand Reservoir	<ul style="list-style-type: none"> • The Unit has entered into 'Facilities and Services Agreement' with UPRVUNL on 12.11.2006 for the use of ash dyke as one of the common facilities. As per the agreement, the ownership of the ash dyke lies with UPRVUNL, and the owner is responsible for its operation and maintenance. The unit is paying a sum of Rs. 7.2 Cr. on annual basis for the same.
f)	Control of pollution during coal storage, transportation and handling	<ul style="list-style-type: none"> • As per information, the unit receives coal through the rail system. The unit has provided a cover shed and a sprinkling system to trap the dust released during the unloading. • Water sprinklers have also been installed in coal storage areas and dust suppression systems have been provided at transfer points.

1.4.2. Status of other identified issues

S. No.	Issues identified in Hon'ble NGT order	Compliance Status/ Remarks (As on 31.10.2021)
a)	Achieving ZLD in ETP & STP	<ul style="list-style-type: none"> • The unit is recycling the treated effluent from the ETP. • The unit has installed STP of 300 KLD capacity and the treated effluent is utilised for horticulture purpose.
b)	Installation of FGD for control of gaseous emissions	<ul style="list-style-type: none"> • The unit has yet to take any initiative to install the FGD system for achieving the standards Notified for gaseous emissions.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • As per the information provided by the Unit, the MSW generated from the residential colony is sent

		to Vendor approved by ULB for disposal.
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1.4.3. Recommendations of the Committee

- The unit should immediately take corrective action to avoid any kind of accident in pipeline carrying ash slurry near the Dibulganj area.
- The unit may be asked to install flow meters to measure the amount of ash slurry discharged into the ash pond and the amount of water recovered and recycled from it.
- The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.
- The unit may be asked to submit a time-bound action plan for the installation of the 3rd CAAQMS.
- The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.
- The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.

1. .5. M/s Renusagar Thermal Power Plant

1.5.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon'ble NGT order	Compliance Status/ Remarks (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB server for online data transmission	<ul style="list-style-type: none"> • It has been informed that effective operation of ESP is being ensured. To achieve the prescribed limit of the particulate matter, the retrofitting of ESPs installed in one of the units was under process and completed in the remaining units • The unit has installed OCEMS to monitor the stack emission and connected it with CPCB & UPPCB server. However, the OCEMS have been installed on the ducts connecting to the stacks, and the required iso-kinetic sampling for monitoring particulate matter is not been ensured. • During the earlier visits, the committee had instructed for relocating the OCEMS to achieve the isokinetic sampling. However, the unit has yet not taken any fruitful steps to comply with it.
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	<ul style="list-style-type: none"> • The unit has installed only one CAAQMS which is located on the top of the adjacent hill at 80 m elevation from the plant area. The

		<p>unit needs to relocate this CAAQMS for ensuring representative sampling. Irrespective of repetitive recommendations of the committee during the last 1 year, the unit has yet not taken any fruitful action.</p> <ul style="list-style-type: none"> • Similarly, the unit has yet to take any action for the installation of the additional two CAAQMS. • The committee also asked the unit to ensure the linking of CAAQMS with CPCB/SPCB server at the earliest.
c)	<p>To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and Hon'ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.</p>	<ul style="list-style-type: none"> • The reported fly ash generation during April October 2021 is 1504059 MT and utilization is 1118332 MT, the remaining fly ash is disposed into ash dyke. • The Ash has been mainly consumed in cement manufacturing, ash brick manufacturing, land development, and ash dyke raising. However, the remaining ash is been disposed of in the ash dyke. They are mainly using legacy fly ash which was already stored in old ash dyke and the fresh fly ash generated is being stored in new ash dyke. • Huge spillages near ash Silos have been observed during the visit. Such fly ash has been dumped in the area near the Hanumaan Temple in a haphazard manner
d)	<p>To ensure continuous operations of AWRS</p>	<ul style="list-style-type: none"> • As per the records the unit has discharged 850458 KL ash slurry and recycled 720602 KL water during the quarter August, 2021 to October 2021. • Thus, the ash to water ratio calculated is 1:5 against the claimed ash to water ratio of 1:3.
e)	<p>Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash pond and spreading of slurry in to surrounding environment</p>	<ul style="list-style-type: none"> • It is informed that all the precautions have been taken to ensure safety of ash dykes. • Preventive measures should be taken in the active ash ponds to avoid dust emissions from dry surfaces.
f)	<p>Control of pollution during coal storage, transportation and handling</p>	<ul style="list-style-type: none"> • The water sprinkler installed at the CHP area were not been operative efficiently and on a continuous basis to control the fugitive emission. • In coal stockyard effective mechanisms have not been

		<p>deployed to control the fugitive emission.</p> <ul style="list-style-type: none"> • Very high Fugitive emission in transport vehicle parking area, nearby silo at exit point was also been observed. Huge ash was seen deposited in the said area
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1.5.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/Remarks (As on 31.10.2021)
a)	Achieving ZLD in ETP & STP	<ul style="list-style-type: none"> • During visit committee observed that ETP operation was not satisfactory. Sludge drying bed facility is not facilitate at ground level yet. As well as there is no dedicated mechanism for removal of sludge from ETP. • Treated wastewater from STP is also utilized for gardening purpose.
b)	Installation of FGD for control of gaseous emissions	<ul style="list-style-type: none"> • The unit is in process to install FGD system for achieving standards Notified for gaseous emissions.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • The MSW generated from residential colony is dumped on the nearby hilly area. The MSW was thrown without any segregation in haphazard manner. And they were burning the MSW, which was causing substantial air pollution in the area

1.5.3. Calculation for environmental compensation

The unit was found violating the environmental Norms and causing air pollution in the area by open burning of MSW, adequate measures for controlling the fugitive emissions from material storage and transport areas. Considering the extent of air pollution witnessed in the area, the committee recommended for imposing the environmental compensation based on the 'Polluters Pay Principle'. The period of violation is considered as the reporting quarter.

Calculation of Environmental Compensation is as demonstrated below

$$\begin{aligned}
 EC &= PI \times N \times R \times S \times LF \\
 &= 80 \times 92 \times 250 \times 1.5 \times 1 \\
 &= 27,60,000/-
 \end{aligned}$$

Where,

- *PI = Pollution Index of Industrial sector
(Taken as '80' considering 'Red Category')*
- *N = number of days of violation took place
(From 01.08.2021 to 31.10.2021 i.e., 92 days)*
- *R = A factor in Rupees (taken as '250')*
- *S = Factor for scale of operation
(‘1.5’ considering scale of operation being ‘Large’)*
- *LF = location factor
(‘1.0’ considering population of area being < 1 million)*

1.5.4. Recommendations of the Committee

- *The unit can be asked to complete the installation of proper sludge drying beds in the existing ETP at the earliest.*
- *The unit may be asked to relocate the OCEMS in order to achieve the desired iso-kinetic sampling for particulate matter.*
- *The unit can again be asked to submit time bound action plan to relocate the existing CAAQMS for ensuring representative ambient air quality monitoring as per the guideline and also complete the installation of another 02 CAAQMS.*
- *The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.*
- *The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.*
- *The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.*
- *The unit should immediately stop the burning of the MSW. And they can be asked to adopt proper scientific approach for disposal of MSW.*
- *The unit can be asked to take corrective measures to control the fugitive emissions from raw material storage and fly ash transportation areas.*
- *The unit can be asked to submit explanation for dumping the fly ash in haphazard manner. They should take immediate action for its proper disposal.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs 27,60,000/- as the unit was causing the air pollution through burning of MSW and inadequate measures taken to control the fugitive emissions from raw material handling and fly ash transportation areas.

1. .6. M/s Obra Thermal Power Station (Power Plant)

1.6.1. Compliance status of action points identified in Hon’ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified	Compliance Status/Remarks (As on 31.10.2021)
a)	To ensure continuous operations of ESPs installed in TPPs. Installation of OCEMS to monitor stack emissions and connect it with CPCB/SPCB server for online data transmission	<ul style="list-style-type: none"> • It has been informed that effective operation of ESPs is being ensured. The unit has not provided any details of the retrofitting of ESPs. • The unit has installed OCEMS and connected it with CPCB & SPCB portals for data transmission.
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server.	<ul style="list-style-type: none"> • The unit has installed three CAAQMS for ambient air quality monitoring. • The committee asked the unit to ensure the connectivity of the CAAQMS with CPCB/SPCB server at the earliest.
c)	To ensure 100% fly ash utilization in accordance with MoEF&CC Notification dated 31.12.2018 and Hon'ble NGT order dated 12.02.2020 in the matter of OA No 117/2014.	<ul style="list-style-type: none"> • As per the information, the fly ash utilization from April 2021 to September 2021 is only 5.07%. • The reported fly ash utilization is much lesser than the desired utilization percentage. • The committee asked to submit the timebound action plan for utilization of 100% fly ash generated at the earliest.
d)	To ensure continuous operations of AWRS	<p>Irrespective of the repetitive recommendations of the committee, the unit has not yet installed a flow meter to measure the amount of ash slurry discharged into the ash dyke and the amount of water recycled from the ash pond.</p> <ul style="list-style-type: none"> • As per the estimation made by the unit based on the pumping capacity, around 2000 m³ /hr ash slurry is being discharged into the ash dyke and around 660 m³ /hr water is being recycled through AWRS. • The condition of AWRS indicates about its non-operative state. A bypass arrangement was also seen by committee which directly discharging the ash dyke effluent in to the River Renu. • The wastewater containing fly ash generated from plant area is directly discharged into Renu River through the Jharia Nala. As informed by the unit around 30,000 L/Day of wastewater is being discharged into River Renu.
e)	Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash	The structural safety of the ash dyke has been evaluated through IIT Roorkee and the ash dyke is being raised as per recommendation in the report.

	<i>pond and spreading of slurry</i>	<ul style="list-style-type: none"> • The 2nd raising of ash dyke has been started and is likely to be completed within six months
f)	<i>Control of pollution during coal storage, transportation and handling</i>	<ul style="list-style-type: none"> • As per information, the unit receives coal through the rail system. The unit has provided a cover shed and a sprinkling system to trap the dust released during the unloading. • Committee observed that water sprinkler to control the fugitive emission in CHP area was not working effectively.

1.6.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	<i>Achieving ZLD in ETP & STP</i>	<ul style="list-style-type: none"> • The wastewater from the plant area is mostly discharged into the natural drain passing through the plant premises. Some of the wastewater from this drain is taken for treatment through ETP and the rest is discharged into Renu river without any treatment. • The flowmeter has not been provided at ETP for the quantification of wastewater received and treated. • The unit is in the process of setting up a dedicated effluent collection and conveyance system for ETP. • The operations of STP and ETP was not satisfactory
b)	<i>Installation of FGD for control of gaseous emissions</i>	<ul style="list-style-type: none"> • As per information provided by Unit, they are in process to install FGD system for achieving standards Notified for gaseous emissions and the work will be completed by December, 2022. However, no related progress was found on ground.
c)	<i>Discharge of ash slurry into River Son</i>	<ul style="list-style-type: none"> • Substantial amount of ash slurry is being discharged from the power house section into the natural drain passing through the plant premises. The said drain discharges the ash slurry into the Renu river. The water quality of the river is being severely affected at the meeting point and huge accumulation of fly ash is also visible on the river bed. • Similarly, partial amount of overflow water from ash pond is going directly into Renu river. This water is flowing through the areas along the banks of the river, on

		<p>which a large amount of ash is deposited. The ash, while flowing through the area, mixes with the water and reaches the river water, affecting the water quality. This deposition is mainly due to the release of ash slurry from the ash ponds.</p> <ul style="list-style-type: none"> • Above mentioned observation was been conveyed to the unit since last one year in through every quarter report. Unfortunately, the unit has not taken any effort to even initiate action for its resolution.
d)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • As per the information provided by Unit Solid waste generated from colony premises is dumped at site located to Sector 09 within colony premises and no scientific method been adopted for the proper segregation and disposal of MSW.

1.6.3. Calculation for environmental compensation

The unit is constantly discharging untreated effluent and ash slurry in to the River Renu. Hence, environmental compensation is being calculated based on 'Polluters Pay Principle'. The present committee is reviewing the matter for the period starting from 01.08.2021. And hence, the same date has considered as reference for calculation of period of non-compliance.

Calculation of Environmental Compensation is as demonstrated below:

$$\begin{aligned}
 EC &= PI \times N \times R \times S \times LF \\
 &= 80 \times 456 \times 250 \times 1.5 \times 1 \\
 &= 01,36,80,000/-
 \end{aligned}$$

Where,

*PI = Pollution Index of Industrial sector
 (Taken as '80' considering 'Red Category')*
*N = number of days of violation took place
 (From 01.08.2020 to 31.10.2021 i.e., 456 days)*
R = A factor in Rupees (taken as '250')
*S = Factor for scale of operation
 ('1.5' considering scale of operation being 'Large')*
*LF = location factor
 ('1.0' considering population of area being < 1 million)*

1.6.4. Recommendations of the Committee

- The unit should immediately take action to trap the continuous flow of ash slurry from powerhouse and

ash pond overflow water carrying ash into the river Renu.

- Further, the unit can be directed to restore the river bed areas on which a huge deposition of ash is visible. The restoration activity should be completed in time-bound manner.
- The unit should treat all the industrial effluent generated and in no case the untreated effluent shall be discharged into the river Renu.
- The unit may be asked to install an effluent collection and conveyance system for ETP & STP at the earliest.
- The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.
- The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.
- The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.
- The unit can be asked to adopt the scientific approach for treatment and disposal of MSW.
- The unit can be asked to install the flow meters for measuring amount of ash slurry discharged and water recycled through AWRS. The unit can also be asked to install flow meters for measurement of amount of wastewater treated through the ETP and STP

Irrespective of the observations and recommendation of the committee regarding discharge of ash water into the River Renu, the unit has not taken any initiative for its control. Huge quantity of fly ash being discharged into River every quarter. However, the lenient approach of the management not been changed.

Hence, committee has recommended to fix the personal responsibility of the officers seating at management level for causing such a environmental damage.

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 01,36,80,000/- for discharging untreated wastewater and ash slurry into River Renu.

2. Coal Mines of M/s Northern Coalfields Limited (NCL)

2.1. NCL Dudhichuwa Project, Sonbhadra

2.1.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon'ble NGT order	Compliance Status (As on 31.10.2021)
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a)	<p>As per the provision of the Notification of 2009, 25% of fly ash should, along with Over Burden (OB) generated NCL, be used for back filling the abandoned mine.</p>	<ul style="list-style-type: none"> • There is only one abandoned mine in NCL namely Gorbi Mine where three voids are available. Out of three voids, NCL has already offered one void to NTPC-VSTPS for fly ash filling through MoU signed on 03.01.2019. Approx. 30 to 40 million tons of fly ash will be accommodated into this mine void. Thereafter remaining two voids may also be made available for fly ash filling. • It has been informed that, the utilization of 25% fly ash with Overburden has serious safety implications which has been deliberated in 44th meeting of standing committee on safety in coal mines held on 12.02.2020. • Further, a work order has been issued on 10.07.2021 to the IIT-BHU and work is in progress for carrying out “Scientific Study of fly ash utilization/ dumping/ mixing in the OB of the running/ active mines of NCL along with its viability and safety aspect of man and machinery.”
b)	<p>The Norm of ash content equal to or below 34% is not strictly complied with by the NCL and ash content is going as high as 40% and beyond. Coal beneficiation is, therefore, be initiated to obtain coal having less than 34% ash.</p>	<ul style="list-style-type: none"> • The reported ash content is 32.7 %.
c)	<p>Control of air pollution during coal storage, handling and transportation.</p>	<ul style="list-style-type: none"> • Six tankers of 70KL, three tankers of 28 KL and four converted tankers of 22 KL capacity has been deployed for dust • Two road sweeping machines have been also deployed for road sweeping in the coal mine and residential colony. • Two truck mounted fogging machines are deployed for suppression of air borne

	<p>dust.</p> <ul style="list-style-type: none"> • One fogger cannon system has been installed at Wharf Wall. • 70 water spray nozzles have been provided at 10 transfer point of total 4 km length of Belt conveyor system. 16 water spraying nozzles are also provided in O2 storage Silos. • It has been informed that, the ratio of coal transportation through Road to Train is 4:96. • The unit has also yet not provided tyre washing facility for the transport
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2.1.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	Installation of camera at the exit of coal mines	<ul style="list-style-type: none"> • The camera is installed at the exit of the coalmine to monitor the status of coal transportation
b)	Management of wastewater generated from different processes and achieving ZLD.	<ul style="list-style-type: none"> • Though the ETP was operational, the treated wastewater has been found flowing into ETP premises. • Irrespective of the observation of the committee during every quarter, they are still discharging the untreated effluent into the Balia Nalla.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • As per information, the MSW generated from the residential colony is sent to Nagar Nigam Singrauli for the further treatment and disposal.

2.1.3. Calculation for environmental compensation

The unit is constantly discharging untreated effluent in to the Balia Nalla. Hence, environmental compensation is being calculated based on 'Polluters Pay Principle'. The present committee is reviewing the matter for the period starting from 01.08.2021. And hence, the same date has considered as reference for calculation of period of non-compliance.

Calculation of Environmental Compensation is as demonstrated below:

$$EC = PI \times N \times R \times S \times LF = 80 \times 456 \times 250 \times 1.5 \times 1 = 01,36,80,000/-$$

Where,

- PI = Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')
- N = number of days of violation took place (From 01.08.2020 to 31.10.2021 i.e., 456 days)
- R = A factor in Rupees (taken as '250')

- *S = Factor for scale of operation ('1.5' considering scale of operation being 'Large')*
- *LF = location factor ('1.0' considering population of area being < 1 million)*

2.1.4. Recommendations of the Committee

- *The unit should ensure regular operations of ETP and proper utilization of the treated effluent to achieve zero discharge.*
- *The coal mine should ensure that no treated/untreated effluent will be discharged into the Balia Nalla which finally meets the Rihand reservoir.*
- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for constantly discharging untreated effluent into the Balia Nalla.

2.2. NCL Bina Project, Bina, Sonbhadra

2.2.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon'ble NGT Order	Compliance Status (As on 31.10.2021)
a)	<i>As per the provision of the Notification of 2009, 25% of fly ash should, along with Over Burden (OB) generated in the mines of NCL, be used for back filling the abandoned mine.</i>	<ul style="list-style-type: none"> • <i>There is only one abandoned mine in NCL namely Gorbi mine where three voids are available. Out of three voids, NCL has already offered one void to NTPC-VSTPS for fly ash filling through MoU signed on 03.01.2019. Approx. 30 to 40 million tons of fly ash will be accommodated into this mine void. Thereafter remaining two voids may also be made available for fly ash filling.</i> • <i>It has been informed that, the utilization of 25% fly ash with</i>

		<p>Overburden has serious safety implications which has been deliberated in 44th meeting of standing committee on safety in coal mines held on 12.02.2020.</p> <ul style="list-style-type: none"> • Further, a work order has been issued on 10.07.2021 to the IIT-BHU and work is in progress for carrying out “Scientific Study of fly ash utilization/ dumping/ mixing in the OB of the running/ active mines of NCL along with its viability and safety aspect of man and machinery.”
b)	<p>The Norm of ash content equal to or below 34% is not strictly complied with by the NCL and ash content is going as high as 40% and beyond. Coal beneficiation is, therefore, be initiated to obtain coal having less than 34% ash.</p>	<ul style="list-style-type: none"> • The coal beneficiation plant of 4.5 MTPA capacity has been provided to control the ash content in the coal. • The reported ash content is 29.1%.
c)	<p>Control of air pollution during coal storage, handling and transportation.</p>	<ul style="list-style-type: none"> • Approx. 85.22% coal is transported through rail and remaining 14.78% coal is transported through road. • Fixed sprinklers are been fitted at CHP at a length of about 550m during the month of August 2021. • Two fixed fog canon machines with throw of approx. 100m is commissioned in the month of September 2021 for dust suppression. • Fixed sprinklers installed along the transportation’s road for 1.5 kms length. • Two trucks mounted fogging machines are also deployed. • One truck mounted road sweeping machine has been deployed. • 15 mobile water sprinklers are deployed. • All drills machine is provided with cyclone dust separator & dust guards. • One surface miner had been procured to control dust during drilling & blasting. • However, huge emissions have been observed in the CHP area which requires the attention. • The unit has also yet not provided tyre washing facility for the transport vehicles.

2.2.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	Installation of camera at the exit of coal mines	<ul style="list-style-type: none"> The camera is installed at the exit of the coalmine to monitor the status of coal transport.
b)	Management of wastewater generated from different processes	<ul style="list-style-type: none"> Some quantity of treated effluent is used for spraying along the transport roads. They have installed water sprinklers for the same. The remaining treated effluent is stored in the pond near the residential area, from which it is mainly used for horticulture purposes. The committee observed flowmeter installed at STP were not functional, and hence the quantity of wastewater received and treated cannot be evaluated as per actual.
c)	Fire in the coal over burden/reject	<ul style="list-style-type: none"> The committee observed fire in the coal stock yard in the mine area. Such a fire incident is hazardous as well as one of the significant sources for air pollution. The unit is asked to submit time bound action plan for controlling the fire in the stored coal stock yard.
d)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> As per information, the MSW generated from residential area is dumped into low lying area without any treatment/segregation.
e)	CAAQM Station for the monitoring of Ambient Air Quality	<ul style="list-style-type: none"> The unit has installed one CAAQMS however the site is not open from all the directions and large trees are located in close proximity are the barriers for horizontal air movement.

2.2.3. Recommendations of the Committee

- The unit can be asked to submit timebound action plan for controlling the fire in the coal stock yard.
- The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.
- The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.
- The unit can be asked to provide effective tyre washing facility for transport vehicles.
- The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.
- The unit can again be asked to submit the time-bound action plan for compliance

with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.

- *The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.*

2.3. NCL Krishna Shila Project

2.3.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	<i>As per the provision of the Notification of 2009, 25% of fly ash should, along with Over Burden (OB) generated in the mines of NCL, be used for back filling the abandoned mine.</i>	<ul style="list-style-type: none"> • <i>There is only one abandoned mine in NCL namely Gorbi Mine where three voids are available. Out of three voids, NCL has already offered one void to NTPC-VSTPS for fly ash filling through MoU signed on 03.01.2019. Approx. 30 to 40 million tons of fly ash will be accommodated into this mine void. Thereafter remaining two voids may also be made available for fly ash filling.</i> • <i>It has been informed that, the utilization of 25% fly ash with Overburden has serious safety implications which has been deliberated in 44th meeting of standing committee on safety in coal mines held on 12.02.2020.</i> • <i>Further, a work order has been issued on 10.07.2021 to the IIT-BHU and work is in progress for carrying out "Scientific Study of fly ash utilization/ dumping/ mixing in the OB of the running/ active mines of NCL along with its viability and safety aspect of man and machinery."</i>
b)	<i>The Norm of ash content equal to or below 34% is not strictly complied with by the NCL and ash content is going as high as 40% and beyond. Coal beneficiation is, therefore, be initiated to obtain coal having less than 34% ash.</i>	<ul style="list-style-type: none"> • <i>The reported ash content is around 14.4 %.</i>
c)	<i>Control of air pollution during coal storage, handling and transportation.</i>	<ul style="list-style-type: none"> • <i>At present, 39% coal is transported through rail; 45% coal is transported through Belt Piped Conveyor (BPC) and remaining 16% coal is transported through road.</i>

		<ul style="list-style-type: none"> • The coal handling plant of 4 MT capacity has been installed and in operation. It is provided with silo for rapid loading of coal into the railway wagons. Cold fog dust suppression system has been provided throughout the length of CHP. • Spraying through fixed type sprinkling system is being done along the coal transport road (from coal yard to weighbridge) and remaining area is covered through 04 tankers of 28 KL capacity, six tankers of 12 KL capacity, and one truck mounted mist gun.
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2.3.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	Installation of camera at the exit of coal mines	<ul style="list-style-type: none"> • The CCTV camera has been installed at the exit of the coalmine to monitor the status of coal transport.
b)	Management of wastewater generated from different processes	<ul style="list-style-type: none"> • The new integrated ETP of 0.4 MLD capacity is commissioned by the unit. As the mining water is very less for the project, the only effluent taken to ETP is the wastewater from the workshop. As the said quantity is very low than the designed hydraulic load of the ETP, the possibility of the septic condition in ETP reactors cannot be ruled out. Proper O&M is required to avoid such situations.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • As per information, the MSW generated from residential area is dumped into low lying area without any treatment/ segregation.
d)	CAAQM Station for the monitoring of Ambient Air Quality	<ul style="list-style-type: none"> • One common CAAQMS is installed between Bina and Krishna shila Projects as these projects is sharing the residential colonies.

2.3.3. Recommendations of the Committee

- The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.
- The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.
- The unit can be asked to provide effective tyre washing facility for transport vehicles.

- The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.
- The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.

2.4. M/s NCL Kakri Project, Sonbhadra

2.4.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in the Hon'ble NGT Order	Compliance Status (As on 31.10.2021)
a)	As per the provision of the Notification of 2009, 25% of fly ash should, along with Over Burden (OB) generated in the mines of NCL, be used for back filling the abandoned mine.	<ul style="list-style-type: none"> • There is only one abandoned mine in NCL namely Gorbi Mine where three voids are available. Out of three voids, NCL has already offered one void to NTPC-VSTPS for fly ash filling through MoU signed on 03.01.2019. Approx. 30 to 40 million tons of fly ash will be accommodated into this mine void. Thereafter remaining two voids may also be made available for fly ash filling. • It has been informed that, the utilization of 25% fly ash with Overburden has serious safety implications which has been deliberated in 44th meeting of standing committee on safety in coal mines held on 12.02.2020. • Further, a work order has been issued on 10.07.2021 to the IIT-BHU and work is in progress for carrying out "Scientific Study of fly ash utilization/ dumping/ mixing in the OB of the running/ active mines of NCL along with its viability and safety aspect of man and machinery."
b)	The Norm of ash content equal to or below 34% is not strictly complied with by the NCL and ash content is going as high as 40% and beyond. Coal beneficiation is, therefore, be initiated to obtain coal having less than 34% ash.	<ul style="list-style-type: none"> • It has been informed that the ash content in coal is 27-28%. The unit has shown a random analysis report to the committee.
c)	Control of air pollution during coal storage, handling and transportation.	<ul style="list-style-type: none"> • Road to rail transport ratio has been reported as 1:1.3 (5,05,946.94 T: 6,89,106.31 T) • Mobile Water Sprinklers has been deployed for the sprinkling on Haul

		roads and connecting road from Mine entry to weighbridge.
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2.4.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	Installation of camera at the exit of coal mines	<ul style="list-style-type: none"> The camera is installed at the exit of the coal mine to monitor the status of coal transport.
b)	Management of wastewater generated from different processes	<ul style="list-style-type: none"> It has been observed that the ETP operations were not satisfactory and all the treatment units were not functional. Irrespective of repetitive recommendations of the committee, the unit has yet to install flowmeter for the quantification of wastewater generated and treated. A seepage was seen in the drain from the mine water collection sump well. This untreated wastewater is also reaching the pond wherein treated effluent is been stored. The overflow from this drain is reaching to the Rihand reservoir.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> As per information, the MSW generated from residential area is dumped into low lying area without any treatment/ segregation.
d)	CAAQM Station for the monitoring of Ambient Air Quality	<ul style="list-style-type: none"> The unit has installed one CAAQMS in its residential colony. However, the CAAQM site is not open from all the directions and large trees located in close proximity are the barriers for horizontal air movement.

2.4.3. Calculation for environmental compensation

The unit is discharging treated and untreated effluent in to collection pond, overflow of which is reaching to the Rihand reservoir through the drain. Hence, environmental compensation is being calculated based on 'Polluters Pay Principle'. Last one quarter is the period of non-compliance found.

Calculation of Environmental Compensation is as demonstrated below:

$$\begin{aligned}
 EC &= PI \times N \times R \times S \times LF \\
 &= 80 \times 92 \times 250 \times 1.5 \times 1 \\
 &= 27,60,000/-
 \end{aligned}$$

- PI= Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')

- *N = number of days of violation took place (From 01.08.2021 to 31.10.2021 i.e., 92 days)*
- *R = A factor in Rupees (taken as '250')*
- *S = Factor for scale of operation*
 - *('1.5' considering scale of operation being 'Large')*
- *LF = location factor*
 - *('1.0' considering population of area being < 1 million)*

2.4.4. Recommendations of the Committee

- *The coal mine should ensure that no treated or untreated effluent will be discharged into the Rihand reservoir through the drain.*
- *The coal mine should immediately trap seepage in the drain at mine water collection sump.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*
- *The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 27,60,000/- for discharging untreated/treated effluent into the Rihand Reservoir.

2.5. NCL Khadia Project Sonbhadra

2.5.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in the Hon'ble NGT Order	Compliance Status (As on 31.10.2021)
a)	<i>As per the provision of the Notification of 2009, 25% of fly ash should, along with</i>	<i>• There is only one abandoned mine in NCL namely Gorbi OC where three voids are available. Out of</i>

	Over Burden (OB) generated in the mines of NCL, be used for back filling the abandoned mine.	<p>three voids, NCL has already offered one void to NTPC-VSTPS for fly ash filling through MoU signed on 03.01.2019. Approx. 30 to 40 million tons of fly ash will be accommodated into this mine void. Thereafter remaining two voids may also be made available for fly ash filling.</p> <ul style="list-style-type: none"> • It has been informed that, the utilization of 25% fly ash with Overburden has serious safety implications which has been deliberated in 44th meeting of standing committee on safety in coal mines held on 12.02.2020. • Further, a work order has been issued on 10.07.2021 to the IIT-BHU and work is in progress for carrying out “Scientific Study of fly ash utilization/ dumping/ mixing in the OB of the running/ active mines of NCL along with its viability and safety aspect of man and machinery.”
b)	The Norm of ash content equal to or below 34% is not strictly complied with by the NCL and ash content is going as high as 40% and beyond. Coal beneficiation is, therefore, be initiated to obtain coal having less than 34% ash.	<ul style="list-style-type: none"> • It has been informed that the ash content in coal is below 34%. The unit has shown a random analysis report to the committee. • The reported ash content is around 22.7 %.
c)	Control of air pollution during coal storage, handling and transportation.	<ul style="list-style-type: none"> • Mobile water sprinklers have been deployed on Haul roads. • Truck mounted mist spray machine and road sweeping machine are also deployed. • Fixed fogging machine is deployed near coal yard.

2.5.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	Installation of camera at the exit of coal mines	The camera is installed at the exit of the coalmine to monitor the status of coal transport.
b)	Management of wastewater generated from different processes	<ul style="list-style-type: none"> • The ETP operations was not satisfactory and some of the treatment units were not functional. • The flowmeter provided for the quantification of wastewater received and treated was also nonfunctional. • One bypass arrangement was found through which they are discharging untreated effluent into the natural drain that reaches to the Rihand reservoir.

c)	Treatment and Disposal of MSW generated from residential area	• As per information, the MSW generated from residential area is dumped into low lying area without any treatment/ segregation
d)	CAAQM Station for the monitoring of Ambient Air Quality	• The unit has installed one CAAQMS in its residential colony. However, the CAAQM site is not open from all the directions and large trees located in close proximity are the barriers for horizontal air movement

2.5.3. Calculation for environmental compensation

The unit is discharging treated and untreated effluent in to natural drain that reaches the Rihand reservoir. During the earlier visit also the ETP was found nonfunctional. Hence, environmental compensation is being calculated based on 'Polluters Pay Principle'. Last one quarter is the period of non-compliance found.

Calculation of Environmental Compensation is as demonstrated below:

$$\begin{aligned}
 EC &= PI \times N \times R \times S \times LF \\
 &= 80 \times 92 \times 250 \times 1.5 \times 1 \\
 &= 27,60,000/-
 \end{aligned}$$

Where,

- PI = Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')
- N = number of days of violation took place (From 01.08.2021 to 31.10.2021 i.e., 92 days)
- R = A factor in Rupees (taken as '250')
- S= Factor for scale of operation ('1.5' considering scale of operation being 'Large')
- LF = location factor ('1.0' considering population of area being < 1 million)

2.5.4. Recommendations of the Committee

- The unit should ensure continuous operations of ETP. The unit should trap all the bypasses and should ensure that no treated/untreated effluent will be discharged in to the environment.
- The unit can be asked to ensure the proper and regular operation of the water spraying system for effective control of fugitive dust emissions.
- The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.
- The unit can be asked to provide effective tyre washing facility for transport vehicles.
- The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.

- The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.
- The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 27,60,000/- for discharging untreated/treated effluent into the Rihand Reservoir.

3. Aluminum Smelter: M/s HINDALCO Industries Ltd, Renukoot, Sonbhadra

3.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in the Hon'ble NGT Order	Compliance Status (As on 31.10.2021)
a)	Industry shall achieve emission limit of 50 mg/Nm ³ for particulate matter in respect of all Baking furnaces. The emission from boilers shall be reduced to the level of 50 mg/Nm ³ from the existing Norms of 150 mg/Nm ³ by December 31, 2019 retrofitting of existing ESPs and also meet emission limit of SO ₂ & NO _x notified for industrial boilers.	<ul style="list-style-type: none"> • The unit has filed application at Hon'ble Supreme Court (CIVIL APPEAL Diary No(s). 44191/2019) for waiving off the stringent emission standards imposed on them. • The committee asked the unit to furnish the details of SMS generated through OCEMS during the last two quarters along with clarifications.
b)	Industry shall ensure that no red mud is leached out to ground water during monsoon and post monsoon period. Piezometers/monitoring wells should be installed in and around the red mud disposal sites in consultation with the CGWB/concerned SGWB. Regular monitoring of the leachate should be carried out as per the sampling and analysis plan as proposed by the concerned SPCB. Besides, industry shall facilitate utilization of Red mud in nearby cement industries, including those located in MP. The industry shall also explore the possibility of extraction of titanium and	<ul style="list-style-type: none"> • Around 95 % red mud utilization has been reported by the unit. It has been informed that during April 2021 to October 2021, approx. 579233 MT Red mud has been supplied to various cement manufacturers by rail/road. • The unit is in process to develop green belt on the closed red mud site. • It has been informed that the district administration has allotted two voids of total 61 Acre area in Dalla region for filling of red mud mixed with ash in abandoned stone quarries. The unit has awarded feasibility study to the MNIT, Prayagraj for the same. • Total four Piezometers have been installed for groundwater monitoring around the Red mud area. The locations were finalized with approval from CGWB. The

	<i>other heavy metals from the red mud.</i>	<p>Committee asked the unit to submit the Groundwater quality monitoring report for further analysis.</p> <ul style="list-style-type: none"> • It has been informed that the study was conducted in collaboration with M/S Neptune for precious metal recovery including TiO₂ from red mud. However, due to process complexities TiO₂ recovery was not successful as it is present in the form of minerals like rutile or anatase or coexist with other minerals.
c)	<i>To achieve ZLD in ETP and STP</i>	<ul style="list-style-type: none"> • The Unit is recycling the treated industrial effluent. • The unit has installed STP for the treatment of 24 MLD sewage generated from the residential colony. However only 12 MLD sewage is been treated and partial quantity is being recycled. • The unit is directly letting out some of the sewage without any treatment in the natural drain. • As prescribed in the consent condition issued by UPPCB, the unit was instructed to achieve ZLD for industrial effluent and reuse of domestic effluent. In no case, the unit is allowed to discharge effluent outside the premises. • Similarly, the ZLD condition has also been imposed through the environmental clearance issued by MoEF&CC on 02.12.2011. • Thus, the unit is violating the condition of ZLD imposed through environmental clearance since 2011. • The unit representative had informed during the previous visit, that it is technically feasible to achieve zero freshwater intake for the industrial process. However, the unit has not submitted any timebound action plan as desired by the committee.

3.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	<i>Control of air pollution during coal storage, handling and transportation.</i>	<ul style="list-style-type: none"> • The transportation of coal is mainly done through the road. During the visit, very high fugitive emission has been observed in the in CHP area and the measures taken by the unit are not adequate to control the fugitive emission in effective manner.

b)	Fly ash and bottom ash management	<ul style="list-style-type: none"> • A very big heap of bottom ash has been found inside the plant premises. The said bottom ash has been stored on the land in a haphazard manner since several years. The details regarding the year-wise generation of bottom ash and its storage on the open land are not provided by the unit. • It has been informed that some of the legacy bottom ash has been sent for utilization in the road construction.
c)	Treatment and Disposal of MSW generated from residential area	<ul style="list-style-type: none"> • As per information, approx. 25 – 30 Ton of waste is generated per day from the residential colony. • The generated MSW has been dumped without any treatment in low lying area near the closed red mud site. • Though the unit had installed a waste segregation unit but it is non-functional from its day of installation.

3.3. Calculation for environmental compensation

The unit is violating the condition of ZLD since last 11 years i.e. from 2011. However, as the present committee is reviewing the matter for the period starting from 01.08.2021 and hence this date is considered as reference for calculation of period of non-compliance. However, additional environmental compensation can be imposed on the unit for non-compliance of ZLD condition since last 11 years.

The environmental compensation calculated based on 'Polluters Pay Principle' is as demonstrated below:

$$\begin{aligned}
 EC &= PI \times N \times R \times S \times LF \\
 &= 80 \times 456 \times 250 \times 1.5 \times 1 \\
 &= 1,36,80,000/-
 \end{aligned}$$

Where,

- PI = Pollution Index of Industrial sector (Taken as '80' considering 'Red Category')
- N = number of days of violation took place (From 01.08.2020 to 31.10.2021 i.e., 456 days)
- R = A factor in Rupees (taken as '250')
- S = Factor for scale of operation ('1.5' considering scale of operation being 'Large')
- LF = location factor ('1.0' considering population of area being < 1 million)

3.4. Recommendations of the Committee

- The unit should immediately take corrective measures to achieve the ZLD. In no case, they should discharge treated or untreated effluent/sewage in the surrounding environment.
- The unit should immediately ensure environment friendly disposal for the huge quantity of bottom ash stored in open inside the plant premises.
- UPPCB can initiate stringent action against the unit for storing a huge quantity of bottom ash in open and also impose the appropriate applicable environmental compensation for the same.
- The unit should ensure the proper treatment and disposal of the MSW.
- The unit should immediately take corrective measures to control the fugitive emission effectively.

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for not achieving the prescribed ZLD condition and discharging untreated sewage into the environment. Though the unit is not complying the said condition for last 11 years the calculated environmental compensation is only for the limited period of violation (i.e., from 01.08.2020 to 31.10.2021).

4. M/s Grasim Industries Limited Chemical Division, Renukoot, Sonbhadra

4.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in the Hon'ble NGT Order	Compliance Status (As on 31.10.2021)
a)	To achieve ZLD for ETP & STP.	<ul style="list-style-type: none"> • The unit has achieved ZLD through reuse and recycling. • During the visit it has been observed that the chemically contaminated effluent was being discharged into the drain that had changed the color and pH of the water flowing in the drain. The said drain is joining to the Rihand reservoir. • After back tracing, it has been found that the said effluent was been discharged by the unit near the railway bridge might be through the underground or flexible pipeline. • The unit has been asked to submit the clarification in the matter
b)	There is also an urgent need for the preparation of an	• As directed by Hon'ble NGT, a three-member committee calculated

	<p><i>action plan by industry to shift the mercury bearing brine sludge and the muck contaminated with chlorinated chemicals from the factory premises to the TSDF in consultation with the UP-state Pollution Control Board. It may be stated here that storage of hazardous mercury bearing brine sludge and the muck contaminated with chlorinated chemicals inside the premises is not permitted by the prevailing Hazardous Waste Management Rules, 2016 and, therefore, to be shifted to a suitable TSDF immediately.</i></p>	<p><i>Environmental Compensation of Rs. 155,42,85,300/- i.e. One Hundred Fifty-Five Crore Forty-Two Lac EightyFive Thousand Three Hundred for the noncompliance in the matter.</i></p> <ul style="list-style-type: none"> <i>• The unit has approached Hon'ble Supreme Court for relief and the matter is sub-judice.</i> <i>• In addition to above, the unit has stored brine sludge in the open pits. As per HWM Rules, 2016 the said waste is categorized as hazardous waste of category 16.3.</i> <i>• It has been informed that around 25000 MT brine sludge has been sent to TSDF for disposal and they are in process to send the remaining 10,000 MT waste.</i>
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4.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	<i>Control of air pollution during coal storage, handling and transportation.</i>	<i>• The unit has installed a water spraying arrangement in the areas for control of the fugitive dust.</i>
b)	<i>Fly ash and bottom ash management</i>	<ul style="list-style-type: none"> <i>• It has always been submitted by the unit that the ash generated is fully utilized. However, about 5,000 - 6,000 metric tonnes of ash have been dumped in an area of about 25,000 square meters inside dense plantations.</i> <i>• The unit is in the process of rehabilitating the said area by soil capping and developing the green belt on it.</i>
c)	<i>To ensure continuous operations of ESPs installed in CPPs.</i>	<i>• The committee asked the unit to furnish the details of SMS generated through OCEMS during the last two quarters along with the clarifications.</i>

4.3. Recommendations of the Committee

- The unit should be asked to submit the clarification regarding the discharge of chemically contaminated effluent into the drain. Based on the reply from the unit a suitable environmental compensation can imposed for the said non-compliance.*
- The unit should ensure environment friendly disposal of all the brine sludge stored in open pit. The UPPCB need to initiate a required action so that the said Hazardous Waste can be disposed of in environmentally sound manner.*

- The unit should complete the remediation activities in the timebound manner of the area wherein the ash has been dumped.
- The unit can be asked to prepare and execute an action plan to shift the mercury bearing brine sludge and the muck contaminated with chlorinated chemicals from the factory premises to the TSDF in consultation with the UP-state Pollution Control Board.

Further, the committee is in view that an appropriate environmental compensation (EC) for the reported non-compliance can be imposed. If Hon'ble NGT agrees to the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

5. M/s Birla Carbon India Pvt Ltd, Renukoot, Sonbhadra

5.1. Compliance status of action points identified by the oversight committee.

S. No.	Issues identified	Compliance Status (As on 31.10.2021)
a)	To achieve ZLD for ETP & STP	<ul style="list-style-type: none"> • The unit is achieving ZLD for ETP & STP. • The leakages through the boundary wall near ETP found during the earlier visit is trapped. • The unit has also installed a CCTV camera at the said spot. And also provided the footage of random dates which shows that the wastewater was not discharging outside the plant boundary

5.2. Recommendations of the Committee

- The unit should keep strict vigilance on the area from where the effluent was earlier reaching outside the plant boundary.

6. Stone Crusher

6.1. Compliance status of action points identified in Hon'ble NGT orders and additional issues identified by earlier oversight committee.

S. No.	Issues identified in Hon'ble NGT Order/Oversight Committee	Compliance Status (As on 31.10.2021)
a)	All stone crushers in Singrauli area have not taken adequate pollution control measures as the level of air pollution in the vicinity of stone crushers is high and	<ul style="list-style-type: none"> • The committee visited the cluster of stone crushers located near Obra in the Singrauli area. • Most of the stone crushers were found nonoperational during the

	<p>causes a health hazard. Most of the crushers are located in habited area or very near to the roads/highways. All such stone crushers which are not suitably located as well as which do not have adequate pollution control systems should be immediately closed. Relocation of stone crushers may also be explored.</p>	<p>visit. Intentional nonoperation in view of the visit of the committee cannot be ruled out.</p> <ul style="list-style-type: none"> • The majority of stone crushers have installed infrastructures like enclosures around the crushers, water sprinkling arrangements along the boundary wall, and cloths at the falling points. However, all these are poorly maintained and seem to be occasionally operated, due to which thick deposition of dust on tree leaves and other infrastructures are clearly visible. Thus, it indicates the irregular/poor operations of pollution control systems. • The committee has also witnessed a very dusty and hazy environment in the area while traveling on the nearby highway on other days. • It has been informed that UPPCB has issued notice to the 30 stone crushers for violating the Norms.
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6.2. Recommendations of the Committee

- Considering the status of huge dust emission in the area wherein this stone cluster is situated the committee recommends that the UPPCB should initiate stringent action against the defaulter units.
- In-addition, continuous monitoring through drone camera survey needs to be initiated on priority for ensuring the monitoring and identification of the defaulters.
- At least one CAAQMS has to be installed in the area for continuous monitoring of the Ambient Air. The capital and operational cost can be recovered from the stone crusher units on 'Polluters Pay Principle'. Till such time CAAQM is established and made operational, periodic manual monitoring of AAQ be initiated by UPPCB to have representative status.
- As there is no improvement found in the status of the air pollution, the committee has recommended that the district administration and UPPCB should explore the option of closure and relocation on a priority.

7. Pollution Control Board and MoEF&CC

S. No.	Issues identified in Hon'ble NGT Order/Oversight Committee	Compliance Status (As on 31.10.2021)
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a)	<p>The regional carrying capacity of the entire Singrauli region is to be assessed before allowing any expansion scheme with respect to the existing industries. This assessment is the prerequisite for such consideration in future.</p>	<ul style="list-style-type: none"> • Assessment of regional carrying capacity of the Singrauli (UP) region is yet to be started. • The NOC for expansion has been accorded to M/s NCL Bina coal mine project and M/s Dalla Cement. • The said expansion is permitted in violation of the condition of the regional carrying capacity imposed by Hon'ble NGT
b)	<p>The concerned SPCBs must ensure that all the major stacks from all the industries are being continuously monitored and these are linked with the CPCB/SPCB network. Effluent discharges from the industries are monitored once a month.</p>	<ul style="list-style-type: none"> • OCEMS have been installed by all the industries for continuous monitoring of source emissions and effluent discharge. • These OCEMS are linked with the CPCB/SPCB server for online data transmission. • UPPCB can initiate required action against those units that have not installed OCEMS properly to assure isokinetic sampling for particulate matter. • UPPCB need to the monitor the effluent discharges from the industries on monthly basis.
c)	<p>The existing network of monitoring system for AAQ monitoring in both the districts of UP & MP need to strengthened and expanded to get representative air quality status of Singrauli area. Industries in the area should install at least three continuous ambient air quality monitoring stations forthwith on "Polluter Pays Principle" at such locations as may be decided by CPCB in consultation with the respective SPCBs. The data generated should be transferred to SPCBs, CPCB and MoEF&CC on continuing basis.</p>	<ul style="list-style-type: none"> • UPPCB needs to initiate the action against those units that have not installed the required three CAAQMS in compliance with the Hon'ble NGT directives.
d)	<p>It is also essential that at least three continuous monitoring systems for mercury (Hg) monitoring in the ambient air should be installed (covering both the Districts of UP & MP) forthwith at suitable locations in the Singrauli area by the industries on "Polluter Pays Principle". CPCB in consultation with the SPCBs shall guide the industries regarding the location of the monitoring</p>	<ul style="list-style-type: none"> • M/s Hindalco Industries Ltd. Renukoot have Upgraded CAAQMS for monitoring Mercury (Hg), whereas M/s Lanco Anpara Power Ltd. Anpara and M/s Hindalco Industries Ltd., (Power Division) has proposed to Upgrade CAAQMS. • UPPCB may review the status and take the required action in case of noncompliance.

	stations. Besides mercury in surface and ground water should also be monitored manually once in three months.	
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8. District Administration of Respective States

S. No.	Issues identified in Hon'ble NGT Order/ Oversight Committee	Compliance Status (As on 31.10.2021)
a)	The Awdi-Shaktinagar Marg and Singrauli-Audi-Dibulgunj Marg are extensively used for heavy traffic and for clandestine coal transport leading to dust pollution. Further, the dense population which are residing along these roadsides are severely affected by dust pollution. The coal transportation by open truck is to be banned forthwith. CCTV cameras are to be installed at strategic location to record any violation in this regard.	<ul style="list-style-type: none"> • The coal transportation by open truck is not allowed by NCL. The CCTV cameras have been installed by all Coal mines at all exit points to record the violation. • Heavy dust pollution has been witnessed in the area by the committee during the visit • The committee has also captured the data generated through the CAAQMS installed in the residential colonies of coal mine projects which are located along the said road. It reveals that the maximum PM₁₀ levels were reached up to 838 µg/m³ and PM_{2.5} had been reached up to 405 µg/m³. • Such high concentrations of PM₁₀ and PM_{2.5} is the severe threat to the life and environment. The matters needs be dealt with sensitivity and immediate action is required to be taken on priority.
b)	To improve the prevailing situation, these roads are required to have 4/6 lanes and the pavements should be furnished with inter locking bricks of suitable quality to arrest air entrainment of dust.	<ul style="list-style-type: none"> • Widening and strengthening of Auri mode to Shakti Nagar four-lane road is under process. • The committee observed that the condition of the said road is better than the previous quarter. However, constant water sprinkling and vigilance are required to be ensured.
c)	Since there is no strategy for disposal of the RO reject in an environmentally friendly manner, prevailing practice of dumping of RO reject shall affect nearby land as well as water resources with long term consequences leading to irreversible ecological damage. Therefore, no further installation of RO plants in affected villages is recommended. Instead, water supply should now be practiced using water tankers as an interim measure. Piped water supply from Rihand reservoir will be a long-term solution for drinking water supply to fluoride and mercury affected villages.	<ul style="list-style-type: none"> • Due to the disposal problem of RO reject, further installation of any RO plants in affected villages is strictly prohibited. And water supply in affected villages is being done using the Water Tankers. • It is informed that the Pandit Deendayal Upadhyay Aashram Paddhati Urmaura, Sonbhadra potable water supply project is completed. In addition, two projects namely Kuldomari, Anpara are under progress in district Sonbhadra.
d)	In the past Rihand reservoir was polluted by the major industries in the area such as thermal power plants, coal mines, M/s	•As per earlier information provided by Executive Engineer Rihand Dam, Civil Division, Pipari, payment of Rs.

<p>Aditya Birla Chemicals, Renukoot and M/s Hindalco Industries, Renukoot. Since this reservoir is the only drinking water source in the area, the reservoir needs restoration and protection. A comprehensive study needs to be undertaken to assess the reservoir's water and sediment quality and to delineate water and sediment remediation and restoration measures on Polluter Pays Principle. All the streams and nullahs joining the reservoir need to be intercepted and diverted to save the reservoir from further pollution. CSIR-NEERI, Nagpur and/or CSIR-IITR, Lucknow may be entrusted with this study for which both these organizations have the requisite expertise.</p>	<p>69,09,000 had been made to Central Water and Power Research Station (CWPRS) Khadakwasla Pune Maharashtra for the study.</p> <p>•It has been informed that the study has been conducted and report submitted to Hon'ble NGT.</p>
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10. The report of the Oversight Committee headed by Justice SVS Rathore filed on 14.01.2022 mentions the compliance status by TPPs, Coal Mines, Stone Crushers and Statutory Regulators – MoEF&CC, CPCB and State PCB. The status found is reported as follows:

“A. Thermal Power Plants (TPPs) & Industries

S. No.	Issues/ Directions by the Hon'ble NGT	Compliance Status	Updated Progress			
1.	100% Utilization And Disposal of Flyash	Partially Complied	Except M/s Hindalco industries, Renuagar and Renukoot, ash utilization is abysmally low in all the units. Even these two units have not met the norm in Financial Year 2019-20 & 2020-21 and 2020-21 & 2021-22 respectively. The unit wise utilization details are given in the following table:			
Table						
TPPs/Industries	Year	Total Ash Generated (in Lac MT)	Total Ash Utilized (in Lac MT)	Disposal in ash pond (in Lac MT)	Ash Utilization (in %)	
M/s UPRVNL Anpara	2019-20	36.24	1.41	34.83	3.69%	
	2020-21	33.61	9.19	24.42	27.34%	
	2021-22 (Upto Sep., 2021)	17.61	0.70	16.46	3.97%	
M/s Obra Thermal Power Plants	2019-20	11.14	0.86	10.28	7.71%	
	2020-21	14.09	0.80	13.28	5.73%	
	2021-22 (Upto Sep., 2021)	7.13	0.36	6.77	5.04%	
M/s Lanco Anpara Power	2019-20	15.77	3.58	12.19	22.71%	
	2020-21	17.49	2.95	14.54	16.88%	

Ltd., Anpara	2021-22 (Upto Sep., 2021)	8.57	1.09	7.48	12.70%
M/s NTPC Rihand	2019-20	39.01	16.84	22.17	43.18%
	2020-21	39.21	20.39	18.82	52.02%
	2021-22	20.54	9.49	11.05	46.21%
	(Upto Sep., 2021)				
NTPC Shaktinagar	2019-20	32.06	12.5 8	19.48	39.24%
	2020-21	29.84	9.97	19.87	33.41%
	2021-22 (Upto Sep., 2021)	14.80	3.34	11.46	22.55%
M/s Hindalco Industries Ltd., Renusagar	2019-20	16.01	9.82	6.19	61.33%
	2020-21	15.04	11.1 7	3.87	74.26%
	2021-22 (upto Sep., 2021)	6.71	7.40	-	110.28%
M/s Hindalco Industries Ltd. Renukoot	2019-20	2.98	2.98	-	100%
	2020-21	1.54	1.24	0.30	80.51%
	2021-22 (upto Sep., 2021)	0.99	0.91	0.08	91.91%
2	<i>Imposition and Realization of EC on the noncompliance by the TPPs</i>	<i>Partially Complied</i>	<i>EC of total Rs. 23,14,80,000/- was imposed on these industrial units for the period 2019-2020. However, the amount has been realized only from M/s Lanco, Anpara and not from others as a stay has been granted to all of them by the Hon'ble Supreme Court.</i>		
3	<i>Utilization/ Disposal of Fly Ash</i>	Partially Complied	<u>M/s Anpara TPS</u> 1. After getting consent from the UPPCB, Anpara TPS has filled up ash (about 3.19 lac MT) in a low-lying area (village-Dibulganj) in Feb,2021. No further filling of ash is possible in it. Now, soil cover is being provided for plantation to be done in June/July-2022 in coordination with the Forest Department, U.P. 2. It has requested the District Administration to allot 07 abandoned stone mines/quarries in Billi Markundi area (8.4 acre) for fly ash disposal. The District Administration has assured to allot these mines. Out of the 07 mines, 04 mines (approx. 4 Lac MT capacity) are undisputed while 03 mines (approx. 3.0 Lac MT capacity) have ownership dispute between Revenue and Forest Department. After the dispute resolution, these mines would be made available to UPRVUNL. 3. A feasibility study for developing an Eco Park on the old mounds of fly ash, has been done by the IIT-BHU. Work for preparation of design/drawing/ estimate of Eco-Park has been completed and a comparative study with the existing NTPC Eco- Park work is being done. These efforts will take care of how much quantity of ash has not been revealed to the Committee.		

			<p>4. Fly ash generated from the 07 units of Anpara is also utilized by issuing it free of cost to cement industries and ash brick industries. The quantity of ash being utilized in this manner has not been revealed.</p>
		Partially Complied	<p><u>M/s Obra TPS:</u></p> <p>1. After obtaining Consent to Establish (CTE) from the UPPCB, the unit has done the following for backfilling of ash in</p> <p>a. Bid Part-I of Tender for disposal of 2.4 Lac CuM ash in Obra Sector- 2 & 3 in the first phase was opened but the bidders did not qualify the Pre-Qualification Criteria, therefore fresh bid has been invited. Subsequently, about 5-10 Lac CuM ash is also proposed to be disposed here in the second phase.</p> <p>b. Bid Part-I of Tender for disposal of 3.0 Lac CuM in abandoned stone quarries has been opened and is under process for opening the financial bid.</p> <p>c. Approval for inviting tenders from the Headquarter regarding ash filling (1.8 Lac CuM) in low-lying area near Lodhi Toll Plaza is awaited.</p> <p>2. Agreement with M/s ACC Ltd. for lifting 1.35 Lac MT/month of fly ash is in the final stage. After the agreement, ash lifting will be done from Obra B as well as Obra C.</p> <p>3. M/s Zaak Technologies, Germany has agreed for taking minimum 1.0 Lac MT/month of fly ash for manufacturing Grade Sand.</p> <p>4. Flyash generated from the unit is partly utilized by issuing fly ash free of cost to cement and ash brick industries. The quantity of ash being utilized in this manner has not been revealed. The remaining quantity is discharged in the form of ash slurry to ash dyke.</p>
		Partially Complied	<p><u>M/s Lanco Anpara Power Ltd., Anpara</u></p> <p>1. Several request letters dated 18.11.2015, 24.02.2016, 16.05.2016, 20.11.2018, 01.07.2020 and 23.07.2021 have been sent to NCL for allotment of abandoned mines. Response is still awaited.</p> <p>2. A request letter dated 13.11.2019 have been sent to DM, Sonbhadra for allotment of abandoned mines. Response is still awaited.</p> <p>3. Agreement/MOU signed with M/s J.S Enterprises, Renusagar on 20.01.2021 (duration 23.01.2021 to 22.1.2022) to coordinate with cement industries for utilization of approx. 60000 MT/month of fly ash generated. In the FY 2021- 2022 (till Sep., 2021), 108885 MT ash has been lifted.</p> <p>4. Agreements have been signed with the following brick manufacturing units for supply of fly ash:</p>

		<p style="text-align: center;">Partially Complied</p>	<p>machines. Presently 4.5 lac/month bricks are being manufactured.</p> <p>3. It has signed a contract with NHAI for the supply of 11.75 Lac MT Pond ash for road projects. (Supply started on 27.06.2020). Steps are also being taken for finalization of contract for additional supply of 5.2 lac MT of pond ash for Varanasi Ring Road project.</p> <p><u>M/s Hindalco Industries Ltd., Renusagar</u></p> <p>1. Approx. 34800 MT/month of fly ash & 84000 MT/month of pond ash is being transported through rail rakes and bulkers on continuous basis for its utilization by the following cement & cement sheet making companies</p> <p>a. M/s Hyderabad Industries Ltd., Jaunpur (3000 MT/month of fly ash, for the period of 01.05.2020 to 30.04.2025)</p> <p>b. M/s Prism Cement, Satna (13500 MT/month of fly ash, for the period of 01.05.2019 to 30.04.2024)</p> <p>c. NU Vista Ltd., Bihar (7800 MT/month of fly ash, for the period of 01.09.2019 to 31.08.2022)</p> <p>d. M/s Kanodia Infratech Ltd., Bihar (10500 MT/month of fly ash, for the period of 01.12.2019 to 30.11.2024)</p> <p>e. M/s ACC Ltd. Tikariya Sultanpur (U.P.) (4000-8000 MT/month of pond ash, for the period of 01.08.2021 to 01.08.2022)</p> <p>f. M/s Shree Cement, Bihar (60000 to 80000 MT/month of pond ash, for the period of 01.08.2021 to 31.07.2022)</p> <p>g. Fly Ash Movers Ltd., Satna (4000 to 8000 MT/month of pond ash, for the period of 01.09.2021 to 31.08.2022)</p> <p>2. Approx. 4030 MT/month of flyash is used for bricks manufacturing at their own Brick making plant at Renusagar and for supply to other brickmaking units viz. M/s Bharat Hume & Pipe, Karhiya Sonbhadra & M/s Puja Industries Bhairwa Sonbhadra.</p> <p>3. Approx. 19786 MT/month of ash is supplied for road projects of Varanasi.</p> <p><u>M/s Hindalco Industries Ltd., Renukoot</u></p> <p>1. The preliminary assessment of site suitability study of an abandoned quarry in Dalla region by M/s Genstru, Pune has been completed. The final report is awaited.</p> <p>2. Approx. 9930.02 MT/month of fly ash is being transported through bulkers on a continuous basis for its utilization by the following cement-making companies</p> <p>a. M/s Tabsio Infratech- 79.03 MT/month</p> <p>b. M/s Eco Cement - 747.00 MT/month</p> <p>c. M/s Diamond Industries- 280.65 MT/month</p>
		<p style="text-align: center;">Partially Complied</p>	

			<p>d. Himalaya Height C. Pvt. Ltd., Durgawat 787.64 MT/month</p> <p>e. M/s F. S. Fertilizers- 74.78 MT/month</p> <p>f. M/s Kanodia Infratech Ltd., Bhabhua- 433.81 MT/month</p> <p>g. M/s Abhinav Road Carrier/ Brij Cement 988.64 MT/month</p> <p>h. M/s J. P. Chunar- 4400.65 MT/month</p> <p>i. M/s Alakhnanda, Ramnagar- 92.52 MT/month</p> <p>j. M/s Emami Cement, Durgawati- 1100.35 MT/month</p> <p>k. Bharat Infra Cement Ltd, Chandauli- 981.78 MT/month</p> <p>l. M/s Amba Cement, Bhadoi- 164.46 MT/month</p> <p>m. Ultratech Cement, Dala- 37.29 MT/month</p> <p>n. R.L.J. Infra Cement, Chunar- 323.04 MT/month</p> <p>o. M/s Trinani Cement- 93.27 MT/month</p> <p>p. M/s Laxmi Cement- 55.11 MT/month</p> <p>3. Approx. 643.33 MT/month of dry ash is utilized for Varanasi National Highway.</p> <p>4. Approx. 4015 MT/month of bottom ash is utilized for Varanasi & Garhwa road projects.</p>
		Partially Complied	<p><u>M/s Grasim Industries Ltd. (Chemical Division), Renukoot</u></p> <p>1. Reclamation activity has been started from Aug, 2021 by tree plantations in low-lying areas within the plant premises. Plantation activity is expected to be completed by the end of monsoon season, 2022.</p> <p>2. For intermittent storage in adverse scenario, the industry is in process of obtaining abandoned mines in Obra region. The Pre-feasibility Study for the same has been completed by M/s Genstru Consultant Pvt. Ltd.</p> <p>3. The industry has received the Permission to carry out site suitability study of abandoned stone quarry/mine voids at Dalla, Sonbhadra (UP) to fill & rehabilitate the same by fly ash & bottom Ash.</p>
4	Ash dyke management of TPS	Partially Complied	<p><u>Anpara TPS:</u> Ash dyke's height is being raised to the extent of 5 meters for disposal of wet ash. The ash pond has been divided into two lagoons each having a decantation well. On completion of work, one lagoon has been made operational since 02.06.2021. The work of 2nd lagoon was expected to be complete by Dec., 2021.</p> <p><u>Obra TPS:</u></p>

		Partially Complied	<ol style="list-style-type: none"> 1. It has got the design and drawing of raising of ash dyke prepared by IIT-Roorkee. The first raising work of ash dyke has been completed and the 2nd raising work has been started from October, 2021. As per the report of IIT-Roorkee, the ash dyke is structurally safe, sound and sustainable and there is no chance of breach. 2. In order to maintain zero discharge from ash dyke, all the systems i.e., ash slurry pump, seepage of the ash dyke and Ash Water Recirculation System (AWRS) are functioning properly and its regular maintenance work is being done. AWRS also facilitates recirculation of ash pond water. 3. The unit is yet to install flow meters to measure the quantity of ash slurry disposed in the ash dyke and the amount of water recycled from the ash pond.
		Partially Complied	<p><u>M/s Lanco Anpara Power Ltd.</u></p> <ol style="list-style-type: none"> 1. The AWRS is fully functional and flow meters in all three lines have been installed on 05.12.2021. 2. Regular monitoring is being done to keep ash dykes in proper condition to avoid any overflow.
		Partially Complied	<p><u>NTPC Rihand</u></p> <ol style="list-style-type: none"> 1. Ash dyke has been constructed with approved engineering design provided by the Corporate Centre. Third party assessment of ash dyke is being done by IIT-Roorkee. 2. It has awarded the ash dyke stability study to IIT-Hyderabad for the year 2021. Two visits of experts (in Feb.,2021 & July, 2021) for dyke stability assessment have been done and their report is still awaited. 3. Flow meters are installed. During April, 2021 to Sept., 2021, approx. 17016721 KL of ash slurry has been discharged and out of that 15388800 KL water has been recycled through the AWRS
		Partially Complied	<p><u>M/s NTPC Shaktinagar</u></p> <ol style="list-style-type: none"> 1. Regular monitoring is being done to keep ash dykes in proper condition to avoid any overflow.

			<p>2. It has awarded the ash dyke stability study to IIT-Hyderabad. Two visits (in Feb., 2021 & July, 2021) of experts of IIT-Hyderabad for dyke stability assessment has been done and their report is awaited.</p> <p>3. The unit has installed flow meters. The unit discharged 7724990 KL ash slurry and recycled 6257242 KL water during the quarter July, 2021 to Sep., 2021.</p> <p>4. In order to increase the offtake of dry fly ash, installation of Dry Ash Extraction System (DAES) in all units of Stage- I is in progress with a plan to discard old DAES in 02 units. In Stage- II, U#6 DAES has been commissioned and U#7 commissioning is in progress.</p> <p>M/s Hindalco Industries, Renusagar</p> <p>1. Ash Dyke at Bichari is around 8 kms from Renusagar Power Plant which was constructed in the year 2004 as per the approved design of the CBRI, Roorkee and is maintained strictly as per the standard operating procedure with round the clock monitoring.</p> <p>2. The stability assessment of the ash dyke is being conducted by reputed agencies i.e., CBRI, Roorkee/ IIT BHU/ MIT Moradabad.</p> <p>3. The unit has installed flow meters to measure quantity of ash slurry disposed in the ash dyke and the amount of water recycled from the ash pond. During April, 2021 to July, 2021, a total of 1048824 KL ash slurry was discharged and 883682 KL water was recycled.</p> <p>4. It has also initiated the process for getting 48.55 hectare of forest land for making new ash dyke.</p>
		Partially Complied	
		Partially Complied	<p>M/s Hindalco Industries, Renukoot: Entire fly ash (which is 80% of the total ash generated) is handled by dry ash system. Ash is being loaded into bulkers from ash silos and bottom ash is also being sent to various users routed through intermediate settling ponds in dry form. All the ash is being disposed in environment friendly manner; only temporary ash storage area is in place. This area is of earthen construction using well-compacted soil which is structurally sound and stable. Since, the ash is in dry form there is no seepage of water out of the storage area.</p>
5	Measures for transport ation, storage & handling of coal by TPPs	Complied	<p>M/s Anpara TPP (Unit-A, B & D)- Entire coal transportation is being done by railway wagon (MGR system). It has never transported coal through road. There is no fugitive emission in the Coal Handling Plant (CHP). Sprinkling of water is done to control the coal- dust near the crushers.</p> <p>M/s Obra TPP (Unit-B)- Coal transportation is being done by railway wagon and covered shed is provided for</p>

		<p>unloading. No transportation of coal being done through road. The unit has installed water sprinklers in coal storage area and dust suppression system at loading-unloading points.</p> <p>M/s Lanco Anpara Power Ltd.- About 70% of coal is transported through railway rakes and the rest 30% is transported through tarpaulin covered trucks. Sprinkling of water on the road is also being done. The unit has installed water sprinklers in coal storage area and dust suppression system at loading-unloading points.</p> <p>M/s NTPC Rihand-</p> <ol style="list-style-type: none"> 1. It is transporting 100% coal from the linked mines of Northern Coalfield Ltd. (NCL) through Merry-Go-Round (MGR) railway system and a covered shed is provided for unloading of coal. 2. Water sprinklers, dust and dry fog dust suppression systems have also been installed and the same are operational in the CHP. 3. Installation of cold fog dust suppression system is proposed in Stage-I system. Notice Inviting Tender has been issued for the same and the system is expected to be commissioned by Dec., 2022. <p>M/s NTPC Shaktinagar:</p> <p>It is transporting 100% coal from the linked mines of NCL through MGR railway system and unloading takes place in a covered shed.</p> <p>Water sprinklers in the coal storage areas and dust suppression systems have also been installed and the same are operational.</p> <p>The fugitive emission is in the range of prescribed norms. The unit is in process to further improvise the condition by installing a fog system.</p> <p>M/s Hindalco Industries Ltd., Renusagar:</p> <p>The industry is transporting approximately 80% of coal through BPC and the balance of 20% is transported through tarpaulin-covered trucks.</p> <p>It has installed a belt pipe conveyor (BPC) system (4.65 km) from the Krishnashila coal mine for coal transportation.</p> <p>Fugitive emission of dust is being controlled by the Dust Extraction System installed at the coal discharge point and conveyors. Rain guns are installed in the yard periphery and are operational for controlling dust in the coal Storage area. Stacker mouths discharge</p>
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			<p>be transferred to new pump house and effluent from power house will be taken into pump and same will be discharged into the ETP for treatment and re-circulation</p> <p><u>M/s Lanco Anpara Power Ltd.</u> The unit is achieving ZLD. All treated waste water is being used in horticulture and in the ash plant. It has also installed a flow meter on 05.12.2021 at inlet and at recycling point.</p> <p>It has installed 03 ETPs and 02 STPs. Treated water is fully recycled and reused. ZLD is being maintained. Flow meters are installed to measure the amount of waste water received and treated through ETP.</p> <p><u>NTPC Shaktinagar</u> The unit is recycling the treated waste water from ETP and has also installed a flow meter to measure the amount of waste water received through ETP. ZLD is being achieved.</p> <p><u>M/s Hindalco Industries, Ltd., Renusagar:</u> The industry has developed a road map and timeline for creating the sludge drying bed/filter press to be installed at ETP. The process to select a vendor for this purpose has been initiated in Dec., 2021.</p> <p><u>M/s Hindalco Industries Ltd., Renukoot:</u> The industry has commissioned Process Water Recycling Plant (PWRP) on 23.11.2021 in order to achieve ZLD. Treated waste water from STP is being used in horticulture, other miscellaneous works and the rest is discharged into Murdhawa Nala (i.e. natural drain).</p> <p><u>M/s Grasim Industries Ltd. (Chemical Division), Renukoot:</u> ZLD condition fully complied for plant ETP & STP (w.e.f. 17.11.2017) and residential colony STP (w.e.f. 24.11.2019). For further utilization of treated sewage, the industry has installed a 1000 m³ ultrafiltration (UF) system which is operational since 10.03.2021. The treated STP water from the UF system is utilized in plant cooling towers.</p>
7	Installation of Flue-Gas Desulfurization	Partially Complied	<p><u>M/s Anpara TPS</u> 1. A & B-Plant: Central Electricity Authority vide its letter dated 23.10.2021 has rejected the tender of M/s Beijing SPC. The notice for re-tendering has been issued.</p>

			<p>2. D-Plant: LOA dated 04.07.2019 was issued to M/s Beijing SPC Environment Protection Tech Co, China for installation of FGD. 40% of civil work has been completed.</p> <p><u>Obra TPS:</u> Retendering for Part- I will be done on 27.01.2022. Installation of FGD is expected to be complete by June, 2023.</p> <p><u>M/s Lanco Anpara Power Ltd.</u> The unit is in the process to install FGD system for achieving standards notified for gaseous emissions before specified timeline.</p> <p><u>NTPC Rihand</u> Bids received for the installation of FGD are under technical evaluation. The work of the installation of FGD in Stage- II & Stage- III units is in progress and will be completed by December and September, 2023 respectively.</p> <p><u>NTPC Shaktinagar</u> Work of chimney construction, absorber and associated work is in progress. Efforts are being made to complete FGD installation within the revised timeline i.e., 31.12.2024.</p> <p><u>M/s Hindalco Industries, Ltd., Renusagar:</u> The technology has been finalized for FGD installation in one boiler unit. In July, 2021, the industry has placed LOI to the vendor. It will take about 17.5 months to receive the material. The work is expected to be complete by April, 2023. On the basis of successful working of FGD system in one boiler, it shall be replicated in other nine boilers.</p>
8	Maintenance of the capacity and quality of the water of Rihand Reservoir	<p>Partially Complied</p> <p>Complied</p> <p>Partially Complied</p>	<p>Anpara TPS: The spillway is being raised to minimize the chances of overflow by the Mocha nala into the Rihand reservoir. After raising of spillway, there will be no overflow into the reservoir. The timeline for completing this work has not been revealed by the unit.</p> <p>NTPC Rihand and Shaktinagar are not discharging any pollutants into the Rihand Reservoir.</p> <p>M/s Lanco Anpara Power Ltd.: The unit has entered into facility & Service Agreement with UPRUVNL Anpara on 12.11.2006 for the use of ash dyke as one of the common facilities</p> <p><u>Comments by UPPCB</u> As per the information furnished by the UPPCB, the Ministry of Water Resources River Development and Ganga Rejuvenation Central Water & Power Research has assessed the cost of Hydrographic/capacity survey of Rihand Reservoir to be Rs. 69.09 lac. Accordingly,</p>

			<p>payment of this amount has been made to the Central Water and Power Research Station (CWPRS) Khadakwasla, Pune, Maharashtra, which has been engaged by the Irrigation Department, UP for this study. Study work has been reported to be delayed due to COVID-19. Further information in this regard is awaited from Executive Engineer Rihand Dam, Civil Division, Pipari.</p>																						
9.	Ambient Air quality around Anpara TPS	Partially Complied	<p>Anpara TPS has installed 03 CAAQMS for ambient air quality monitoring at 03 different locations. All are working properly and are linked with the CPCB server. The status of the Ambient Air Quality at these locations is as follows:</p> <ol style="list-style-type: none"> The concentration of PM10 exceeded the standard limit of 100 µg/Nm3 in the month of January to June, 2021 and Nov., 2021 for Anpara Colony near Auri More The limit was exceeded in Anpara Admin Building near Bajrang Nagar for the months of January to May, 2021 and Nov., 2021. At Anpara DTPS Admin Building near Coal Handling Plant (CHP), the concentration of PM10 was high in the months of January, March, April, May, September and November, 2021. (Refer Appendix- I) 																						
10.	CAAQMS installed by TPPs in Sonbhadra	Complied	<table border="1"> <thead> <tr> <th>Name of Industry</th> <th>No. of CAAQMS installed</th> </tr> </thead> <tbody> <tr> <td>M/s UPRVUNL Anpara</td> <td>01</td> </tr> <tr> <td>M/s UPRVUNL Obra</td> <td>03</td> </tr> <tr> <td>M/s NTPC Rihand</td> <td>03</td> </tr> <tr> <td>M/s NTPC Shaktinagar</td> <td>02</td> </tr> <tr> <td>M/s NCL Khadia</td> <td>01</td> </tr> <tr> <td>M/s NCL Bina</td> <td>01</td> </tr> <tr> <td>M/s NCL Kakri</td> <td>01</td> </tr> <tr> <td>Hindalco Industries Ltd., Renuasagar</td> <td>01</td> </tr> <tr> <td>Hindalco Industries Ltd., Renukoot</td> <td>01</td> </tr> <tr> <td>M/s Lanco- Anpara Power Ltd.</td> <td>01</td> </tr> </tbody> </table> <p>All the CAAQMS are using four parameters viz SO2, NOX, PM10 and PM2.5 to assess the air quality. The details of the Air Quality for Sep., 2021 regarding the above mentioned TPPs/industries are enclosed as Appendix- II.</p>	Name of Industry	No. of CAAQMS installed	M/s UPRVUNL Anpara	01	M/s UPRVUNL Obra	03	M/s NTPC Rihand	03	M/s NTPC Shaktinagar	02	M/s NCL Khadia	01	M/s NCL Bina	01	M/s NCL Kakri	01	Hindalco Industries Ltd., Renuasagar	01	Hindalco Industries Ltd., Renukoot	01	M/s Lanco- Anpara Power Ltd.	01
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11	Continuous operation of ESPs and installation of OCEMS connected with the CPCB/SPCB server	Complied	<p><u>M/s Anpara TPS</u></p> <ol style="list-style-type: none"> During the period from July to Sep., 2021, 11 SMS alerts were generated. Stack Emission: Due to shut down of units, ESPs went out of order, changes in the ESP field and coal mills, soot blowing, load variation etc. occurred. Immediate action was taken to normalize the plant and to lower down the PMvalue of Unit No 1, 2, 3, 4, 5 																						

			<p>below 100 mg/Nm³ & 6, 7 below 50 mg/Nm³.</p>
		Complied	<p><u>M/s Obra TPS</u> <i>Electronic Precipitators (ESPs) have been upgraded and their effective functioning is being ensured. OCEMS is installed in all the operational stacks and connected with the CPCB server for online monitoring of data. During the period from July to Sep., 2021, 39 SMS alerts were generated. PM level is being maintained within the prescribed limit of 100 mg/NM³</i></p>
		Complied	<p><u>M/s Lanco Anpara Power Ltd.</u> <i>Effective operations of ESPs are ensured. OCEMS is installed in all the operational stacks and connected with the CPCB server. During the period from July to Sep., 2021, no SMS alerts were generated. The unit has stated that PM level is within the prescribed limit of 50 mg/NM³.</i></p>
		Complied	<p><u>NTPC Rihand</u> <ol style="list-style-type: none"> 1. It has installed 06 ESPs (one for each unit) and OCEMS in all stacks and these are connected with the CPCB server. 2. During the period from July to Sep., 2021, 119 SMS alerts were generated. 3. The alerts appeared on few occasions in EQMS due to technical problems in the sensors of the monitoring equipment. It has been reported by the unit that the actual quality of the treated effluent was always well below the prescribed limits. 4. The PM alerts mainly appeared in the OCEMS during unit light-up after shut down and its stabilization. The alerts appeared intermittently for a very short period and not for a long duration. </p>
		Complied	<p><u>NTPC Shaktinagar</u> <i>Effective operations of ESPs are ensured. OCEMS was installed in all the operational stacks and connected with the CPCB server. During the period from July to Sep., 2021, 242 SMS alerts were generated</i></p>
		Complied	<p><u>M/s Hindalco Industries Ltd., Renusagar</u> <ol style="list-style-type: none"> 1. OCEMS has been installed on Sep., 2015 in all the boilers/Stacks & ETP. The emission level is well within prescribed limit of 100 mg/NM³. 2. During the period from July to Sep., 2021, 27 SMS alerts were generated for which the industry has replied to the CPCB. </p>
		Complied	<p><u>M/s Hindalco Industries Ltd., Renukoot</u> <ol style="list-style-type: none"> 1. The unit has installed OCEMS and ESP in 04 boilers which are connected with </p>

		Complied	<p>the CPCB server. During the period from July to Sep., 2021, 27 SMS alerts were generated.</p> <p>2. Industry has achieved an emission limit of 50 mg/Nm³ for particulate matter in respect of all baking furnaces</p> <p><u>M/s Grasim Industries Ltd. (Chemical Division), Renukoot:</u> The unit has installed OCEMS. During the period from July to Sep., 2021, 26 SMS alerts were generated for which the industry has replied to the CPCB.</p> <p>The details regarding the SMS alerts generated on OCEMS installed in TPPs/industries for monitoring of emission during the period from July to Sep., 2021 is enclosed as Appendix- III.</p>
12	Utilization of Bauxite Residue (BR) (Red Mud)/ Flyash in Hindalco Industries Ltd., Renukoot	Partially Complied	<p>M/s Hindalco Industries Ltd., Renukoot</p> <p>1. Approx. 487196 MT Red mud which is 93% of the total red mud generated has been supplied to various cement manufacturers by rail/road during April, 2021 to September, 2021 while the remaining 7% is disposed in dumpsites/landfills.</p> <p>2. DFO, Obra has granted permission vide letter dated 10.05.2021 for conducting site suitability study for filling of red mud in 6-7 hectare of void stone quarry. M/s Genstru, Pune has completed the study and the final report is awaited.</p> <p>3. No leachate has been established.</p> <p>4. Piezo wells have been installed.</p>
13	Installation of RO Plant and their actual operationalization	<p>Complied</p> <p>Complied</p> <p>Complied</p> <p>Complied</p>	<p>Anpara TPS has installed 08 RO plants and all are operational. Each has capacity of 1000 litre/hr and supplying drinking water from Jan., 2015 onwards to Auri More (Anpara Colony), Kashi More, Lal Tower, Belwadah near pipeline, Belwadah near Semritat and Kunda Bharti- 1, 2 & 3 villages.</p> <p>Obra TPS has installed 11 RO Plants to provide pure drinking water in nearby areas and all are functioning properly. It is also supplying drinking water through tankers to nearby residents whenever required. No information has been given about the villages.</p> <p>M/s Lanco Anpara Power Ltd. has installed 07 RO plants and all are operational. Each has capacity of 1000 litre/hr and supplying drinking water since Oct., 2020 to Dibulganj, Auri, Anpara, Pipri-1, Pipri-2, Sonwani-1 and Sonwani-2 villages.</p> <p>NTPC Rihand: 04 RO Plants have been installed near the plant area and it is also supplying water in nearby areas through water tankers. No information has been given about the villages.</p>

		Not Complied	NTPC Shaktinagar: 06 RO Plants have been installed near the plant area and it is also supplying drinking water in steel tankers in village Paraswar Raja
		Complied	M/s Hindalco Industries Ltd., Renusagar: No RO plant has been installed. Drinking water is supplied through pipeline from Renusagar to Garbandha & Partaliya villages.
		Complied	M/s Hindalco Industries Ltd., Renukoot: It has installed 13 RO Plants in Kushma & Kirvani villages and is providing pure drinking water since Jan., 2015. It is also supplying drinking water through stainless steel tankers to the villages.
		Complied	M/s Grasim Industry, Renukoot: It has installed 04 RO Plants of 5000 litre/hr capacity in Khairahi- 1 & 2, Gambhirpur, Kushmaha- 2 villages and all are operational.

B. Coal Mines of M/s Northern Coalfields Limited (NCL)

S. No.	Issues/ Directions by the Hon'ble NGT	Compliance Status	Updated Progress
1.	Backfilling of active mines situated within 50 km from a power plant by using at least 25% fly ash	Not Complied Due to technical difficulty	Mixing fly ash with coal mine overburden has serious safety implications which were deliberated in the 44th meeting of the Standing Committee on Safety in coal mines held on 12.02.2020. As per its decision, a work order has been issued on 10.07.2021 to the IIT-BHU for carrying out a scientific study of the stability of overburden (OB) dumps mixed with fly ash in running/active mines of NCL Bina, Dudhichuwa and Khadia. The outcome of the study is awaited.
2.	Bringing down ash content to equal to or below 34% by the NCL	Partially Complied	As per the information received about all the mines of the NCLs (except NCL Kakri Project) from RO, Sonbhadra, the ash content in the coal dispatched from all the units is below 34%, thus, coal beneficiation is not required.

3.	Control of Air Pollution during coal storage, handling and transportation	Partially Complied	<p><u>NCL Krishnashila Project</u></p> <ol style="list-style-type: none"> 1. Till Sep,2021 40% of coal is transported Through rail; 44% through Belt Piped Conveyor (BPC) and the remaining 16% through tarpaulin-covered trucks. 2. The 4 MT/annum Coal Handling Plant (CHP) is operational. It is equipped with a silo for the rapid loading of coal onto railway wagons. Throughout the length of the CHP, a cold fog dust suppression system has been provided. The road from coal yard to weighbridge is sprayed with a permanent sprinkling system, while the remaining area is sprayed with 10 mobile water sprinklers (4 with total volumetric capacity of 28 KL and 06 with capacity of 12 KL) and 01 truck-mounted mist gun. 3. Dust survey is conducted on regular basis. 18 CCTVs have been put throughout the mine to Monitor the operations, dust suppression systems and sprinkling frequency. <p><u>NCL Khadia Project:</u></p> <ol style="list-style-type: none"> 1. Till Sep,2021,70.70 % of coal has been transported through rail and 29.30 % through tarpaulin-covered trucks. 2. It has installed 02 CHP having capacity of 4 MT/annum and 6 MT/annum through which coal is being transported through Merry-Go-Round (MGR) (rail transport). For further increment in the dispatch capacity through rail mode, a wharf wall (railway siding) of 4 MT/annum was expected to be made operational by Dec, 2021. 3. Mobile water sprinklers are deployed on haul roads. 4. Dust extraction system is operational in the Coal Handling Plant (CHP-Phase-1). 5. Fixed sprinklers around coal yard-1. 6. Drills are provided with dust extractors. 7. Approach road to mines is covered with blacktopping. 8. Wetting of Run-of-mine (ROM) coal before crushing in the CHP is done through automatic water sprinklers installed at the receiving pit. 9. Routine maintenance and periodic overhauling of Heavy Earth Moving Machinery (HEMM) is being done. 10. Thick green belts around the mine and colony are maintained. 11. Vegetative covers provided on the non-active OB dump. 12. For continuous monitoring of particulate matter (PM) levels in the air, it has established one Continuous Ambient Air Quality Monitoring Station (CAAQMS) linked with the CPCB server. 13. Truck-mounted mist spray machine and road sweeping machine has been installed (date not revealed). 14. Water sprinklers and dust extraction system at the CHP receiving Pit Phase- I has been renovated. 15. Approx. 2 km WBM haul road for prevention of fugitive dust emission has been constructed. 16. Fixed fogging machine near the coal yard to control dust emission has been installed.
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			<p>17. Biological reclamation through the plantation on 20 hectares dump slope and grassing on the area beside it has been done.</p> <p><u>NCL Kakri Project</u></p> <ol style="list-style-type: none"> 1. Till Sep., 2021, 57.66% of coal is transported through rail and 42.34% is transported through tarpaulin-covered trucks. 2. Dust Suppression system is installed in coal loading silo area, loading and unloading point at the CHP. Coal Stockyard is sprinkled through a firefighting truck. Water sprinkling on haul roads is being done through water tankers. <p><u>NCL Dudhichuwa Project</u></p> <ol style="list-style-type: none"> 1. Till Sep, 2021, 86.28% of coal is transported through rail and 13.72% through road. Pipe Conveyor transportation is used for internal transportation from CHP to Silo loading of railway wagon. 2. 06 tankers with total volumetric capacity of 70KL, 03 tankers of 28 KL & 04 tankers of 22KL are deployed for dust suppression in haul road and coal yard. 3. 02 road sweeping machines are deployed for sweeping the colony and industrial road. 4. 02 truck-mounted fogging machines are deployed in the mine and colony for suppression of dust. 5. Installation of 01 fixed fogging guns at Warf Wall Siding is in progress. <p><u>NCL Bina Project</u></p> <ol style="list-style-type: none"> 1. Approx. 85.22% of coal is transported through rail and the remaining 14.78% of coal is transported through road by tarpaulin-covered trucks. 2. Fixed sprinklers were fitted at the CHP in August, 2021. 3. 02 fixed fog canon machines with a throw of approx. 100 m were commissioned in September, 2021. 4. Fixed sprinklers were installed on transportation road of 1.5 km length. 5. 02 truck-mounted fogging machines are operational. 6. 01 truck-mounted road sweeping machine is operational. 7. Mistspraying arrangements in the CHP, crusher & all transfer points have been made. 8. 17500 saplings planted within the premises in the year 2020-21. 9. 15 mobile water sprinklers are working. 10. All drill machines are provided with cyclone dust separator & dust guards. 11. One surface miner has been procured to control dust due to drilling & blasting.
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4.	Installation of CCTV Cameras at= strategic locations in the coal mines	Complied	<i>It has been reported that in all the mines of the NCL, cameras have been installed at the exit. No information has been furnished about installation of cameras at other strategic locations.</i>
5.	Management of waste water generated from different processes and achieving ZLD.	<p>Complied</p> <p>Complied</p> <p>Partially Complied</p> <p>Partially Complied</p> <p>Complied</p>	<p>NCL Krishnashila Project: An ETP of 0.4 MLD is operational. It is provided with a collection tank, oil & grease trap, primary settling tank, flash mixer, clariflocculator, sludge tank and drying beds etc. The treated water is reused for sprinkling and horticulture purposes. No water is discharged outside the mine premises. ZLD is being maintained.</p> <p>NCL Khadia Project has installed ETP of 38 MLD capacity. The treated effluent is being reused in dust suppression, firefighting etc. and ZLD is being maintained.</p> <p>NCL Kakri Project has installed an ETP of 27.6 MLD capacity to treat the waste water generated from different sources. The treated effluent from the ETP is used for sprinkling on haul roads and the CHP, washing of dumpers, dozers and light vehicles, firefighting and in other service buildings. The remaining water is partly stored at the siltation pond and partly dissipated in the low-lying areas around the mine. No information has been revealed about the quantity and quality of water being discharged outside. It has re-invited bids on GeM Portal for the hiring of a 'Truck Mounted fog canon sprinkler system' to further enhance its water utilization capacity.</p> <p>NCL Dudhichuwa Project has installed an ETP of 30 MLD. Flow meters have been installed at the inlet and outlet of the ETP. Effluent from the CHP and workshop is taken into the collection tank and is pumped to the ETP for treatment and then utilized for dust suppression on haul road using mobile tankers. A proposal for relocation of ETP to avoid flooding during the rainy season has been sent to the civil department. No information has been revealed about achieving ZLD.</p> <p>NCL Bina Project: Waste water generated from different processes after treatment at ETP (i.e., 31.2 MLD capacity) is being re-used for different purposes viz., dust suppression, firefighting, CHP, HEMM etc. ZLD is being maintained.</p>
6.	Fire due to coal overburden/ reject	Complied	<p>NCL Krishnashila Project: It has been informed that there has never been an incidence of fire due to coal overburden. The coal yard has sufficient number of fire hydrants to meet any such eventuality. The stock of coal (presently approx. 9000 Ton) is also kept at low height for better air circulation.</p> <p>NCL Bina Project: Fire in the coal reject storage generated from Deshaling plant has been extinguished completely.</p>

C. Stone Crushers

S. No.	Issues/ Directions by the Hon'ble NGT	Compliance Status	Updated Progress											
1.	All stone crushers in The Singrauli area Have not taken Adequate pollution control measures as the level of air pollution in the vicinity of the stone crusher is high and causes a health hazard. Relocation of stone crushers may also be explored.	Partially Complied	<p><i>In the operational 279 stone crushers, closed metal sheet enclosures have been installed at all the dust emitting points and water sprinkling systems are also installed for dust suppression. As per information given by the RO, Sonbhadra, the environment is very dusty and hazy in the area where stone crushers are situated. This indicates that the several stone crushers are not operating the water sprinkling system and air pollution control systems effectively.</i></p> <p><i>No information has been submitted regarding the air quality either by the industries or by the UPPCB.</i></p>											
2.	Status of 384 stone crusher units established in Sonbhadra	Partially Complied	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Total no. of Stone Crusher Units identified</td> <td style="text-align: center; padding: 2px;">384</td> </tr> <tr> <td style="padding: 2px;">Total no. of Stone Crusher Units has installed proper APCS & have CTO from UPPCB</td> <td style="text-align: center; padding: 2px;">269</td> </tr> <tr> <td style="padding: 2px;">Total no. of Stone Crusher Units Applied for CTO</td> <td style="text-align: center; padding: 2px;">01</td> </tr> <tr> <td style="padding: 2px;">Total no. of Stone Crusher Units which have not installed proper APCS & are sealed</td> <td style="text-align: center; padding: 2px;">76</td> </tr> <tr> <td style="padding: 2px;">Total no. of Stone Crusher Units is not in working condition/ not applied for CTO/Self- closed/ Dismantled</td> <td style="text-align: center; padding: 2px;">38</td> </tr> </table>		Total no. of Stone Crusher Units identified	384	Total no. of Stone Crusher Units has installed proper APCS & have CTO from UPPCB	269	Total no. of Stone Crusher Units Applied for CTO	01	Total no. of Stone Crusher Units which have not installed proper APCS & are sealed	76	Total no. of Stone Crusher Units is not in working condition/ not applied for CTO/ Self- closed/ Dismantled	38
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D. UPPCB, CPCB & MOEF&CC

S. No.	Issues/ Directions by the Hon'ble NGT	Compliance Status	Updated Progress
1.	The regional carrying Capacity of the entire Singrauli region is to be Assessed before any expansion scheme concerning the existing industries.	Not Complied	<p><i>No new expansion of any project/ industries is being allowed in Singrauli (U.P.) region. Assessment of regional carrying capacity of the Singrauli region is yet to be started.</i></p>

2.	At least three continuous Monitoring systems for mercury (Hg) monitoring in the ambient air should be installed at suitable locations In Singrauli area by the industries on Polluters Pay Principle. Besides this, mercury in the surface and groundwater should also be monitored manually once in three months.	Partially Complied	1. Mercury monitoring in the ambient air, soil & groundwater in the area is being done by the NEERI, Nagpur. 2. The assessment of mercury bearing sludge, ground water and soil around The secured landfill (SLF) sites of Chemical Division, Grasim Industries Ltd., Renukoot, Sonbhadra done by the NEERI, Nagpur in the year 2019 revealed that mercury was not leaching from the SLF and not contaminating the groundwater. (Refer Appendix- IV)
3.	Notification of abandoned mines/quarries	-	No information has been furnished about it.
4.	A Joint Committee comprising of MOEF&CC, CPCB, IIT Roorkee and any other member considered necessary may submit a quarterly progress report on recommendation of Expert Committee of NITI Aayog for Enhanced utilization of fly ash in various sectors	-	No information has been furnished about it.

Recommendations

1. Majority of the Thermal Power Plants (TPPs)/industries located in Sonbhadra district of UP are not utilizing/ disposing 100% fly ash as per the CPCB guidelines. From the aforementioned progress report, it appears that these TPPs/industries have taken certain measures but their adequacy for 100 % utilization/ disposal of fly ash cannot be ascertained for want of relevant information not forthcoming from these TPPs/industries in spite of repeated reminders. The TPPs/industries may be directed to submit its action plan along with quarterly progress report to the Oversight Committee for purposeful and objective monitoring and rendering effective assistance to the Hon'ble NGT.
2. As per the direction of the Hon'ble NGT, the CPCB was required to notify the list of abandoned mines/quarries for being used by the TPPs/industries but from the information received from these TPPs/industries, it appears that no such list has been notified by the CPCB as yet. The CPCB may be directed to notify the same at the earliest.
3. The filling of abandoned coal mines and stone quarries is a key avenue for ash disposal, but there is a substantial delay in processing the requests of the TPPs/industries

owing to the necessary conditions of repeated inspections, studies and approvals by different authorities which take a very long time. There is an urgent need to simplify this procedure. For this purpose, a Committee may be constituted under the Chairpersonship of the District Magistrates and all the district level officers of concerned departments as well as Heads of the stakeholder units as members, who should deliberate on this issue and submit its report to the respective departmental heads in the State and the Central Government for revision of the procedure. All the guidelines should be oriented towards giving single-window clearance in a time-bound manner from the district level.

4. *The quarterly progress report of the Joint Committee comprising of the MOEF&CC, CPCB, IIT Roorkee and any other member considered necessary for enhanced utilization of fly ash in various sectors viz., mines, roads, cement, industries and bricks etc. along with its implementation status may be shared with the State and District Level Committees and all stakeholders as well as the Oversight Committee for increasing awareness about the possible alternative uses of flyash.*
5. *The UPPCB had imposed Environmental Compensation (EC) on the TPPs/industries erring in achieving 100% fly ash utilization for the year 2019-2020. But no information has been provided about any such action being taken by the UPPCB against the continued violation of the Environment Protection (EP) Act and related rules/guidelines by the TPPs/industries. It is pertinent to mention that the Hon'ble Supreme Court has stayed the realization of EC but not granted them immunity from continued violation of the law. Therefore, the UPPCB may be directed to discharge their statutory responsibility in its letter and spirit until these TPPs/industries fully comply with the Environmental Laws in respect of 100% utilization/disposal of fly ash.*
6. *The TPPs/industries may be directed to share their action plan for protecting the environment as approved by the CPCB to the Oversight Committee along with the quarterly progress report for ensuring timely implementation of the same with a view to save the environment from further deterioration and provide a dignified healthy living to the local people.*
7. *Online Continuous Emission Monitoring System (OCEMS) and Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed and linked with the CPCB server by all the TPPs/industries for continuous online data transmission to determine the source emissions and effluent discharge. The UPPCB may be directed to submit a monthly analysis report of the air and water quality to the Oversight Committee to facilitate monitoring of the*

action plan as well as their correlation with the impact on the environment.

8. *It was noticed earlier that a natural drain (Morcha Nala) is discharging a huge amount of water into the ash pond at Anpara TPP, which was directed by the Hon'ble NGT to be diverted by the Irrigation Department, UP. After a meeting held under the chairmanship of the Additional Chief Secretary, Department of Irrigation and Water Resource, Govt of UP, a decision has been taken not to divert the Nala but to up-grade the ash dyke. Accordingly, steps have been reported to be taken by the Anpara TPP. In this regard, the UPPCB may be directed to monitor the situation on the ground and send a report to this Committee within three months.*
9. *As per the compliance report received from the TPPs/industries, Anpara, Obra and Hindalco Industries (Renukoot and Renusagar) are not maintaining Zero Liquid Discharge (ZLD). The UPPCB may be directed to levy EC on them till they achieve ZLD.*
10. *There is a cluster of 350 stone crusher units in Sonbhadra out of which 279 are operational. In operational stone crushers, closed metal sheet enclosures are installed at all dust emitting points and a water sprinkling system is also installed for dust suppression. However, it is observed that the environment is very dusty and hazy in the area where stone crushers are situated. This indicates that several stone crushers are not operating the water sprinkling system and air pollution control systems effectively. The District Level Committee may be directed to take note of the prevailing situation and take effective remedial steps within the ambit of environment laws.*
11. *The Hydrographic/capacity survey and stability study of the Rihand reservoir, which is a source of water including drinking water to the entire area, is pending for a very long time. As a result, the restoration work has not begun as yet. The Additional Chief Secretary, Irrigation Department, Govt. of UP may be directed to expedite the study by making it a regular agenda point in his monthly meeting relating to environmental issues.”*

Status reports in OA 148/2020

11. In OA 148/2020, *Hiralal Bais vs. Reliance Sassan Power P. Ltd. & Ors.*, in pursuance of order of this Tribunal dated 29.06.2020, action taken report has been filed on 15.12.2021. The report deals with the incident dated 15.04.2020, resulting in death of six persons in contamination of air, water and soil on account of collapse of fly ash pond, leading to flood

of toxic ash slurry. The report mentions the probable cause of the occurrence, extent of damage caused and remedial action taken by the District Administration, the State PCB and TPP, including compensation to the heirs of the deceased and other inhabitants, who has suffered from damage. The relevant extracts from the report are reproduced below:

“1. The incidence & probable cause of its occurrence:

*Industry was disposing its fly ash in this Island 4 or C5 area (Geo-graphical location: 23.955383, 82.620307) since March 2019; the area of the low lying is 41.62 Hectares with average depth of 6.5mtrs. This provides effective volume of 27.06 Lakh M³ to dispose the fly ash. Industry was discharging fly ash in High Concentration Slurry Disposal (HCSD) mode that has water to ash ratio 30:70. Based on the records, industry has disposed around 10 Lacs Ton fly ash slurry till the date of incidence i.e. 10.04.2020. Copy of the disposal records is enclosed as **Annexure-2**. To pump out the stagnated slurry water near retaining wall, pumping arrangement was provided by the industry.*

*As reported by plant official, the **incidence of fly ash pond's retaining wall breach happened on 10th April 2020 at around 4.40PM in the low lying area called Island 4 or Compartment 5 (C5) inside the plant premise. One Poclain machine was on job of leveling soil on the top of the retaining wall; on moving back the machine, the machine lost its balance and slipped down towards the outer slope of the retaining wall. In order to prevent the slippage, the machine operator tried to anchor the bucket on the top soil of the retaining wall; However due to its own weight, it pulled down a big chunk of soil from the bund and further to stay up it kept on anchoring on additional part of the bund. During the process, the operator damaged the wall significantly which initiated the break of the retaining wall. This resulted in huge quantum of fly ash with water gushed out through the breached wall in about 25mtrs width. Geo-graphical location of breach was 23.954105° Latitude, 82.623535° Longitude and 23.954335 ° Latitude, 82.623568 ° Longitude. On the day of site visit of the committee; continuous lean flow of water was observed in the low lying area; during discussion it was informed by industry representative that this flow of water is continuous from the day of incidence and it was also informed that a study was awarded to IIT-BHU to study the reason of breach in the embankment of ash disposal site. The report submitted by Prof Arun Prasad, Dept of Geotechnical Engineering, IIT BHU on 17.6.2020 after his site visit on 13.6.2020 reported the reason of embankment failure under point no. 12 as:***

“The failure of embankment was definitely initiated by slippage of Poclain. However, the subsequent extent of damage of the bund was due to severe hydrostatic pressure on the upstream of the embankment. Through this damaged portion, dilute slurry started flowing leading to complete cutting of the retention wall. Accumulation of huge underground water had resulted into heavy flow of ash slurry causing serious consequences in the villages”.

The copy of the IIT-BHU report is enclosed as **Annexure-3**. The reported hydrostatic pressure probably developed by the newly constructed check dam on a stream around May/June 2019 about 4mtrs lower elevation. Geographical location of the check dam is 23.964515°Latitude, 82.611492° Longitude.

2. Nature of Damage

The breach of embankment/dyke caused severe damage to life of human & animal, property, agricultural fields, standing crops, motor pumps used in agriculture, water quality, macro-invertebrates etc. The flow of slurry was too forceful that it not only demolished the boundary wall as well as the adjacent private property but also flowed through the Goiwahai drain damaging the ash water recirculation pipeline of the industry and submerging the agricultural lands & summer season crops. The slurry travelled a path of about 6.5KMs in length; the average spread of slurry was 30mtrs wide with an average depth of 1mtr. Out of total 10 Lacs Ton ash deposits in Island 4 or C5 area, about 4 Lac Tons slurry breached out from about 11 Ha area with average 3mtrs depth which spread in nearby area, Goiwahai drain and on agricultural lands. The collected ash from C5 area and Goiwahai drain and agricultural land is dumped near Island 3 or Compartment C1 to C4 (Low lying area filled with fly ash), Ash dyke 1 & 2 for raising & bund strengthening. Based on the number of hyva, trucks, tractor, loader engaged and their trips, it was informed by industry representative that; Out of total 10 Lacs Ton ash; about 3.57 Lacs Ton fly ash excavated from C5 area and used in Island 3 bund strengthening, about 2.67 Lacs Ton ash collected from Goiwahai drain and agricultural land is used to strengthen the Ash dyke 1 & 2. Still around 2.15 Lacs Ton is lying in C5 area and about 1.5 to 2 Lacs Ton fly ash is deposited in drain. Document related to ash quantity removed is enclosed as **Annexure-4**. On the day of field visit, the committee observed deposits of dried fly ash in few agricultural fields viz (GPS location 23.969297, 82.634512; 23.969559, 82.635288 and 23.974791, 82.636981). **The committee was of the opinion that an appropriate direction needs to be issued to occupier to expedite the cleaning work so as to avoid further flow of ash towards Rihand reservoir. Accordingly,**

Regional Officer, MPPCB issued advisory in this regard to the occupier; copy of the direction issued is enclosed as **Annexure-5**.

Madhya Pradesh Pollution Control Board (MPPCB) Regional Office, Singrauli and Zonal Office Rewa carried out joint effluent sampling on 12th April 2020 from 5 locations; the details are as tabulated below:

S. No.	Location & Geographical coordinates	pH	Total Solids (TS)	Total Dissolved Solids (TDS)	Total Suspended Solids (TSS)
1.	Goiwahai drain near Sasan Power Plant (23.977775, 82.638136)	6.5	13098	918	12916
2.	Rihand river before mixing of Goiwahai drain (23.985756, 82.655558)	7.5	266	85	181
3.	Rihand Reservoir, Near Sasan Pump House (24.038930, 82.673119)	7.5	330	104	226
4.	Rihand river after mixing of Goiwahai drain (24.007186, 82.653735)	7.5	606	724	476
5.	Goiwahai drain before mixing with Rihand River (23.991117, 82.651948)	7.5	1518	614	1368

All units are in mg/l except pH. Copy of the Analysis report is enclosed as **Annexure-6**.

The analysis report clearly status that the Total solids load in Goiwahai drain reduced from 13098 mg/l to 1518mg/l before mixing in Rihand River which reveals that in the travel path of about 6.5KMs majority of solids got deposited in Goiwahai drain only. Further after mixing the drain in Rihand River the total solids load increased from 266mg/l to 606mg/l. In this way, the breach incidence has significantly deteriorated the water quality in Rihand river w.r.t. the Total solids. The resultant deposition of solids at the bottom of Goiwahai drain might have resulted in loss of benthic macro invertebrates.

3. Action Taken by District Administration

Following actions were initiated by District Administration, Singrauli immediately after the ash dyke breach:

- i. National Disaster Response Force (NDRF) team was engaged to carry out rescue, relief work. With the effort of NDRF team and district administration, the bodies of the 6 deceased were recovered from the ash spread area/drain.
- ii. Immediate relief was provided through M/s Sasan Ultra Thermal Power Plant to the families to the affected villagers in the form of food, water, shelter, fodder etc.
- iii. Initiated survey to assess the damage to agricultural fields, crop, livestock etc.
- iv. The injured persons were immediately shifted to the Nehru hospital, NCL Jayant, Singrauli for proper treatment.
- v. District Collector, Singrauli has ordered a magisterial enquiry on the breakage of this retaining wall vide order 452/RDM/2020 dated 11.4.2020. Police Department has also registered an F.I.R. under relevant section of I.P.C. against the industry.
- vi. Considering the damage to environment, life & property due to embankment breach and precautionary measure to adopt for the stability of another low-lying area, district magistrate had communication with Principal Secretary, Environment Department on 15.4.2020 vide letter no. 466/RDM/2020 for necessary direction to M/s Sasan Thermal Power Plant. Copy of the letter is enclosed as **Annexure-7**. Energy Department, Govt of Madhya Pradesh vide letter No. F-3/16/2009/13 (Vol. XVIII) dated 4th May 2020 asked unit to take immediate action to get ash dykes repaired. Copy of the letter is enclosed as **Annexure-8**.

4. Action Taken by Madhya Pradesh Pollution Control Board (MPPCB)

- i. Joint inspection of the breach site & sample collection was conducted jointly by MPPCB Zonal & Regional Office Rewa and Singrauli respectively on 12th April 2020. **Looking into the grave danger to environment, life & property; directions under section 33 A of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 23/MPPCB/MS/TS Singrauli/2020, Bhopal Dated 13/04/2020 were issued to repair, restore the breached area, remove the fly ash spread, assess environmental damage & deposit interim damage cost pending the assessment of actual damage & Copy of the direction is enclosed as Annexure-9.**
- ii. Subsequently, MPPCB granted permission vide letter No. ENDT.43/MPPCB/MS/TS-Singrauli/2020 dated 28/04/2020 to industry to accommodate fly ash recovered from the ash breach area within the plant premises and adjoining affected area in to the identified total 9.825 Ha area of low lying area around the existing ash dyke 1 & 2 w.r.t. the units application vide Letter No. SPL/2020-21/11 dated 21/04/2020. Copy of the MPPCB letter is enclosed as **Annexure-10**.
- iii. Earlier, MPPCB vide its letter dated 13.2.2018 granted permission to M/s Sasan Thermal Power Plant to dispose

the fly ash only in Compartment 1 (C1) of 6.09 Ha following the guideline prepared by Orissa Pollution Control Board, Bhuvneshwar and C-FARM, New Delhi "Technology & methodology manual for reclamation of low lying area/abandoned queries/Literate mines etc. with pulverized fuel ash, July 2010. Copy of the same is enclosed as **Annexure-11. MPPCB team during its visit to plant on 4.1.2019, observed non-compliance of the conditions like liner, partition, disposal in dry form & others stipulated in earlier permission issued on 13.2.2018 for disposing fly ash in low lying area.** In this regard, MPPCB has issued a show cause notice to industry on 30.3.2019. Copy of the same is enclosed as **Annexure-12.** Industry replied the show cause notice vide letter SPL/EMG/2019-20/03 dated 22.4.2019 w.r.to the liner, soil permeability, ash transportation, high concentration slurry disposal etc. Copy of the same is enclosed as **Annexure-13.** It was informed by industry representative that as no further directions/Notice were issued from MPPCB after their reply to the show cause; unit has started disposing the ash in High Concentration Slurry Disposal (HCSD) in the areas C2 to C5, which was in accordance with their submission dated 22.04.2019. However, **no prior permission was obtained from MPPCB for ash filling in compartments C 2 to C5, an embankment was made and ash in slurry form was filled above the ground level, which is in contravention to the permission granted by MPPCB on 13.2.2018 and was similar to creating an ash dyke and was opposed to the norms of ash filling in low lying areas. The industry kept filling the ash despite the consent renewals granted by MPPCB on 05.04.2019 and 08-03-2020 under the provisions of Water (P&CP) Act, 1974 and Air (P & CP) Act, 1981, in which it was clearly specified that for disposal of ash in low lying area/mine for void filling prior permission from the Board be obtained, and conditions stipulated therein shall be followed.** The consent renewal letters are enclosed as **Annexure 14A** and **Annexure 14B.** MPPCB vide letter dated 26.5.2020 granted permission to Regional Officer, Singrauli to initiate legal action against the occupier under Water (Prevention & Control of Pollution) Act 1974 and Environment Protection Act, 1986. Copy of the same is enclosed as **Annexure-15.**

5. Action Taken by M/s Sasan Ultra Thermal Power Plant, Singrauli

Action w.r.to the immediate repair of breached embankment, restoration, assessment of the environmental damage & dyke stability, compensation towards loss of life, property & others, removal of ash from compartment C5 etc. are as below:

- i. *The restoration of ash spread area through earth moving and transporting equipment is under progress at multiple locations e.g., agricultural fields, nearby nalla with proper access. However, earlier unit faced constraints on large scale resource mobilization due to COVID 19 national lockdown. Out of total 10 Lacs Ton ash; about 3.57 Lacs Ton fly ash excavated from C5 area and used in Island 3 bund strengthening, about 2.67 Lacs Ton ash collected from Goiwahai drain and agricultural land is used to strengthen the Ash dyke 1 & 2. Still around 2.15 Lacs Ton is lying in C5 area and about 1.5 to 2 Lacs Ton fly ash is deposited in drain. Proper spreading and compaction of filled ash is carried out using dozer and compactors. Compaction testing at the ash filling site is carried out regularly conforming to the standards.*
- ii. *Repair work of damaged retention wall (at C5 area) up to a suitable height has been completed after provision made below the re-instated retention wall for safe passage of water flowing from the area to avoid any water accumulation within this low lying area. About 3.57 Lacs Ton fly ash excavated from C5 area and used in Island 3 bund strengthening. Simultaneously, soil cover is being provided over the C5 low lying area.*
- iii. *M/s Sasan Power Ltd has issued letter of intent (LOI) & Work Order (WO) on 21.4.2020 & 2.6.2020 respectively to IIT-BHU for studying the ash dyke stability. Copy of the LOI & WO is enclosed as **Annexure-16**. Preliminary report submitted by IIT-BHU on 17.6.2020. The report states that “The failure of embankment was definitely initiated by slippage of Poclain. However the subsequent extent of damage of the bund was due to severe hydrostatic pressure on the upstream of the embankment. Through this damaged portion, dilute slurry started flowing leading to complete cutting of the retention wall. Accumulation of huge underground water had resulted into heavy flow of ash slurry causing serious consequences in the villages”.*
- iv. *A Letter of Intent (LOI) issued on 21.4.2020 to National Environmental Engineering Research Institute (NEERI), Nagpur for the assessment of the environmental damage. Work order (WO) was issued on 5th June 2020 in favor of NEERI. However, due to COVID19 & lockdown; NEERI has not carried out site visit till date. It was informed that regular follow-up is being made with NEERI to expedite the visit. Copy of the LOI & WO is enclosed as **Annexure-17**.*
- v. **Details of compensation, relief measures & others**

a. Compensation to families lost their members

M/s Sasan Power Ltd had compensated financially in **Rs. 125.3 Lakhs** to the dependent family members of **06** deceased persons as per the district administration instructions & guidelines. Lifelong Monthly Sustenance Allowance was also extended to 6 Dependents of deceased ones @8275/month. Employment was provided to 03 members of the deceased persons. The details are as below:

1) Deceased person : **Dinesh Kumar Shah S/O Bisahulal Shah (Age 32 yrs)**

Following compensation was paid to his dependents Mrs. Reena Shah (Wife), Smt Rudani (Mother), Sh Bisahulal Shahu (Father)

- One Time Settlement amount- **Rs. 10.00 Lakh**
- Employment in Company with monthly Salary **Rs. 15000/-** to Smt. Reena Shah W/O Late Shri Dinesh Kumar Shah.
- Lifelong **Monthly Sustenance Allowance** to Mother Rudani W/O Bisahulal Sahu (67 yrs) & Father Sh. Bisahulal Shahu S/O Anantram Shahu (69 Yrs) @ **Rs. 8275/- (Each)** (Revised every six month as per GoMP Minimum wage guidelines) annual financial implication at today's rate= Rs. 8275x12X2 members= **Rs.198600/annum**
- Cremation Support of **Rs. 30,000/-**

2) Deceased person : **Master Ankit S/O Late Dinesh Kumar Shah (Age 3 yrs)**

Following compensation was paid to Mrs. Reena Shah (Mother)

- One Time Settlement amount-**Rs. 10.00 Lakh**

3) Deceased person : **Choon Kumari Shah W/O Bhayyaram Shah (Age 28 yrs)**

Following compensation was paid to dependent **Bhayyaram Shah (Husband)**

- **One Time Settlement amount-Rs. 10.00 Lakh**

4) Deceased person : **Seema D/O Bhayyaram Shah (Age 10 yrs)**

Following compensation was paid to Sh Bhayyaram Shah (Father)

- **One Time Settlement amount-Rs. 10.00 Lakh**

5) Deceased person : **Abhishek S/O Bhayyaram Shah (Age 8 yrs)**

Following compensation was paid to Sh Bhayyaram Shah (Father)

- One Time Settlement amount-**Rs. 10.00 Lakh**

Following compensation and relief was also given to Sh Bhayyaram Shah whose wife & 02 kids lost their life in this ill-fated incidence

- Cremation Support of **Rs. 50,000/-**
- Lifelong **Monthly Sustenance Allowance** to Mother Golari S/O Rambaran Shahu 48 Yrs & Father Rambaraan Shahu S/O Khulluram Shahu (52 Yrs) @ **Rs. 8275/- (Each)** (Revised every six month as per GoMP Minimum wage guidelines) annual financial implication on today's rate= Rs. 8275x12X2 members=**Rs.198600/annum**
- **Permanent Job** to Sh Bhayyaram Shah in Civil department of M/s Sasan Power Limited on the post of Technician.
- **Compensation of House** (Rs. 10.00 Lakh) , **Household items** (Rs. 10.00 Lakh), **property** (Rs. 8.00 Lakh)
- **Constructed House** of 5 room at Makrohar Road (Rs. 25 Lakhs Approx Valuation)

6) Deceased person : **Rajjad Ali S/O Jabbar Ali (Age 29 yrs)**

Following compensation were paid to dependent Mrs. Reshma Khatoon (Wife)

- One Time Settlement amount- **Rs.5.00 Lakh** to Smt. Reshma Khatoon w/o Late Shri Rajjad Ali.
- **Employment to 1 member** through outsourcing based on qualification
- One Time Settlement amount- **Rs.5.00 Lakh** to Shri Jabbar Ali F/o Late Shri Rajjad Ali
- Lifelong **Monthly Sustenance Allowance** to Mother Julekhaa
- Begum W/O Jabbar Ali (49 Yrs) & Father Jabbar Ali S/O Inshaa Mohammad (52 Yrs) @Rs. 8275/- (EACH) (Revised every six month as per GoMP Minimum wage guidelines). Annual financial implication on today's rate= Rs. 8275x12X2 members= **Rs.198000/annum**
- Support for Cremation **Rs. 20000/-**
- Payment to be made to the nominees of worker under workmen
- compensation act (Amount deposited in Labour court) – **11.03 Lakhs**

Elaborated details of the compensation offered to families who lost their members are enclosed as **Annexure-18**.

b. Compensation for Cattle, Motor, pump, well, poultry farm etc.

Based on the survey of district administration, compensation was provided to affected villagers against their loss of livestock, motor, pump, water source, poultry farm etc. The details are as below:

- **Affected** villagers of 03 villages of Tehsil Singrauli as per SDM Singrauli Letter 165/SDO/RE-3/2020 dtd. 29.05.2020 - **INR 70.59 Lakhs**
- Affected villagers of 01 villages of Tehsil Mada as per SDM Mada Letter 541/SDO/RE-1/2020 dtd. 26.05.2020 - **INR 9.84 Lakhs**

Details of the compensation for Cattle, Motor, pump, well, poultry farm etc. are enclosed as **Annexure-19**.

c. House Damage, Crop Compensation, House hold items

About 566 sufferers of Sidhikala, Sidhikhurd, Harrahawa & Jhanjitola villages were recorded by the M/s Sasan Power Ltd. The details are as below:

Affected	Total Numbers	Details of affected persons, property etc.
Farmers	549	Siddhikala - 21 Sidhikhurd - 133 Harrahawa - 321 Jhanjitola - 74
House	14	House includes both Kaccha & pakka
Household items	03	-

Details of the compensation are as below:

- Support for Ration/Household damage to 11 families of Sidhi Khurd - **1.78 Lakhs**
- Compensation towards, house damage, crop, household materials (566 nos.) - **85.07 Lakhs**

Details of the compensation to House Damage, Crop Compensation, House hold items are enclosed as **Annexure-20**.

d. Medical Support to Injured (Nehru Hospital)

The insured persons were provided medical treatment to Nehru Hospital, Northern Coalfield (NCL), Jayant, Singrauli. Medical support of total Rs. 2.36 Lakhs was provided to Smt Reena Shah W/O Late Dinesh Shah and Golari Devi W/O Sh. Rambaran Shah. Details of the Medical Support to Injured (Nehru Hospital) are enclosed as **Annexure-21**.

e. Support for food to affected families

M/s Sasan Power Ltd extended support for food, maintenance of electric & civil work to affected families. The following expenditure was incurred by the unit:

Support for fooding to affected families through our canteen - **1.5 Lakhs**

Support for civil, electrical maintenance and ration to main family - **1.5 Lakhs**

f. Provision of drinking water to families and Cattle

Unit has made drinking water supply provisions in the affected area.

The details of work done and expenditure incurred are as below:

- Provision of 570 nos drums of 100 ltr capacity for cattle - 1.14 Lakhs
 - Installation of Hand-pump to families affected by accidents (8 nos) - 6.4 Lakhs
 - Drinking water supply through tanker - 0.45 Lakhs
- Details of the Provision of drinking water to families and Cattle are enclosed as **Annexure-22**.

vi. Interim compensation for the environmental damage

MPPCB vide letter dated 13.4.2020 directed M/s Sasan Power Ltd to deposit an amount of Rs 10 Crore towards interim environmental compensation. M/s Sasan Power Ltd has deposited only Rs. 2 Crore to the account of MPPCB (Member Secretary Environment Protection Fund) on 26.5.2020. Details of the Interim compensation for the environmental damage are enclosed as **Annexure-23**.

6. Action Taken by Ministry of Environment, forest & Climate Change (MoEF&CC)

MoEF&CC, New Delhi issued a Show Cause notice vide office order no. J13011/15/2006-IA-II (T) dated 21.05.2020 under Section 5 of Environment (Protection) Act, 1986. Project Proponent vide e-mail dated

04.06.2020 submitted a reply in response to the said show cause notice. **Subsequently, MoEF&CC, New Delhi vide letter dated 13.07.2020 requested the project proponent to provide the concrete action taken and or being taken by the company to achieve 100% fly ash utilization. Simultaneously, MPPCB has been requested to furnish action taken by the Board as well as the remedial measures taken by M/s. Sasan Power Ltd. Copies of the same are enclosed as Annexure-24.**

7. Specific observations of the joint committee

- i. Continuous flow of water contaminated with fly ash is seen flowing down the Hume pipe laid by the project proponent in the breach area, wherein the Project Proponent needs to take appropriate control measures to prevent the fly ash from reaching the Goiwahai drain and finally the Rihand river.
- ii. In spite of the efforts of the project proponent to remove fly ash from the Goiwahai drain, significant quantities of Fly ash between 1.5 to 2 Lacs Ton is seen spread on the banks of Goiwahai drain over a stretch of 6.5 km till its confluence with the Rihand River. Slower progress in fly ash removal due to constraints in resource mobilization due to covid-19 lockdown was noticed and the industry needs to expedite the fly ash recovery from the banks of Goiwahai drain.
- iii. **In spite of the financial aid /compensation paid by the company to the affected people, the grievances of some of the affected people are still to be addressed by the company in co-ordination with local authorities.**
- iv. The project proponent has engaged CSIR-NEERI to assess the cost of environmental restoration and IIT-BHU to assess the ash dyke stability study and others.

Google image of the site of the incidence and photographs taken during the field visit are enclosed as **Annexure- 25.**

8. Recommendations

1. To check the strength of the bunds created around the dykes/low lying areas quarterly and one time especially before the on-set of the monsoon through expert agencies of repute and to submit Action Taken Reports to regional offices of MPPCB, CPCB & MoEF&CC periodically.
2. To expedite the ash cleaning work from Goiwahai drain to ensure that the resultant environment contamination is minimized and resources should be channelized to complete the task within 1 month and

to submit Action Taken Reports to regional offices of MPPCB, CPCB & MoEF&CC on weekly basis.

3. *To take appropriate control measures to prevent the fly ash from reaching the Goiwahai drain and finally the Rihand River.*
4. *In spite of the financial aid / compensation paid by the company to the affected people, the grievances of some of the affected people near Tola Badi village, Harrahawa are still to be addressed by the company in co-ordination with local authorities. **The CSR cell of the company in co-ordination with the local administration shall set-up grievance redressal camps in each of the affected villages along the Goiwahai drain.***
5. *To obtain prior permission from MPPCB before any disposal of fly ash / bottom ash in the low lying areas and ensure disposal as per the CPCB guideline.*
6. *To expedite the studies to be undertaken by IIT-BHU to assess the impact of aquifers in the fly ash breach.*
7. *To expedite the environmental damage assessment studies with CSIR-NEERI so as to ensure the actual impact of fly ash breach on environment is assessed holistically.”*

12. The Project Proponents have filed their respective responses but the reports submitted have taken into account such responses and make recommendations which need to be accepted and acted upon, with further directions as per later part of this order. It is not necessary to make detailed reference to the same in view of facts independently found.

Consideration and Analysis of the Reports

13. We have heard learned Counsel for the appearing parties – the applicants, learned ASGs – Mr. Sanjay Jain and Mr. K.M Nataraj appearing for some of the TPPs and other learned Counsel for different PPs and statutory regulators. We have perused the reports and responses and given our deep consideration to the issue involved.

Points for determination

14. Points for determination are remedial action against pollution due to failure to scientifically manage and utilise the flyash, accountability for damage due to breach of Rihand reservoir and due to breach of ash pond, resulting in deaths and injuries and damage to the crops and environment. As already mentioned, legacy fly ash is 1670.602 Million Tonnes as on 31.12.2021 which has potential for serious damage to the environment as shown by incidents of dyke breaches contaminating sources of water and air pollution making industrial areas critically polluted. Air control devices are not installed in many TPPs. There are incidents of deaths, injuries and loss of flora and fauna.

15. We have considered the data furnished in the reports furnished in pursuance of earlier orders of this Tribunal dated 04.11.2020 in OA No. 117/2014, 14.07.2020 in OA No. 164/2018 and 29.6.2020 in OA No. 148/2020, including the recommendations for remedial action. The compliance status as projected in the reports of the Joint Committees/Oversight Committees shows huge gap in storing, handling, management and utilization of fly ash and consequential continuing damage to the environment and public health. Such huge gaps are patent from the recommendations part in the reports. Deficiencies noted in respect of some individual TPPs appear to be of representative nature and may exist in almost all TPPs, unless shown otherwise on the ground and not in the form of self-serving denial. In the light of the said recommendations, further remedial action needs to be taken to enforce the principle of sustainable development under section 20 of the NGT Act. The recommendations are reproduced below:

“M/s NTPC Limited Shakti Nagar Sonbhadra:

Recommendations of the Committee

- **The unit should immediately take required measures to stop the discharge of ash pond overflow into the Rihand reservoir.**
- **The unit may be asked to relocate the OCEMS in order to achieve the desired iso-kinetic sampling for particulate matter.**
- **The unit may be asked to complete the installation of the third CAAQMS at the earliest.**
- **The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.**
- **The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.**
- **The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.**
- **The unit may be asked to properly treat the MSW generated from their residential colony.**
- **The unit shall take immediate measures to control fugitive emission in ash dyke area.**

Further, the committee recommends for imposing environmental compensation (EC) of Rs 27,60,000/- for discharging ash pond overflow water into the Rihand reservoir.

M/s NTPC Limited Rihand Super Thermal Power (Power Plant)

Recommendations of the Committee

1. **The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.**
2. **The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.**
3. **The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.**

M/s Anpara Thermal Power Plant (Power Plant)

Recommendations of the Committee

- **The unit may be asked to install flow meters to measure the amount of ash slurry discharged into the ash pond and the amount of water recovered and recycled from it.**

- ***The unit may be asked to trap the discharge of wastewater containing ash into the Rihand reservoir through the drain at power house area.***
- ***The unit may be asked to furnish explanation regarding not achieving ZLD in ETP & STP and also can be asked to submit a time-bound action plan for achieving ZLD.***
- ***The unit may be asked to ensure complete restoration activity by removing deposited fly ash on the surface of the Rihand reservoir near the ash pond overflow lagoon area in time-bound manner.***
- ***The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.***
- ***The unit may be asked to make such a provision that the surface runoff water from the surrounding area does not reach the ash dyke.***
- ***The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.***

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for not complying the condition of ZLD for ETP & STP.

M/s Anpara 'C' Lanco Thermal Power Station

Recommendations of the Committee

- ***The unit should immediately take corrective action to avoid any kind of accident in pipeline carrying ash slurry near the Dibulganj area.***
- ***The unit may be asked to install flow meters to measure the amount of ash slurry discharged into the ash pond and the amount of water recovered and recycled from it.***
- ***The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.***
- ***The unit may be asked to submit a time-bound action plan for the installation of the 3rd CAAQMS.***
- ***The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.***
- ***The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.***

M/s Renusagar Thermal Power Plant

Recommendations of the Committee

- ***The unit can be asked to complete the installation of proper sludge drying beds in the existing ETP at the earliest.***
- ***The unit may be asked to relocate the OCEMS in order to achieve the desired iso-kinetic sampling for particulate matter.***
- ***The unit can again be asked to submit time bound action plan to relocate the existing CAAQMS for ensuring representative ambient air quality monitoring as per the guideline and also complete the installation of another 02 CAAQMS.***
- ***The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.***
- ***The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.***
- ***The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.***
- ***The unit should immediately stop the burning of the MSW. And they can be asked to adopt proper scientific approach for disposal of MSW.***
- ***The unit can be asked to take corrective measures to control the fugitive emissions from raw material storage and fly ash transportation areas.***
- ***The unit can be asked to submit explanation for dumping the fly ash in haphazard manner. They should take immediate action for its proper disposal.***

Further, the committee recommends for imposing environmental compensation (EC) of Rs 27,60,000/- as the unit was causing the air pollution through burning of MSW and inadequate measures taken to control the fugitive emissions from raw material handling and fly ash transportation areas.

M/s Obra Thermal Power Station (Power Plant)

Recommendations of the Committee

- ***The unit should immediately take action to trap the continuous flow of ash slurry from powerhouse and ash pond overflow water carrying ash into the river Renu.***
- ***Further, the unit can be directed to restore the river bed areas on which a huge deposition of***

ash is visible. The restoration activity should be completed in time-bound manner.

- *The unit should treat all the industrial effluent generated and in no case the untreated effluent shall be discharged into the river Renu.*
- *The unit may be asked to install an effluent collection and conveyance system for ETP & STP at the earliest.*
- *The unit may be asked to ensure that the CAAQMS is connected to the CPCB/SPCB server at the earliest.*
- *The unit may be asked to submit a time-bound action plan for 100% fly ash utilization at the earliest.*
- *The process of installation and commissioning of the FGD system needs to be expedited in realization of the revised timeline.*
- *The unit can be asked to adopt the scientific approach for treatment and disposal of MSW.*
- *The unit can be asked to install the flow meters for measuring amount of ash slurry discharged and water recycled through AWRS. The unit can also be asked to install flow meters for measurement of amount of wastewater treated through the ETP and STP*

Irrespective of the observations and recommendation of the committee regarding discharge of ash water into the River Renu, the unit has not taken any initiative for its control. Huge quantity of fly ash being discharged into River every quarter. However, the lenient approach of the management not been changed.

Hence, committee has recommended to fix the personal responsibility of the officers seating at management level for causing such a environmental damage.

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 01,36,80,000/- for discharging untreated wastewater and ash slurry into River Renu.

Coal Mines of M/s Northern Coalfields Limited (NCL)

1. NCL Dudhichuwa Project, Sonbhadra

Recommendations of the Committee

- *The unit should ensure regular operations of ETP and proper utilization of the treated effluent to achieve zero discharge.*

- *The coal mine should ensure that no treated/untreated effluent will be discharged into the Balia Nalla which finally meets the Rihand reservoir.*
- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for constantly discharging untreated effluent into the Balia Nalla.

2. NCL Bina Project, Bina, Sonbhadra

Recommendations of the Committee

- *The unit can be asked to submit timebound action plan for controlling the fire in the coal stock yard.*
- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*

- *The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.*

3. NCL Krishna Shila Project

Recommendations of the Committee

- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*

4. M/s NCL Kakri Project, Sonbhadra

Recommendations of the Committee

- *The coal mine should ensure that no treated or untreated effluent will be discharged into the Rihand reservoir through the drain.*
- *The coal mine should immediately trap seepage in the drain at mine water collection sump.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to explore the possibility to monitor the status of fugitive emissions through the existing CCTV network provided for monitoring of production activities.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the*

provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.

- *The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 27,60,000/- for discharging untreated/treated effluent into the Rihand Reservoir.

5. NCL Khadia Project Sonbhadra

Recommendations of the Committee

- *The unit should ensure continuous operations of ETP. The unit should trap all the bypasses and should ensure that no treated/untreated effluent will be discharged in to the environment.*
- *The unit can be asked to ensure the proper and regular operation of the water spraying system for effective control of fugitive dust emissions.*
- *The unit can be asked to strengthen the vigilance mechanism to identify the default transporters and take stringent action against them.*
- *The unit can be asked to provide effective tyre washing facility for transport vehicles.*
- *The unit can be asked to ensure proper treatment and disposal of MSW generated in their residential colony.*
- *The unit can again be asked to submit the time-bound action plan for compliance with the provision of the Notification of 2009 regarding utilization of 25% fly ash along with Over Burden (OB) for back-filling the abandoned mine.*
- *The unit can be asked to take corrective action so that the site of CAAQMS could be open from all the direction.*

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 27,60,000/- for discharging untreated/treated effluent into the Rihand Reservoir.

Aluminum Smelter: M/s HINDALCO Industries Ltd, Renukoot, Sonbhadra

Recommendations of the Committee

- *The unit should immediately take corrective measures to achieve the ZLD. In no case, they should discharge treated or untreated effluent/sewage in the surrounding environment.*

- **The unit should immediately ensure environment friendly disposal for the huge quantity of bottom ash stored in open inside the plant premises.**
- **UPPCB can initiate stringent action against the unit for storing a huge quantity of bottom ash in open and also impose the appropriate applicable environmental compensation for the same.**
- **The unit should ensure the proper treatment and disposal of the MSW.**
- **The unit should immediately take corrective measures to control the fugitive emission effectively.**

Further, the committee recommends for imposing environmental compensation (EC) of Rs. 1,36,80,000/- for not achieving the prescribed ZLD condition and discharging untreated sewage into the environment. Though the unit is not complying the said condition for last 11 years the calculated environmental compensation is only for the limited period of violation (i.e., from 01.08.2020 to 31.10.2021).

**M/s Grasim Industries Limited Chemical Division,
Renukoot, Sonbhadra**

Recommendations of the Committee

- **The unit should be asked to submit the clarification regarding the discharge of chemically contaminated effluent into the drain. Based on the reply from the unit a suitable environmental compensation can imposed for the said non-compliance.**
- **The unit should ensure environment friendly disposal of all the brine sludge stored in open pit. The UPPCB need to initiate a required action so that the said Hazardous Waste can be disposed of in environmentally sound manner.**
- **The unit should complete the remediation activities in the timebound manner of the area wherein the ash has been dumped.**
- **The unit can be asked to prepare and execute an action plan to shift the mercury bearing brine sludge and the muck contaminated with chlorinated chemicals from the factory premises to the TSDF in consultation with the UP-state Pollution Control Board.**

Further, the committee is in view that an appropriate environmental compensation (EC) for the reported non-compliance can be imposed. If Hon'ble NGT agrees to the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

M/s Birla Carbon India Pvt Ltd, Renukoot, Sonbhadra

Recommendations of the Committee

- **The unit should keep strict vigilance on the area from where the effluent was earlier reaching outside the plant boundary.**

Stone Crusher

Recommendations of the Committee

- **Considering the status of huge dust emission in the area wherein this stone cluster is situated the committee recommends that the UPPCB should initiate stringent action against the defaulter units.**
- **In-addition, continuous monitoring through drone camera survey needs to be initiated on priority for ensuring the monitoring and identification of the defaulters.**
- **At least one CAAQMS has to be installed in the area for continuous monitoring of the Ambient Air. The capital and operational cost can be recovered from the stone crusher units on 'Polluters Pay Principle'. Till such time CAAQM is established and made operational, periodic manual monitoring of AAQ be initiated by UPPCB to have representative status.**
- **As there is no improvement found in the status of the air pollution, the committee has recommended that the district administration and UPPCB should explore the option of closure and relocation on a priority.**

A. Thermal Power Plants (TPPs) & Industries

B. Coal Mines of M/s Northern Coalfields Limited (NCL)

C. Stone Crushers

Recommendations

1. **Majority of the Thermal Power Plants (TPPs)/industries located in Sonbhadra district of UP are not utilizing/ disposing 100% fly ash as per the CPCB guidelines. From the aforementioned progress report, it appears that these TPPs/industries have taken certain measures but their adequacy for 100 % utilization/ disposal of fly ash cannot be ascertained for want of relevant information not forthcoming from these TPPs/industries in spite of repeated reminders. The TPPs/industries may be directed to submit its action plan along with quarterly progress report to the Oversight Committee**

for purposeful and objective monitoring and rendering effective assistance to the Hon'ble NGT.

- 2. As per the direction of the Hon'ble NGT, the CPCB was required to notify the list of abandoned mines/quarries for being used by the TPPs/industries but from the information received from these TPPs/industries, it appears that no such list has been notified by the CPCB as yet. The CPCB may be directed to notify the same at the earliest.*
- 3. The filling of abandoned coal mines and stone quarries is a key avenue for ash disposal, but there is a substantial delay in processing the requests of the TPPs/industries owing to the necessary conditions of repeated inspections, studies and approvals by different authorities which take a very long time. There is an urgent need to simplify this procedure. For this purpose, a Committee may be constituted under the Chairpersonship of the District Magistrates and all the district level officers of concerned departments as well as Heads of the stakeholder units as members, who should deliberate on this issue and submit its report to the respective departmental heads in the State and the Central Government for revision of the procedure. All the guidelines should be oriented towards giving single-window clearance in a time-bound manner from the district level.*
- 4. The quarterly progress report of the Joint Committee comprising of the MOEF&CC, CPCB, IIT Roorkee and any other member considered necessary for enhanced utilization of fly ash in various sectors viz., mines, roads, cement, industries and bricks etc. along with its implementation status may be shared with the State and District Level Committees and all stakeholders as well as the Oversight Committee for increasing awareness about the possible alternative uses of flyash.*
- 5. The UPPCB had imposed Environmental Compensation (EC) on the TPPs/industries erring in achieving 100% fly ash utilization for the year 2019-2020. But no information has been provided about any such action being taken by the UPPCB against the continued violation of the Environment Protection (EP) Act and related rules/guidelines by the TPPs/industries. It is pertinent to mention that the Hon'ble Supreme Court has stayed the realization of EC but not granted them immunity from continued violation of the law. Therefore, the UPPCB may be directed to discharge their statutory responsibility in its letter and spirit until these TPPs/industries fully comply with the Environmental*

Laws in respect of 100% utilization/disposal of fly ash.

- 6. The TPPs/industries may be directed to share their action plan for protecting the environment as approved by the CPCB to the Oversight Committee along with the quarterly progress report for ensuring timely implementation of the same with a view to save the environment from further deterioration and provide a dignified healthy living to the local people.**
- 7. Online Continuous Emission Monitoring System (OCEMS) and Continuous Ambient Air Quality Monitoring Stations (CAAQMS) have been installed and linked with the CPCB server by all the TPPs/industries for continuous online data transmission to determine the source emissions and effluent discharge. The UPPCB may be directed to submit a monthly analysis report of the air and water quality to the Oversight Committee to facilitate monitoring of the action plan as well as their correlation with the impact on the environment.**
- 8. It was noticed earlier that a natural drain (Morcha Nala) is discharging a huge amount of water into the ash pond at Anpara TPP, which was directed by the Hon'ble NGT to be diverted by the Irrigation Department, UP. After a meeting held under the chairmanship of the Additional Chief Secretary, Department of Irrigation and Water Resource, Govt of UP, a decision has been taken not to divert the Nala but to up-grade the ash dyke. Accordingly, steps have been reported to be taken by the Anpara TPP. In this regard, the UPPCB may be directed to monitor the situation on the ground and send a report to this Committee within three months.**
- 9. As per the compliance report received from the TPPs/industries, Anpara, Obra and Hindalco Industries (Renukoot and Renusagar) are not maintaining Zero Liquid Discharge (ZLD). The UPPCB may be directed to levy EC on them till they achieve ZLD.**
- 10. There is a cluster of 350 stone crusher units in Sonbhadra out of which 279 are operational. In operational stone crushers, closed metal sheet enclosures are installed at all dust emitting points and a water sprinkling system is also installed for dust suppression. However, it is observed that the environment is very dusty and hazy in the area where stone crushers are situated. This indicates that several stone crushers are not operating the water sprinkling system and air pollution control systems effectively. The District Level Committee may be directed to take note of the prevailing**

situation and take effective remedial steps within the ambit of environment laws.

- 11. The Hydrographic/capacity survey and stability study of the Rihand reservoir, which is a source of water including drinking water to the entire area, is pending for a very long time. As a result, the restoration work has not begun as yet. The Additional Chief Secretary, Irrigation Department, Govt. of UP may be directed to expedite the study by making it a regular agenda point in his monthly meeting relating to environmental issues.”*

8. Recommendations

- 1. To check the strength of the bunds created around the dykes/low lying areas quarterly and one time especially before the on-set of the monsoon through expert agencies of repute and to submit Action Taken Reports to regional offices of MPPCB, CPCB & MoEF&CC periodically.*
- 2. To expedite the ash cleaning work from Goiwahai drain to ensure that the resultant environment contamination is minimized and resources should be channelized to complete the task within 1 month and to submit Action Taken Reports to regional offices of MPPCB, CPCB & MoEF&CC on weekly basis.*
- 3. To take appropriate control measures to prevent the fly ash from reaching the Goiwahai drain and finally the Rihand River.*
- 4. In spite of the financial aid /compensation paid by the company to the affected people, the grievances of some of the affected people near Tola Badi village, Harrahawa are still to be addressed by the company in co-ordination with local authorities. The CSR cell of the company in co-ordination with the local administration shall set-up grievance redressal camps in each of the affected villages along the Goiwahai drain.*
- 5. To obtain prior permission from MPPCB before any disposal of fly ash / bottom ash in the low lying areas and ensure disposal as per the CPCB guideline.*
- 6. To expedite the studies to be undertaken by IIT-BHU to assess the impact of aquifers in the fly ash breach.*
- 7. To expedite the environmental damage assessment studies with CSIR-NEERI so as to ensure the actual impact of fly ash breach on environment is assessed holistically.”*

Conclusions and Way forward:

16. From the above, it is seen that there is a long way to go for protecting environment and public health. The failures of the TPPs are alarming. We find no reason not to accept all the recommendations and to direct remedial action. Thus, all recommendations are accepted and further remedial action is directed to be taken by the statutory regulators which also be overseen by the joint Committees of CPCB, State PCB and the jurisdictional District Magistrates, with CPCB and State PCBs being nodal agencies. Quarterly reports may now be filed with the MoEF&CC to be considered by the Coordinating Committee being hereby constituted.

Compensation for past violations, including breach of Rihand reservoir and flyash pond of Sasan Power:

17. With regard to past violations generally, we leave the issue of compensation determination to the joint Committees of CPCB, State 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.

Compliance of recommendations of the Committees and road map for Future:

18. In the light of alarming situation found on verification of the ground situation, it is clear that serious violations are continuing in failure to prevent air and water pollution by the TPPs. Requisite air pollution control

devices (FGD) are not being installed, CAQMS are not being installed at proper locations and connected to CPCB server, huge accumulated flyash is not being utilised nor scientifically stored, the ponds/dykes are not properly maintained resulting in polluting water sources, air and land, apart from adverse health effects and damage to the flora and fauna. Singrauli and Sonebhadra industrial areas prominently figure in the CEPI index prepared by CPCB in respect of polluted industrial areas. This Tribunal has already issued directions to take remedial measures in respect of such areas to achieve the laid down norms for air, water and soil in OA No. 1038/2018, *News item published in "The Asian Age" Authored by Sanjay Kaw Titled "CPCB to rank industrial units on pollution levels"*. Though the appeals are pending before the Hon'ble Supreme Court against some of the directions, consistent with the interim orders of the Hon'ble Supreme Court, steps need to be taken to enforce environmental norms in the said areas. The said directions be complied and the statutory regulators may maintain constant vigil against any violations. Further, as responsible corporate organizations, the PPs need to discharge corporate social responsibility to honour dignity of human life and the environment. Bottlenecks in remedying the situation of not utilising accumulated flyash need to be tackled on war footing. Concerted and coordinated joint efforts by the PPs and the statutory regulators at highest levels are required. The process in which fly ash can be utilized include backfilling of mines, construction of roads, brick kilns and cement companies. It is stated during the hearing that the TPP may be prepared to provide fly ash to the brick kilns but the unresolved issue is of transportation. Such issue is not unsurmountable and can be resolved by coordination with brick kiln owners association and other stake holders. Suggested to permit brick making at or close to the site of storage of fly ash may need consideration.

There is need to lay down 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. There is also need to undertake public health and risk impact assessment in the areas of operation of TPPs and generators of fly ash. Another obstacle pointed out is advisory issued by the Ministry of Power dated 22.9.2021 that instead of being given free, flyash should be sold which is not viable as there are no buyers perpetuating storage to the detriment of environment and public health and cost. Not only such advisory is unmindful of disastrous consequences, it is also against recent statutory notification of MoEF&CC dated 31.12.2021. We find it to be so and direct that being detrimental to environment, the same will not be enforced. In compelling circumstances, to protect environment, we find it necessary to constitute a high-level Coordination Committee in exercise of our powers under section 15 of the NGT Act to be called the 'Flyash Management and Utilization Mission'. Details follow in later part of the order.

Notification dated 31.12.2021 issued by the MoEF&CC extending time for utilisation of flyash:

19. The TPPs have referred to notification dated 31.12.2021 extending timeline for utilisation of legacy flyash for 10 years, subject to scientific management and subject to 100% utilisation 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 quoted below:

“S.O. 5481(E).—Whereas by notification of the Government of India in the erstwhile Ministry of Environment and Forests vide S.O.763 (E), dated the 14th September, 1999, as amended from time to time, the Central Government, issued directions for restricting the excavation of top soil for manufacturing of bricks and promoting the utilisation of fly ash in the manufacturing of building materials and in construction activity within a specified radius of three hundred kilometres from the coal or lignite based thermal power plants;

And whereas, to implement the aforesaid notification more effectively based on the polluter pays principle (PPP) thereby ensuring 100 per cent utilisation of fly ash by the coal or lignite based thermal power plants and for the sustainability of the fly ash management system, the Central Government reviewed the existing notification; and whereas environmental compensation needs to be introduced based on the polluter pays principle;

And whereas, there is a need to conserve top soil by promoting manufacture and mandating use of ash based products and building materials in the construction sector;

And whereas, there is a need to conserve top soil and natural resources by promoting utilisation of ash in road laying, road and flyover embankments, shoreline protection measures, low lying areas of approved projects, backfilling of mines, as an alternative for filling of earthen materials;

And whereas, it is necessary to protect the environment and prevent the dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land;

And whereas, in the said notification the phrase 'ash', has been used which includes both fly ash as well as bottom ash generated from the Coal or Lignite based thermal power plants;

And whereas, the Central Government intends to bring out a comprehensive framework for ash utilisation including system of environmental compensation based on polluter pays principle;

And whereas, a draft notification on ash utilisation by coal or lignite thermal power plants in supersession of the notification of the Government of India, Ministry of Environment and Forests published in the Gazette of India, Extra Ordinary part II, section 3, sub-section (i) vide S.O.763 (E), dated the 14th September, 1999, by notification in exercise of the powers conferred under sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule (5) of the Environment (Protection) Rules, 1986, was published in the Gazette of India, Extraordinary, Part II, section 3, sub-section (i), vide G.S.R. 285(E), dated the 22nd April, 2021 inviting objections and suggestions from all persons likely to be affected thereby before the expiry of sixty days from the date on which copies of the Gazette containing the said draft provisions were made available to the public;

And, whereas all the objections and suggestions received from all persons likely to be affected thereby in respect of the said draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with clause (d) of sub-rule (3) of rule (5) of the Environment (Protection) Rules, 1986, and in supersession of the Notification S.O.763 (E), dated the 14th September, 1999 except as respect things done or omitted to be done before such supersession, the Central Government hereby issues the following notification on ash utilisation from coal or lignite thermal power plants which shall come into force on the date of the publication of this notification, namely:-

A. Responsibilities of thermal power plants to dispose fly ash and bottom ash.-

(1) Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilisation of ash (fly ash, and

bottom ash) generated by it in an eco-friendly manner as given in sub-paragraph (2);

(2) The ash generated from coal or lignite based thermal power plants shall be utilised only for the following eco-friendly purposes, namely:-

- (i) Fly ash based products viz. bricks, blocks, tiles, fibre cement sheets, pipes, boards, panels;
- (ii) Cement manufacturing, ready mix concrete;
- (iii) Construction of road and fly over embankment, Ash and Geo-polymer based construction material;
- (iv) Construction of dam;
- (v) Filling up of low lying area;
- (vi) Filling of mine voids;
- (vii) Manufacturing of sintered or cold bonded ash aggregate;
- (viii) Agriculture in a controlled manner based on soil testing;
- (ix) Construction of shoreline protection structures in coastal districts;
- (x) Export of ash to other countries;
- (xi) Any other eco-friendly purpose as notified from time to time.

(3) A committee shall be constituted under the chairmanship of Chairman, Central Pollution Control Board (CPCB) and having representatives from Ministry of Environment, Forest and Climate Change (MoEFCC), Ministry of Power, Ministry of Mines, Ministry of Coal, Ministry of Road Transport and Highways, Department of Agricultural Research and Education, Institute of Road Congress, National Council for Cement and Building Materials, to examine and review and recommend the eco-friendly ways of utilisation of ash and make inclusion or exclusion or modification in the list of such ways as mentioned in Subparagraph (2) based on technological developments and requests received from stakeholders. The committee may invite State Pollution Control Board or Pollution Control Committee, operators of thermal power plants and mines, cement plants and other stakeholders as and when required for this purpose. Based on the recommendations of the Committee, Ministry of Environment, Forest and Climate Change (MoEFCC) may publish such eco-friendly purpose.

(4) Every coal or lignite based thermal power plant shall be responsible to utilise 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilisation fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilisation of 100 per cent in a three years cycle:

Utilisation percentages of thermal power plants	First compliance Cycle to meet 100 per cent utilisation	Second compliance cycle onwards, to meet 100 per cent utilisation
>80 per cent	3 years	3 years

60-80 per cent	4 years	3 years
<60 per cent	5 years	3 years

Provided that the three years cycle applicable for the first time is extendable by one year for the thermal power plants where ash utilisation is in the range of 60-80 per cent, and two years where ash utilisation is below 60 per cent and for the purpose of calculation of percentage of ash utilisation, the percentage quantity of utilisation in the year 2021- 2022 shall be taken into account as per the table below:

Provided further that the minimum utilisation percentage of 80 per cent shall not be applicable to the first year and first two years of the first compliance cycle for the thermal power plants under the utilisation category of 60-80 per cent and

Provided also that 20per cent of ash generated in the final year of compliance cycle may be carried forward to the next cycle which shall be utilised in the next three years cycle along with the ash generated during that cycle.

(5) The unutilised accumulated ash i.e. legacy ash, which is stored before the publication of this notification, shall be utilised progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilisation targets prescribed for ash generation through current operations of that particular year:

Provided that the minimum quantity of legacy ash in percentages as mentioned below shall be utilised during the corresponding year and the minimum quantity of legacy ash is to be calculated based on the annual ash generation as per installed capacity of thermal power plant.

Year from date of publication	1 st	2 nd	3 rd - 10 th
Utilisation of legacy ash (in percentage of Annual ash)	At least 20 per cent	At least 35 per cent	At least 50 per cent

Provided further that the legacy ash utilisation shall not be required where ash pond or dyke has stabilised and the reclamation has taken place with greenbelt or plantation and the concerned State Pollution Control Board shall certify in this regard. Stabilisation and reclamation of an ash pond or dyke including certification by the Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall be carried out within a year from the date of publication of this notification. The ash remaining in all other ash ponds or dykes shall be utilised in progressive manner as per the above mentioned timelines.

Note: The obligations under sub-paragraph (4) and (5) above for achieving the ash utilisation targets shall be applicable from 1st April, 2022.

(6) Any new as well as operational thermal power plant may be permitted an emergency or temporary ash pond with an area of 0.1 hectare per Mega Watt (MW). Technical specifications of ash ponds or dykes shall be as per the guidelines of Central Pollution Control Board (CPCB) made in consultation with Central Electricity Authority (CEA) and these guidelines shall also lay down a procedure for annual certification of the ash pond or dyke on its safety, environmental pollution, available volume, mode of disposal, water consumption or conservation in disposal, ash water recycling and greenbelt, etc., and shall be put in place within three months from the date of publication of this notification.

(7) Every coal or lignite based thermal power plant shall ensure that loading, unloading, transport, storage and disposal of ash is done in an environmentally sound manner and that all precautions to prevent air and water pollution are taken and status in this regard shall be reported to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in Annexure attached to this notification.

(8) Every coal or lignite based thermal power plant shall install dedicated silos for storage of dry fly ash silos for at least sixteen hours of ash based on installed capacity and it shall be reported upon to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) in the Annexure and shall be inspected by Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) from time to time.

(9) Every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall provide real time data on daily basis of availability of ash with Thermal Power Plant (TPP), by providing link to Central Pollution Control Board's web portal or mobile phone App for the benefit of actual user(s).

(10) Statutory obligation of 100 per cent utilisation of ash shall be treated as a change in law, wherever applicable.

B. For the purpose of utilisation of ash, the subsequent sub-paras shall apply.—

(1) All agencies (Government, Semi-government and Private) engaged in construction activities such as road laying, road and flyover embankments, shoreline protection structures in coastal districts and dams within 300 kms from the lignite or coal based thermal power plants shall mandatorily utilise ash in these activities:

Provided that it is delivered at the project site free of cost and transportation cost is borne by such coal or lignite based thermal power plants.

Provided further that thermal power plant may charge for ash cost and transportation as per mutually agreed terms, in case thermal power plant is able to dispose the ash through other means and those agencies makes a request for it and the provisions of ash free of cost and free transportation shall be applicable, if thermal power plant serves a notice on the construction agency for the same.

(2) The utilisation of ash in the said activities shall be carried out in accordance with specifications and guidelines laid down by the Bureau of Indian Standards, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government Agencies.

(3) It shall be obligatory on all mines located within 300 kilometres radius of thermal power plant, to undertake backfilling of ash in mine voids or mixing of ash with external Overburden dumps, under Extended Producer Responsibility (EPR). All mine owners or operators (Government, Public and Private Sector) within three hundred kilometres (by road) from coal or lignite based thermal power plants, shall undertake measures to mix at least 25 per cent of ash on weight to weight basis of the materials used for external dump of overburden, backfilling or stowing of mine (running or abandoned as the case may be) as per the guidelines of the Director General of Mines Safety (DGMS):

Provided that such thermal power stations shall facilitate the availability of required quantity of ash by delivering ash free of cost and bearing the cost of transportation or cost or transportation arrangement decided on mutually agreed terms and mixing of ash with overburden in mine voids and dumps shall be applicable for the overburden generated from the date of publication of this notification and the utilisation of ash in the said activities shall be carried out in accordance with guidelines laid down by the Central Pollution Control Board, Director General of Mines Safety and Indian Bureau of Mines.

Explanation.- For the purpose of this sub-paragraph, it is also clarified that the provisions of ash free of cost and free transportation shall be applicable, if thermal power plants serve a notice on the mine owner for the same and the mandate of using 25 per cent of ash for mixing with overburden dump and filling up of mine voids shall not be applicable unless a notice is served on the mine owner by thermal power plant.

(4) (i) All mine owners shall get mine closure plans (progressive and final) to accommodate ash in the mine voids and the concerned authority shall approve mine plans for disposal of

ash in mine voids and mixing of ash with overburden dumps. The Ministry of Environment, Forest and Climate Change (MoEFCC) has issued guidelines on 28th August, 2019 regarding exemption of requirement of Environmental Clearance of thermal power plants and coal mines along with the guidelines to be followed for such disposal.

(ii) The Ministry in consultation with Central Pollution Control Board (CPCB), Director General of Mine Safety (DGMS) and Indian Bureau of Mines (IBM) may issue further guidelines time to time to facilitate ash disposal in mine voids and mixing with overburden dumps and it shall be the responsibility of mine owners to get the necessary amendments or modifications in the permissions issued by various regulatory authorities within one year from the date of identification of such mines.

(5) (i) There shall be a committee headed by Chairperson, Central Pollution Control Board (CPCB) with representatives from Ministry of Environment, Forest and Climate Change, Ministry of Power, Ministry of Mines, Ministry of Coal, Director General of Mine Safety and Indian Bureau of Mines for identification of mines for backfilling of mine voids with ash or mixing of ash with overburden dump including examination of safety, feasibility (not economic feasibility) and aspects of environmental contamination and the committee shall get updated quarterly reports prepared regarding identified mines (both underground and opencast) for the stakeholder Ministries or Departments and the committee shall start identifying the suitable mines immediately after the publication of this notification.

(ii) Thermal power plants or mines shall not wait for disposal of ash till the identification is done by the above mentioned committee, to meet the utilisation targets mandated as above.

(6) Filling of low lying areas with ash shall be carried out with prior permission of the State Pollution Control Board or Pollution Control Committee for approved projects, and in accordance with guidelines laid down by Central Pollution Control Board (CPCB) and the State Pollution Control Board or Pollution Control Committee (PCC) shall publish approved sites, location, area and permitted quantity annually on its website.

(7) Central Pollution Control Board after engaging relevant stakeholders, shall put in place the guidelines within one year for all types of activities envisaged under this notification including putting in place time bound online application process for the grant permission by State Pollution Control Boards (SPCBs) or Pollution Control Committees (PCCs).

(8) All building construction projects (Central, State and Local authorities, Govt. undertakings, other Govt. agencies and all

private agencies) located within a radius of three hundred kilometres from a coal or lignite based thermal power plant shall use ash bricks, tiles, sintered ash aggregate or other ash based products, provided these are made available at prices not higher than the price of alternative products.

(9) Manufacturing of ash based products and use of ash in such products shall be in accordance with specifications and guidelines laid down by the Bureau of Indian Standards, Indian Road Congress, and Central Pollution Control Board.

C. Environmental compensation for non-compliance-

(1) In the first two years of a three years cycle, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved at least 80 per cent ash (fly ash and bottom ash) utilisation, then such non-compliant thermal power plants shall be imposed with an environmental compensation of Rs. 1000 per ton on unutilised ash during the end of financial year based on the annual reports submitted and if it is unable to utilise 100 per cent of ash in the third year of the three years cycle, it shall be liable to pay an environmental compensation of Rs. 1000 per ton on the unutilised quantity on which environmental compensation has not been imposed earlier:

Provided that the environmental compensation shall be estimated and imposed at the end of last year of the first compliance cycle as per the various utilisation categories as mentioned in sub-paragraph (4) of Para A.

(2) Environmental compensation collected by the authorities shall be deposited in the designated account of Central Pollution Control Board.

(3) In case of legacy ash, if the coal or lignite based thermal power plant (including captive or co-generating stations or both) has not achieved utilisation equivalent to at least 20 per cent (for the first year), 35 per cent (for the second year), 50 per cent (for third to tenth year) of ash generated based on installed capacity, an environmental compensation of Rs. 1000 per ton of unutilised legacy ash during that financial year shall be imposed and if the utilization of legacy ash is not completed at the end of 10 years, an environmental compensation of Rs.1000 per ton shall be imposed on the remaining unutilised quantity which has not been imposed earlier.

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

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

(6) If the user agencies do not utilise ash to the extent obligated under para B or the extent to which they have been intimated through Notice(s) served under sub-paragraph (1) of para D, whichever is lower, they shall be liable to pay Rs. 1500 per ton of ash for the quantity they fall short off:

Provided that the environmental compensation on building constructions shall be levied at Rs.75/- per square feet of built up area of construction.

(7) (i) The environmental compensation collected by Central Pollution Control Board from the thermal power plants and other defaulters shall be used towards the safe disposal of the unutilised ash and the fund may also be utilised for advancing research on use of ash including ash based products.

(ii) The liability of ash utilisation shall be with thermal power plants even after imposition of environmental compensation on unutilised quantities and in case thermal power plant achieves the ash utilisation of any particular cycle after imposition of environmental compensation in subsequent cycles, the said amount shall be returned to thermal power plant after deducting 10 per cent of the environmental compensation collected on the unutilised quantity during the next cycle and deduction of 20 per cent, 30 per cent, and so on, of the environmental compensation collected is to be made in case of utilisation of ash in subsequent cycles.

D. Procedure for supply of ash or ash based products.—

(1) The owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate shall serve written notice to persons or agencies who are liable to utilise ash or ash based products, offering for sale, or transport or both.

(2) Persons or user agencies who have been served notices by owner of thermal power plants or manufacturers of ash bricks or tiles or sintered ash aggregate, if they have already tied up with other agencies for the purpose of utilisation of ash or ash products, shall inform the thermal power plant accordingly, if they cannot use any ash or ash products or use reduced quantity.

E. Enforcement, Monitoring, Audit and Reporting.—

(1) The Central Pollution Control Board (CPCB) and the concerned State Pollution Control Board (SPCB) or Pollution

Control Committee (PCC) shall be the enforcing and monitoring authority for ensuring compliance of the provisions and shall monitor the utilisation of ash on quarterly basis. Central Pollution Control Board shall develop a portal for the purpose within six months of date of publication of the notification. The concerned District Magistrate shall have concurrent jurisdiction for enforcement and monitoring of the provisions of this notification.

(2) (i) Thermal power plants shall upload monthly information regarding ash generation and utilisation by 5th of the next month on the web portal. Annual implementation report (for the period 1st April to 31st March) providing information about the compliance of provisions in this notification shall be submitted by the 30th day of April, every year to the Central Pollution Control Board, concerned State Pollution Control Board or Pollution Control Committee (PCC), Central Electricity Authority (CEA), and concerned Integrated Regional Office of Ministry of Environment, Forest and Climate Change by the coal or lignite based thermal power plants. Central Pollution Control Board and Central Electricity Authority shall compile the annual reports submitted by all the thermal power plants and submit to Ministry of Environment, Forest and Climate Change by 31st May.

(ii) All other user agencies shall submit consumption or utilisation or disposal of ash and use of ash based products as mandated in this notification in the compliance report of Environmental Clearance (EC) issued by Ministry of Environment, Forest and Climate Change or State Level Environment Impact Assessment Authority (SEIAA) or Consent to Operate (CTO) issued by State Pollution Control Board (SPCB) or Pollution Control Committee (PCC), whichever is applicable. The Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall publish annual report of ash utilisation of all other agencies except thermal power plants to review the effective implementation of the provisions of the notification.

(3) For the purpose of monitoring the implementation of the provisions of this notification, a committee shall be constituted under the Chairperson, Central Pollution Control Board (CPCB), with members from Ministry of Power, Ministry of Coal, Ministry of Mines, Ministry of Environment, Forest and Climate Change, Ministry Road Transportation and Highways, Department of Heavy Industry as well as any concerned stakeholder(s), to be nominated by the Chairman of the committee. The committee may make recommendations for effective and efficient implementation of the provisions of the notification. The committee shall meet at least once in six months and review annual implementation reports and the committee shall also hold stakeholder consultations for monitoring of ash utilisation as mandated by this notification by inviting relevant stakeholder(s) at least once in six months.

The committee shall submit the six monthly report to Ministry of Environment, Forest and Climate Change (MoEFCC).

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

(5) The compliance audit for ash disposal by the thermal power plants and the user agency shall be conducted by auditors, authorised by Central Pollution Control Board (CPCB) and audit report shall be submitted to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) by 30th November every year. Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall initiate action against non-compliant thermal power plants within fifteen days of receipt of audit report.”

Directions:

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 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 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

<i>No. of Thermal Power Stations</i>	: 191
<i>Capacity (MW)</i>	: 2,13,030 MW
<i>Coal consumed</i>	: 672.130 Million Tonnes
<i>Fly Ash Generation</i>	: 222.789 Million Tonnes
<i>Fly Ash Utilization</i>	: 205.098 Million Tonnes
<i>Percentage Utilization</i>	: 92.06%
<i>Legacy flyash</i>	: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 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.

All the matters (including IAs) will stand disposed of accordingly. If any grievance survives, aggrieved parties are free to take remedies as per law.

A copy of this order be forwarded to the Secretaries, MoEF&CC, Coal and Power, GoI and Chief Secretaries of UP and MP, CPCB, State PCBs, SEIAAs, PCCFs (HoFF) UP and MP, District Magistrates, Singrauli and Sonebhadra, Labour Commissioners, UP and MP, State Disaster Management Authorities of UP and MP and SSPs by e-mail for compliance. CPCB may also circulate the same by email to all TPPs or other concerned to facilitate compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Brijesh Sethi, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

January 18, 2022
Original Application No. 164/2018
(Earlier O.A.No.276/2013) and other connected matters
DV