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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

O. A. NO. 164/2018

IN THE MATTER OF:

ASHWANI KUMAR DUBEY ...APPLICANT

VERSUS

UNION OF INDIA & ORS. ...RESPONDENTS

STATEMENT OF OBJECTIONS ON BEHALF OF RESPONDENT NO. 10/VINDHYACHAL SUPER THERMAL POWER STATION TO THE REPORT DATED 29/10/2019 SUBMITTED BY OVERSIGHT COMMITTEE TO THIS HON'BLE TRIBUNAL

(PLEASE SEE THE INDEX INSIDE)

FILED BY:

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TO
HON'BLE CHAIRPERSON
AND HIS COMPANION MEMBERS OF THE
NATIONAL GREEN TRIBUNAL

THE HUMBLE OBJECTIONS ONE BEHALF OF THE RESPONDENT NO. 10.

MOST RESPECTFULLY SHOWETH:-

1. The present Application has been filed by the Applicant alleging pollution caused by the industries in District Singruali in the State of Madhya Pradesh and District Sonebhadra in the State of Uttar Pradesh.
2. That this Hon'ble Commission vide its order dated 28/08/2018 constituted an Oversight Committee [hereinafter to be referred as 'Committee'] headed by Justice Rajesh Kumar [Rtd.] of the Allahabad High Court to prepare a time bound action plan to deal with the problem of alleged industrial pollution and to monitor its implementation and also to send reports of the action taken by it. It is submitted that the Committee thereafter has submitted its reports time to time before this Hon'ble Tribunal.

3. The Oversight Committee headed by Justice Rajesh Kumar [Rtd.] held its meeting on 22/10/2019 at Circuit House, Prayagraj, Allahabad in compliance with the order dated 28/08/2018 passed by this Hon'ble Tribunal in the present matter.

4. It is pertinent to submit that the Answering Respondent has not received the report submitted by the Committee before the hearing in this Application on 05/11/2019 and got to know about the same from the order of this Hon'ble Tribunal dated 05/11/2019. The Answering Respondent therefore submits its response to the contents of the said Report [in so far as it is concerned with the Answering Respondent]. It is pertinent to submit that the officials of the Answering Respondent has offered its explanation to the agenda of the meeting in the meeting itself and has also submitted its written point wise reply on 25/10/2019 vide email. The true copy of the email dated 25/10/2019 along with the written point wise reply to the agendas of the meeting dated 22/10/2019 is annexed herewith and marked as **Annexure R-10/1.**

5. It is submitted that the observation of the Committee in the prelude to the agendas for meeting dated 22/10/2019 to the effect that due to regular storage of fly-ash in the ash-dykes, MoEF&CC had to declare the Singaruali & Sonebhadra as 'critically polluted area' is erroneous and it is specifically submitted that the pollution in the said region is largely not on account of fly-ash storage alone.

AGENDAS IN THE MEETING OF THE COMMITTEE DATED 22/10/2019 AND THE SUBMISSION OF THE ANSWERING RESPONDENT THERETO.

6. Amongst other things, the Committee had set the following agendas for its meeting dated 22/10/2019 [The true copy of the agenda of the meeting dated 22/10/2019 is annexed herewith and marked as **Annexure R-10/2**

(a) Agenda No. 1 & 2:

To discuss with all the Thermal Power Plants about structural details of their Ash Dykes and their adequacy for handling of Fly Ash generated. Whether submitted the details of ash dykes to SPCBs and taken permissions from SPCBs.

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

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- The Answering Respondent currently has 6 operational ash dykes (V_1, V_2, V_{3A}, V_{3B}, V_{4A} & V_{4B}). The dykes were constructed as per approved engineering design based on latest technology available at the relevant times. It is submitted that as per the approved design, four raisings of each ash dyke are permitted.

- **DESIGN:** Ash ponds of Answering Respondent are designed in terms of the approved scientific design & standards and are operated under the surveillance of experts and dedicated teams. The Ash Dykes are designed as per IS: 12169 (Design of Small Dams) and IS: 9429 (Internal Drainage system for earth Dams). The stability of dyke embankments have been checked for static and Earthquake conditions as per IS: 7894 and are found to be safe. Regular monitoring is done with the help of instruments to check the health of dyke embankments.

- It is submitted that the Inter-department team of Answering Respondent undertakes a monthly inspection of all the dykes in addition to the round-the-clock patrolling of the entire dyke area. The sample copy of the Ash-dyke inspection report containing the Monitoring points of the dykes are annexed herewith and marked as **Annexure R-10/3.**

- **STARTER DYKE**: All the starter dykes are made of earth, upstream and downstream slope of dyke is 1 (V): 2.5 (H). Top of the dyke is 06 M and top level is 277.00 M for Shahpur dyke area [V1, V2, V3A, V3B Dykes] and 286.00 M for Baliyari ash dyke [V4A, V4B Dykes]. Starter dyke is provided with internal drainage system which consists of sand blanket and sand chimney. Downstream side of dyke embankment is provided with slope protection/rip rap.

- **RAISINGS:** Over starter dyke, height raisings have been done. The net height of each dyke is 03 M with pond ash as main fill material and soil as top and slope protection. Upstream and downstream slope of ash dyke raising is 1(V): 3(H). Each height raising has been provided with drainage system which consists of horizontal blanket and vertical sand chimney.

- **BUTTRESSING**: Design and drawings for Buttressing of V-1 has been given by consultants Dr. Umesh Dayal, Prof (Retd.), IIT Kanpur and Dr. C. R. Patra, Prof. NIT Rourkela.

- The ash disposal plan and construction capacity of ash dykes were submitted as part of Feasibility Report at the time of obtaining Environment Clearance ['EC'] from MoEF & CC.

- Consent-to-Establish ['CTE'] was obtained from MPPCB based on EC. Subsequently, Consent-to-Operate ['CTO'] is obtained from MPPCB on annual basis. It is submitted that MPPCB makes a detailed inspection of all the facilities including ash dykes and mentions about the status of the same in their inspection report before granting the CTO.

- It is further submitted that the dykes of Answering Respondent have been operational for more than 32 years without any breach. The dykes of other NTPC stations across the country are also based on the same design.

(b) Agenda No.3:

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

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- The Answering Respondent has completed the internal assessment of all dykes and has also submitted the affidavit to that effect before the Committee. The true copy of the affidavit filed before the Committee is annexed herewith and marked as **Annexure R-10/4.**

- It is further submitted that the revised affidavit has also been submitted in terms of the directions of the Committee after the third party assessment of all the dykes in completed. The true copy of the third party assessment report is annexed herewith and marked as **Annexure R-10/5** ——— The true copy of the revised affidavit submitted by the Answering Respondent after receipt of the assessment report is annexed herewith and marked as **Annexure R-10/6.**

- **(c) Agenda – No.4:**

Thermal Power Plants may submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash.

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- Free of cost doorstep delivery of fly-ash to all ash based industries within 100 km distance have already been started. It is submitted that this is first of its kind in the region.

- Ash Park at Rewa will become operational soon mostly by this month. It is submitted that the same got delayed by about one month due to poor road condition in this area.

- Doorstep delivery of ash to all ash based industries up to 300 kms. distance will be started by March, 2020 although these industries can also take ash from Rewa ash park.

- Rail loading facility for long distance transportation at reduced cost is expected to become operational by March 2020.

- Efforts are being made to start Gorbi mine filling within a short period of time. Since the mine void is filled with water of very low pH, care has to be taken to ensure that no environmental hazard is caused and all clearances from regulatory/ statutory authorities are obtained before start of work. It is submitted that one pit of the mine currently allotted to Answering Respondent has the capacity to cater to its need for 8 years if 50% ash utilization is achieved in other avenues.

- Answering Respondent is also supplying ash for development of low-lying areas at its own cost for maximizing ash utilisation.

- Incentive scheme for Cement manufacturers with revised incentive for making it financially viable for them to lift ash from the Answering

Respondent. It is submitted that two earlier attempts have already been made in this regard.

- At least 4 workshops are conceived to be organized in 2020 for the masons and other ground level workforce to make them aware about the utility of ash bricks.

- Answering Respondent is also working towards increased use of ash as soil conditioner in agriculture. Contract for creating awareness and acceptance of use of fly ash/pond ash in large volume in agriculture among local farmers and related stakeholders towards improvement of soil health and increase in yield is expected to be awarded by April, 2020.

- Answering Respondent is actively following up with Dist. Administration (both Singrauli & Sonebhadra) for awarding any abandoned quarries which can be developed using ash. One stone quarry has been awarded to Answering Respondent in Makrohar region where ash filling has started since November 2019. The total capacity of the quarry is about 90,000 MT.

- Answering Respondent has also awarded the contract for land development at various locations within 50 kms of Plant radius. Total ash utilization from these contracts is expected to be around 1.2 LMT. Contract proposals for another 4.5 LMT are also being processed. Answering Respondent is taking up public/private/Govt. land development on free of cost basis up to a distance of 50 kms. from plant which will be extended up to 100 kms.

- Consistent efforts are being made by Answering Respondent requesting NCL for mixing of fly ash with Overburden ['OB'] but so far the efforts have not yielded fruit.

- Answering Respondent has successfully tested the Fly ash-Gypsum plaster as a replacement for sand-cement plaster and Large scale production of the same is being worked out.

- Bottom ash from Answering Respondent is being used as a filter medium in a water treatment plant being constructed near Varanasi with Japanese collaboration. Large scale use of bottom ash, for this purpose, is envisaged in future.

- Answering Respondent has been continuously following up with the National Highways Authority of India ['NHAI'] for utilization of fly-ash in road construction. It is committed to provide ash to all projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments within 300 kms. of the plant as and when the requirement is received.

- It is submitted that although the Answering Respondent is making all efforts to improve its ash utilisation, unless the end-users are also made a party of the drive to increase ash utilisation, limited results can be achieved. It is pertinent to submit that as per notification of fly ash utilisation, *"Every construction agency engaged in the construction of buildings within a radius of three hundred kilometres from a coal or lignite based thermal power plant shall use only fly ash based products for construction such as: cement or concrete, fly ash bricks or blocks or tiles or clay fly ash bricks or blocks or tiles or cement fly ash bricks or*

blocks or similar products or a combination or aggregate of them in every construction project. The provisions shall be applicable to all construction agencies of Central or State or Local Government and private or public sector and it shall be the responsibility of the agency either undertaking construction or approving the design or both to ensure compliance."

- The Committee and this Hon'ble Tribunal is therefore requested to take note of the above mandate and extend the accountability of the stakeholders accordingly.

ADDITIONAL SUGGESTIONS OF THE ANSWERING RESPONDENT TO UTILISE THE FLY-ASH GENERATED SO AS TO MAXIMIZE FLY ASH UTILIZATION.

6. That the Answering Respondent would like to place on record some additional suggestions that would further the target of achieving 100% fly ash utilisation which are as follows:

   i. Northern Coal Field Limited (NCL) is not utilizing atleast 25% ash along with overburden material in the back filling of mine voids as mandated by the 2009 notification issued by Respondent No.1. As per information available on the NCL website, there are 10 open cast mines in Singrauli region and NCL is handling about 340 million metre cube of overburden (OB) material per year. Further, NCL and South Eastern Coal Fields (SECL) are yet to inform the period for availability of mine voids of Jingurda, Gevra and Dipika mines for ash back filling. It is suggested by the Answering Respondent that a Committee having a member from Respondents/concerned department and State Pollution Control Board may be constituted to assess the availability of mine voids for back filling with ash. It is submitted that to enhance ash utilisation at pithead power plants,

there is a need for the Central and State Pollution Control Boards to take action for ensuring implementation of the utilisation of ash by the Coal Companies in the back filling of mine voids.

ii. That the Ministry of Agriculture has to take action for promotion of ash utilisation in the agriculture sector, as presently ash utilisation is very low in this sector.

iii. The inability of the Answering Respondent in utilisation of fly ash completely is for reasons beyond the control of the Answering Respondent and in spite of the best efforts of the Answering Respondent Without prejudice to the other contentions, the Answering Respondent being a thermal power plant can only make available the fly ash to users in a manner by incentivising the use of this fly ash (and cannot actually ensure its utilisation).

iv. It is submitted that the assumption, that it is for the plant to utilise the fly ash completely, is flawed. The plant is not the end user of fly ash and thus cannot be made responsible for its final usage, as it is making available the fly ash to end users in a manner that incentivises its use. Therefore, no penalty ought to be levied on the power plant, as long as they are making available the fly ash as mandated in law.

(d) Agenda No.5:

What effort has been made to fill up the Fly-Ash in the abandoned Coal Mines and Stone Mines? Whether any letter has been written to the Mine-owners or to the concerned Authority in this regard, seeking permission in light of the discussion in the earlier meeting(s).

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- It is reiterated that Answering Respondent is actively following up with Dist. Administration (both Singrauli & Sonebhadra) for award of any abandoned quarries which can be developed by using fly-ash. A stone quarry has been awarded to Answering Respondent in Makrohar region where ash filling has already started by November, 2019. The total capacity of the quarry is about 90,000 MT.

- The Answering Respondent would like to place on record the communication with the D.M. (Sonebhadra) and Collector (Singrauli). The copy of the said communication is annexed herewith and marked as **Annexure R-10/7**.

(e) Agenda No.6:

To provide opinion about option of developing mounts of Ash Dyke as done by NTPC Thermal Power Plant, Dadri, where green cover has been developed by covering it with the top soil.

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- Stability of mound is an issue and the whole activity is highly technical in nature and requires very skilful engineering. NTPC Ltd. does not have the expertise in the area and consultants for this kind of work are also not available. That NTPC Ltd. is trying for a similar structure in its Pataratu project. Feasibility of developing a mound at Vindhyachal will be explored in consultation with Corporate Centre of NTPC Ltd.

- It is further submitted that land required for developing mounts of Ash-dyke as done by NTPC Thermal Power Plant, Dadri is not available at present with the Answering Respondent.

(f) Agenda No.7:

Submission of status by NTPC VindhyaNagar about necessary clearance from Madhya Pradesh Pollution Control Board about Gorbi mines and disposal of Fly Ash.

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- The Answering Respondent has submitted the Application on 06/09/2019 before the MPPCB and the same is pending Consideration.

(g) Agenda No. 8:

Preparation of DPR for project of desilting the Rihand Reservoir and bearing of such expenditure by Thermal Power Plants of the area on polluter pays principle.

SUBMISSION OF THE ANSWERING RESPONSE THERETO:

The Answering Respondent would like to submit its response to the said agenda of the Committee, as under:

- The principle - *'Polluter Pays Principle'* should apply to all industries in the region uniformly and the Industries should only pay for the desilting of Industrial waste.

7. RESPONSE OF ANSWERING RESPONDENT TO THE OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE IN THE REPORT DATED 29/10/2019.

(a) **OBSERVATIONS/RECOMMENDATION OF OVERSIGHT COMMITTEE:** *Shri V.K. Maurya, Deputy General Manager (Civil Design) NTPC, New Delhi along with Shri Debashis Sen, Executive Director (Vindhyanagar) state that they could not comply the direction given by the Committee in the earlier meeting and could not submit the affidavit till today.*

RESPONDENT OF ANSWERING RESPONDENT: It is submitted that the affidavit was submitted during the meeting on 22/10/19 itself, as acknowledged in the later paragraph of the very same report, submitted by the Committee before this Hon'ble Tribunal.

Although it is correct that the direction given in the meeting on 09/09/2019 to submit the affidavit within a week could not be complied with, the primary reason for delay in preparing the affidavit was that the committee had not provided/instructed the requirement to be stated/answered in the affidavit. The Answering Respondent being unaware about the exact requirements to be answered/stated in the affidavit and the requisite contents could get it prepared only after discussions with the other Thermal Power Plants. It is pertinent to submit that as per the information available with Answering Respondent none of the Power Plants could comply with the timeline prescribed by the Committee.

It is further submitted that they dyke assessment had been done by the Answering Respondent and the affidavit was prepared much earlier to actual submission. However, the subsequent breach in the ash dyke V1 on 06/10/2019 necessitated revisit of the assessment done earlier and therefore the affidavit could not be filed within time.

(b) **OBSERVATIONS / RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *They could not file any reply to the points raised in the Agenda of notice. However, Shri V. K. Maurya tried to explain that their Fly Ash Dyke was constructed in accordance to the norms and time to time, when the height of the Dyke was raised, the technical advices were also taken from the experts. However, no evidence in this regard has been produced before us. Despite asking from us that whether they have brought any reply to the points detailed in the agenda, Mr. Jain another officer states that they have everything. The periodical inspection has been made by the various internal department officers but he admitted that no assessment or report by third party agency has been obtained with regard to Fly Ash Dyke, Prime facie, the Committee is off the view that the officers of the NTPC are still not serious. They have not complied with the direction given by the Committee in the earlier meeting. The affidavit has not been filed.*

RESPONSE OF ANSWERING RESPONDENT: It is submitted that point wise reply to the agenda had been prepared for discussion in the meeting and committee was explained about the same. However, certain points on the agenda of the meeting dated 22/10/2019, like Sr. No. 1 & 2, did not require any actual written reply/document submission:

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

It is submitted that the Answering Respondent [although could not submit the written reply to the agenda of meeting] had specifically called its technical experts to be a part of the team that attended the meeting in order to comply with the directions in the agenda. It is submitted that the Committee was explained how all the technical details were taken into account during the design of the dyke. That the experts of the Answering Respondent had come with the reference manuals and documents and explained the same to the Committee during the meeting. During the course of the meeting, it was communicated that everything had to be submitted in written for which one week's time was sought by Answering Respondent and accordingly the status, as required, was submitted on 25/10/2019.

(c) **OBSERVATIONS/RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *Recently, we came to know that there was a breach of Fly Ash Dyke on 06.10.2019 due to which huge quantity of fly ash slurry travelled along with the ground causing damage to crops and the fly ash travelled up to the Rihand Reservoir.*

RESPONSE OF ANSWERING RESPONDENT: It is submitted that there was no discussion in the meeting on the issue that the breach in fly ash dyke had caused any damage to the crops.

In the status submitted to the committee on 25/10/2019, it is pointed out that a detailed site inspection was done by a team of CPCB and MPPCB officials on 08-09/10/2019. The team had discussed the assessment with the officials of Answering Respondent. During the discussion with the PCB officials, it emerged that the amount of ash spillage caused due to breach in the dyke is estimated to be around 2.25 lac MT which is mostly contained within NTPC premises. No private land is affected. It was also submitted that the ash slurry spread has not caused any injuries/loss of life/loss of livestock and has not affected any villages/farms/agricultural land. Following the incident, the affected area inside premises of the Answering Respondent was immediately evacuated of all working personnel and the neighbouring area was searched immediately following the breach to ensure that no man/animal was trapped inside the affected area. Since the incident, the affected area has been inspected several times by officials of Answering Respondent, Dist. Administration, Pollution Control Boards and other bodies but till date, not a single dead body of an animal has been found.

(d) **OBSERVATIONS/RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *If as per the version of Mr. Jain and Mr. Maurya everything was perfectly all right and time to time dykes have been checked why this incident happened. The incident itself shows that there was some deficiency in the construction of Fly Ash Dyke.*

RESPONSE OF ANSWERING RESPONDENT: It is submitted that a *detailed status report pertaining to V1 dyke failure was submitted to the committee on 25/10/2019 wherein it was explained that prima facie reason for dyke failure appears to be heavy and continuous rain fall [at relevant time] at site since last two weeks. Rain water got filled up in pockets formed due to evacuation from ash pond for buttressing work which was 100-150 Mtr away from dyke boundary. Subsequently, water level in the pond started rising due to continuous rain. A sudden slip of ash mass toward decanting well might have de-stabilised it. Fall of such a massive well on ash slurry is suspected to have created a huge wave/surge action within the pond leading to breach of ash dyke in the proximity of decanting well. It is however submitted that since dyke breach is highly complex phenomenon, a detailed root cause analysis will be done through IIT Roorkee.*

(e) **OBSERVATIONS/RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *The whole purpose for asking the affidavit in the earlier meeting was to get their dykes checked properly from the third party experts in as much as these dykes were originally constructed much earlier, in the present case in the year 1981.*

RESPONSE OF ANSWERING RESPONDENT: It is submitted that *the committee had only given a direction for assessment of dykes in their meeting on 09/09/2019. It is specifically submitted that the requirement for third party assessment had not been mentioned and is not expressed in the Minutes of Meeting for 09/09/2019 either. Therefore, the Answering Respondent could not have assumed it to get done by any third party experts and hence they got it done themselves. It is pertinent to mention that, to the best of the knowledge of the Answering Respondent, none of the other Thermal Power Plants had got the third party assessment done till that date.*

(f) **OBSERVATIONS/RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *Plant is not able to produce any roadmap for the disposal of the stocked Fly Ash and the currently generated Fly Ash. A continuous process of stocking the Fly Ash is going on, which is causing environmental effect every day.*

RESPONSE OF ANSWERING RESPONDENT: *As mentioned above, a detailed roadmap and efforts to increase ash utilisation and the constraints were submitted in the status report of 25/10/2019. The same may be read and part and parcel of the response to this observation/recommendation too.*

(g) **OBSERVATIONS/RECOMMENDATIONS OF OVERSIGHT COMMITTEE:** *Later on, at the end, they have provided an affidavit. The averments made in the affidavit are vague and casual. The paragraphs are sworn on the 'personal knowledge' and not on the basis of documents. We are not satisfied with the averments made in the affidavit.'Sri Jain submitted that some time may be allowed to get the Fly Ash Dyke inspected by the third party agencies. He prays and is allowed one month time to get the Fly Ash Dyke inspected by the third party agencies like IIT or any other agencies, who are experts on the subject. He further submitted that he may be allowed a week's time.*

RESPONSE OF NTPC VINDHYACHAL: It is submitted that *the committee had not provided any format or language in which the affidavit was required to be prepared and submitted. It was finally prepared after lot of discussions with the other Thermal Power Plants. The revised affidavit was later on submitted after the aforesaid observations of the committee. The status report on other agenda*

points was also submitted on 25/10/2019. It is also submitted that a third party expert assessment pertaining to the structural design and safety has already been done by the team of Department of Civil Engineering, IIT Roorkee and the report submitted shows that all the dykes of the Answering Respondent are safe.

7. It is submitted that the above-mentioned aspects shows that the observations/recommendations contained in the report dated 29/10/2019 [in so far as it is concerned with the Answering Respondent] are due to non-consideration of the relevant facts & material particulars as brought to the notice of the Oversight Committee [which was explained in the meeting also] and therefore the same deserve to be rejected.

PRAYER

WHEREFORE, it is most respectfully prayed that this Hon'ble Tribunal may be pleased to consider the contents of the above reply and reject the observations/recommendations of the Committee in the Report dated 29/10/2019 [in so far as it is concerned with the Answering Respondent] to the extent the same are contrary to the present reply.

TARUNISH KUMAR JAIN
Addl. General Manager (EMG/AUD)
Singrauli Super Thermal Power Station NTPC

RESPONDENT NO.10

AUTHORISED SIGNATORY

THROUGH

[SHAILESH MADIYAL]

Dated: 03 /03/2020

ADVOCATE FOR RESPONDENT NO. 10

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

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AND IN THE MATTER OF:

M/S LANCO ANPARA POWER LTD. & ORS. ....NON-APPLICANTS

AFFIDAVIT

I, Munish Kumar Jain S/o Late Sri Madan Gopal Jain, aged about 49 years, presently working as AGM – Environment Management, presently at New Delhi, do hereby solemnly affirm and state as under:-

1. That I am the Authorsied Signatory of the Respondent No. 10 in the abovementioned matter. That I am fully acquainted with the facts and circumstances of the present case and hence, I am competent to sign and swear this Affidavit.
2. That the contents of the accompanying Statement of Objections, which has been drafted under my instructions, are true and correct to the best of my knowledge as derived from the official records and nothing material has been concealed therefrom.
3. That the annexures R-10/1 — R-10/7 annexed with the accompanying Statement of Objections are true copies of their respective originals and annexures ———— are true translated/typed copies of their respective originals.

DEPONENT

MUNISH KUMAR JAIN
Addl. General Manager (EMG/AUD)
Vindhyachal Super Thermal Power Station NTPC

VERIFICATION

Verified at New Delhi on this the 03rd day of March, 2020 that the contents of the above affidavit from paras 1 to 3 are correct and true to the best of my knowledge and belief and nothing material has been concealed therefrom.

I identified the deponent has sig. in my presence D/650/2017

Identified... M.K. Jain ... Deponent
S/o Sh. M.G. Jain R/o at N. Delhi
Identified By Sh. ...
Has Solemnly Affirmed before me at N. Delhi
on 03/03/2020
that the contents of the affidavit which has been read over & explained to his are true and correct to his knowledge

Notary Delhi 03/03/2020

DEPONENT

MUNISH KUMAR JAIN
Addl. General Manager (EMG/AUD)
Vindhyachal Super Thermal Power Station NTPC

ANNEXURE R-10/1

605

Zimbra mkjain@ntpc.co.in

NGT Oversight Committee Meeting (22.10.19) - NTPC Vindhyachal Submission

From : Munish Kumar Jain <mkjain@ntpc.co.in> Fri, Oct 25, 2019 09:10 AM

Subject : NGT Oversight Committee Meeting (22.10.19) - NTPC Vindhyachal Submission 1 attachment

To : skgupta110 <skgupta110@yahoo.com>

Cc : RAJESH MALIK <rajeshmalik@ntpc.co.in>

Dear Sir,
With reference to the NGT oversight committee meeting on 22/10/19, submission of NTPC Vindhyachal is attached.

Regards.

MUNISH JAIN
AGM (EMG & AU), VSTPS.
Mob. 9415342516

NTPC Vindhyachal status (Meeting on 22.10.19).pdf
99 KB

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NGT Oversight Committee Meeting at PrayagRaj on 22/10/19

Point wise Reply of NTPC Vindhyachal as per the Agenda

V1 Dyke Failure

- Prima faci reason for failure appears to be heavy and continuous rain fall at site since last two weeks. Rain water got filled up in pockets formed due to evacuation from ash pond for buttressing work which was 100-150 Mtr away from dyke boundary. Subsequently water level in the pond started rising due to continuous rain. A sudden slip of ash mass toward decanting well might have de-stabilised it. Fall of such a massive well on ash slurry is suspected to have created a huge wave/surge action within the pond leading to breaching of ash dyke in the proximity of decanting well. Detailed root cause analysis will be done through IIT-Roorkee.

- A detailed site inspection was done by a team of CPCB and MPPCB officials on 08-09/10/19. The team has discussed its assessment with NTPC Vindhyachal. During the discussion with the PCB officials, it emerged that the amount of ash spillage caused due to breach in the dyke is estimated to be around 2.25 lac MT. This ash spill is mostly contained within NTPC premises. No private land is affected. This was observed by PCB team also.

- The ash slurry spread has not caused any injuries/loss of life/loss of livestock and has not affected any villages/farms/agricultural land. Following the incident, the affected area inside NTPC premises was immediately evacuated of all working personnel and complete area was searched immediately following the breach to ensure that no man/animal was trapped inside the affected area. Since the incident, the affected area has been inspected several times by NTPC, Distt. Administration, Pollution Control Boards and other bodies but till date, not a single dead body of an animal has been found.

- Given the ash flow direction, it has to cover a distance of more than 1.5 km before it will reach the reservoir. Although some high TSS water has reached the reservoir, chances of any slurry directly going to reservoir are very less.

- The repair works of the damaged portion of ash dyke were started on the morning of 07/10/19 itself and are in full swing as per the guidance received from the Engineering team of NTPC. Breach portion of V-1 dyke was plugged within 30 hours and there is no flow of ash and water from the dyke since then.

- The ash deposition caused by the ash spill in NTPC area is being cleared on war footing and will be completed by 31/10/19. The ash deposited near the reservoir is being cleared on priority to prevent any mixing with the reservoir water.

- The assessment of quantum of environment damage will be done through an organisation of national repute. All efforts are being made to award the contract for the same by 10/11/19.

- The assessment of technical quality of construction of the dyke and the root cause analysis of the failure will be done through an institute of repute. All efforts are being made to award the contract for the same by 10/11/19.

- As per the observations of the Pollution Control Board inspection team and as observed by Distt Administration officials as well, no agricultural land is affected.

S.No.	Issue	Status/Reply
1.	To discuss with all the Thermal Power Plants about structural details of their Ash Dykes and their adequacy for handling of Fly Ash generated. Whether submitted the details of ash dykes to SPCBs and taken permissions from SPCBs.	1) NTPC Vindhyachal currently has 6 operational ash dykes (V1, V2, V3A, V3B, V4A, V4B). The dykes are constructed as per approved engineering design based on latest technology available. As per the design, *four raisings* of each ash dyke are permitted. **2) Design** Ash ponds of NTPC Vindhyachal are designed scientifically and operated under the surveillance of expert and dedicated groups. The Ash Dykes are designed as per IS:12169 (Design of Small Dams) and IS:9429 (Internal Drainage system for earth Dams). The stability of dyke embankments are checked for Static and Earthquake conditions as per IS:7894 and found to be safe. Regular monitoring is done with the help of instruments to check the health of dyke embankments. Inter-department team undertakes a monthly inspection of all the dykes (Monitoring points as per **Annexure 1**) in addition to the round-the-clock patrolling of the entire dyke area. **a) Starter Dyke:** All the starter dykes are made of earth, upstream and downstream slope of dyke is 1 (V):2.5 (H). Top of the dyke is 06 M and top level is 277.00 M for Shahpur dyke area and 286.00 Mtrs for Baliyari ash dyke. Starter dyke is provided with internal drainage system which consists of sand blanket and sand chimney. Downstream side of dyke embankment is provided with slope protection/rip rap. **b) Raisings:** Over starter dyke height raisings has been done, each of net height 03M with pond ash as main fill material and soil as top and slope protection. Upstream
2.	All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.	

		and downstream slope of ash dyke raising is 1(V):3(H). Each height raising has been provided with drainage system which consists of horizontal blanket and vertical sand chimney. c) **Buttressing:** Design and drawings for Buttressing of V-1 has been given by consultants Dr. Umesh Dyal, Prof (retd.), IIT Kanpur and Dr. C. R. Patra, Prof. NIT Rourkela. 3) The ash disposal plan and construction and capacity of ash dykes were submitted as part of Feasibility Report at the time of obtaining Environment Clearance (EC) from MoEF & CC. Consent-to-Establish (CTE) was obtained from MPPCB based on EC. Subsequently, Consent-to-Operate (CTO) is obtained from MPPCB on annual basis. MPPCB makes a detailed inspection of all the facilities including ash dykes and includes the status of the same in their inspection report before granting the CTO. 4) It is submitted that the dykes of NTPC Vindhyachal have been operational for more than 32 years without any breach. The dykes of other NTPC stations all across the country have been functional based on the same design.
3.	Submission of affidavit by TPPs in compliance of decisions taken in the last , meeting of Committee regarding adequacy of Fly Ash Dyke. The status will also be shared about the action taken by TPPs for third party	• Internal assessment of all dykes completed – affidavit submitted. • However, revised affidavit will be submitted as per the directions of the Committee after the third party assessment of all the dykes in completed. The third party assessment is expected to be completed by 15/12/19. Contract for the same will be placed by 15/11/19.

	assessment of Ash Dyke of their plants through expert institutions like NEERI/IITs.	
4.	Thermal Power Plants may submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash.	• **Free of cost Doorstep delivery of ash to all ash based industries within 100 km distance started (first of its kind in the region and NTPC).** • Ash Park at Rewa will become operational this month (delayed by about one month due to poor road condition). • Doorstep delivery of ash to all ash based industries up to 300 kms distance will be started by Dec'19, although these industries can take ash from Rewa ash park as well. • Rail loading facility for long distance transportation at reduced cost is expected to become operational by Mar'20. • Efforts are being made to start GORBI mine filling within a short period of time. Since the mine void is filled with water of very low pH, all care has to be taken to ensure that no environmental hazard is created and clearances from regulatory/statutory authorities are obtained before start of work. The one pit of the mine currently allotted to NTPC Vindhyachal has the capacity to cater to the needs of VSTPS for 8 years if 50 % ash utilisation is achieved in other avenues. • Incentive scheme for Cement manufacturers with revised incentive for making it financially viable for them to lift ash from VSTPS. Two earlier attempts have already been made. • At least 4 workshops will be organised in 2020 for the masons and other ground level workforce to enhance the popularity of ash bricks.

		• VSTPS is working towards increasing use of ash as soil conditioner in agriculture. Contract for creating awareness and acceptance of use of fly ash/ pond ash in large volume in agriculture among local farmers and related stake holder agencies towards improvement of soil health and increase in yield is expected to be awarded by Dec'19 . • VSTPS is actively following up with Distt Administration (both Singrauli & Sonebhadra) for awarding any abandoned quarries which can be developed using ash. One no. of stone quarry has been awarded to VSTPS in Makrohar region where ash filling is likely to start in Nov'19. The total capacity of the quarry is about 90,000 MT. • VSTPS has also awarded the contract for land development at various locations within 50 kms of Plant radius. Total ash utilisation in these contracts is expected to be around 1.2 LMT. Contract proposals for another 4.5 LMT are also being processed. VSTPS is taking up public/private/Govt land development on free of cost basis up to a distance of 50 kms from Plant which will now be extended up to 100 kms. • Consistent efforts have been made in the past by VSTPS requesting NCL for mixing of fly ash with OB but so far the efforts have not yielded fruit. • VSTPS has successfully tested the Fly ash – Gypsum plaster as a replacement for sand-cement plaster. Large scale production of the same is being worked out. • Bottom ash from NTPC Vindhyachal is being used as a filter medium in a water treatment plant being constructed near Varanasi with Japanese collaboration. Large scale use of bottom ash in future for this purpose is envisaged. • VSTPS has been continuously following up

		with NHAI for getting requirement for ash in road construction. VSTPS is committed to provide ash to all projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments within 300 kms of the Plant as and when the requirement is received. • Although the station is making all efforts to improve its ash utilisation, unless the consumers are also made a party of the drive to increase ash utilisation, limited results can be achieved. As per the MoEF notification of fly ash utilisation, "Every construction agency engaged in the construction of buildings within a radius of three hundred kilometres from a coal or lignite based thermal power plant shall use [redacted] bricks or blocks or tiles or clay [redacted] ash bricks or blocks or tiles or cement [redacted] ash bricks or blocks or similar products or a combination or aggregate of them in every construction project. The provisions shall be applicable to all construction agencies of Central or State or local Government and private or public sector and it shall be the responsibility of the agency either undertaking construction or approving the design or both to ensure compliance. Committee is requested to take note of the provision and extend the accountability accordingly.
5.	What effort has been made to fill up the Fly-Ash in the abandoned Coal Mines, and Stone Mines? Whether any letter has been written to the Mine-owners or to the concerned Authority in this regard,	• VSTPS is actively following up with Distt Administration (both Singrauli & Sonebhadra) for awarding any abandoned quarries which can be developed using ash. One no. of stone quarry has been awarded to VSTPS in Makrohar region where ash filling is likely to start in Nov'19. The total capacity of the quarry is about 90,000 MT. • Communication given to DM (Sonebhadra) and Collector (Singrauli) – **Annexure 2.**

	seeking permission in light of the discussion in the earlier meeting(s)?	
6.	To provide opinion about option of developing mounts of Ash Dyke as done by NTPC Thermal Power Plant, Dadri, where green cover has been developed by covering it with the top soil.	• Land required for developing such mounds is not available at present. • Stability of mound is also an issue and the whole activity is highly technical in nature and requires very skilful engineering. NTPC does not have the expertise in the area and consultants for this kind of work are also not available. NTPC is trying for a similar structure in its Pataratu project. Feasibility of developing a mound at Vindhyachal will be explored in consultation with Corporate Centre.
7.	Submission of status by NTPC Vindhya Nagar about necessary clearance from Madhya Pradesh Pollution Control Board about Gorbi mines and disposal of Fly Ash.	Application submitted on 06/09/19; under consideration.
8.	Preparation of DPR for project of desilting the Rihand Reservoir and bearing of such expenditure by Thermal Power Plants of the area on polluter pay principle.	• 'Polluter Pay Principle' should apply to all industries in the region. • Industries should only pay for the desilting of Industrial waste.

Annexure R-10/2

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Zimbra

mkjain@ntpc.co.in

Meeting of the oversight committee constituted by NGT under the Chairmanship of Hon. Justice Rajes Kumar on 22-10-19 at Prayagraj

From : hemant Sharma <hsharma1091@gmail.com> Fri, Oct 18, 2019 12:48 PM

Subject : Meeting of the oversight committee constituted by NGT under the Chairmanship of Hon. Justice Rajes Kumar on 22-10-19 at Prayagraj 1 attachment

To : Regional officer <romppcb.sgrl@gmail.com>, cpcb lucknow <cpcb.lucknow@gmail.com>, Munish Kumar Jain <mkjain@ntpc.co.in>, sandeep jain <sandeep.jain@essar.com>, Jay Saran <Jay.Saran@essarpower.co.in>, debashissen@ntpc.co.in, pmokalkar@bla.co.in, gsingh@bla.co.in, kishor bhardwaj <kishor.bhardwaj@hpppl.in>, pratosh kumar <pratosh.kumar@hpppl.in>, rameshwar dubey <rameshwar.dubey@hpppl.in>, basanta mishra <basanta.mishra@hpppl.in>, sachin mohapatra <sachin.mohapatra@relianceada.com>, bijan mishra <bijan.mishra@relianceada.com>, CE GEN <edsgtpsbrs@gmail.com>, Chief Chemist <chiefchemistsgtps@gmail.com>, ExecutiveDirector O&M:Generation MPEB <edomg_mpeb@rediffmail.com>, zahid akhtar <zahidakhtar20@gmail.com>, Executive Director Fuel Management <ed.fm.mppgcl@gmail.com>, stps1@rediffmail.com, SENIOR CHIEF CHEMIST MPPGCL SARNI <srchiefchemistmppgcl.sarni@gmail.com>, rajesh bhanarkar <rajesh.bhanarkar@avanthapower.com>, Avantha Power <communications@avanthapower.com>, anoopkumar srivastava <anoopkumar.srivastava@avanthapower.com>, CE SSTPP <cegen.sstpp@gmail.com>, Senior Chemist <srchsstpp@gmail.com>, Rakesh Malhotra <rakeshmalhotra970@gmail.com>, Rakesh Malhotra <rakeshmalhotra970@hotmail.com>, vinod1 sharma <vinod1.sharma@jalindia.co.in>, Y khare <Y.khare@jalindia.co.in>, rajendra.sharma <rajendra.sharma@jalindia.co.in>, mppgcl@mp.nic.in, Utpal Sarkar <utpal.sarkar@adityabirla.com>, girija panda <girija.panda@adityabirla.com>

----------Email received from [External domain] from Internet. Actual Sender:-- hsharma1091@gmail.com---------

Dear Sir,
An oversight committee has been constituted under the chairmanship of Hon. Justice (Retd) Shri Rajes Kumar of Allahabad High Court by Hon. NGT. A meeting of all the thermal power plants of the state has been convened on 22-10-19 at circuit house Prayagraj. The agenda as circulated by the regional director CPCB, Lucknow is attached herewith for your perusal. You are requested to attend the meeting positively .

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

Agenda of Meeting to be convened on 22.10.2019 at Circuit House, Prayagraj.doc
30 KB

Agenda 22.10.19, Prayagraj

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

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

1. To discuss with all the Thermal Power Plants about structural details of their Ash Dykes and their adequacy for handling of Fly Ash generated. Whether submitted the details of ash dykes to SPCBs and taken permissions from SPCBs.
2. All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.
3. Submission of affidavit by TPPs in compliance of decisions taken in the last meeting of Committee regarding adequacy of Fly Ash Dyke. The status will also be shared about the action taken by TPPs for third party assessment of Ash Dyke of their plants through expert institutions like NEERI/IITs.
4. Thermal Power Plants may submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash.
5. What effort has been made to fill up the Fly-Ash in the abandoned Coal Mines and Stone Mines? Whether any letter has been written to the Mine-owners or to the concerned Authority in this regard, seeking permission in light of the discussion in the earlier meeting(s)?
6. To provide opinion about option of developing mounts of Ash Dyke as done by NTPC Thermal Power Plant, Dadri, where green cover has been developed by covering it with the top soil.
7. Submission of status by NTPC Vindhya Nagar about necessary clearance from Madhya Pradesh Pollution Control Board about Gorbi mines and disposal of Fly Ash.

8. Preparation of DPR for project of desilting the Rihand Reservoir and bearing of such expenditure by Thermal Power Plants of the area on polluter pay principle.

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

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ANNEXURE R-10/3

ASH DYKE INSPECTION REPORT

1. Name of the Project: VINDHYACHAL SUPER THERMAL POWER PROJECT
2. Date of Inspection :
3. Name of the inspecting officers
4. Month of inspection :

Sl.no	Inspection Details	V1	V2	V3A	V3B	V4A	V4B
A.	ASH LAGOON DETAILS						
1.	Asl. Disposal Lines Discharging in Lagoon (in nos.)						
2.	Water level in operating lagoon. (R.L. in Meter)						
3.	Free board level (R L in Meter)						
4.	Whether any ash surface is exposed above water						
5.	If ash surface is exposed above water level, whether ash is flying anywhere.						
6.	Whether water is flowing through all the opening of the water escape structure.						
7.	Approximate head of water flow over well slabs (in Mts.)						
8.	Approximate depths of water over ash surface, around /near the operating water escape structure (in Mts.)						
9.	Whether any inter slab leakages of ash are present in the water escape wells.						
10.	Whether water flow is obstructed by floating plant or any other floating bodies near the vents in the water escape structure.						
	DYKE						
1.	Top level of dyke (R.L. in Meter)						
2.	Nos. of raising done						
3.	Whether there are any sign of settlement on the top of the dyke.						
4.	Whether there is any signs of sinking/caving-in / bulging / boiling on						
4.a	Upstream slope						
4.b	Downstream slope						
4.c	Foundation very near to the downstream toe						
5.	Whether any wet spots/areas are present.						
5.a	Downstream slope &						
5.b	Foundation very near to the downstream toe.						
6.	Whether any seepage is observed on						
6.a	Upstream slope						
6.b	Downstream slope						
6.c	On the foundation very near to the downstream toe.						
7.	Whether any longitudinal cracks are observed on :						
7.a	On the top of dyke						
7.b	Upstream slope						
7.c	Downstream toe						
8.	Whether any transverse cracks are observed on						
8.a	On the top of dyke						
8.b	Upstream slope						
8.c	Downstream toe						
9.	If transverse cracks are observed on the top and the slope						
9.a	Whether the cracks are continuous						

Sl.No	Description	VI	V2	V3A	V3B	V4A	V4B
9.b	Whether the length of cracks is increasing with time.						
9.c	Whether the cracks are widening with time.						
10.	If seepage is observed on slope or near the downstream toe, whether the seepage is muddy/clear indicating material carry-over.						
11.	If the seeping water is muddy, TSS level at that point						
12.	If the filters have been placed over the seepage area, whether the water have become clear indicating reduction in material carry over.						
13.	Whether the seepage rate is changing with time increasing / decreasing / constant.						
14.	Whether the filter materials as mentioned above are getting displaced due to seepage water flow.						
15.	Whether there is any gap / settlement between the effluent draw-off pipe and the surrounding dyke material, visible from the downstream side of the dyke.						
16.	Whether there is any erosion on the upstream slope due to wave action or draw down in the lagoon.						
17.	Whether there is any damage to the turfing protection on downstream slope.						
18.	Whether any stone pitching / brick lining is dislodged or caved in on						
18.a	Upstream slope						
18.b	Downstream toe						
19.	Whether there is any growth of vegetation/bushes						
19.a	On the top of dyke						
19.b	Upstream slope						
19.c	Downstream toe						
20.	Whether any rat holes are present on the top of dyke, upstream & downstream slope						
21.	If rat holes are present, whether they are being plugged						
22.	If rat holes are present, whether there are also signs of cracking, sinking or settlement on						
22.a	The top of dyke						
22.b	Upstream slope						
22.c	Downstream toe						
22.d	Near the region where the rat holes are found						
23.	Whether there are any rain cuts / gullies on						
23.a	Top of dyke						
23.b	Upstream slope						
23.c	Downstream slope						
24.	Whether the rock toe is maintaining its design shape						
25.	Whether the lining in the toe is in good condition						
26.	Whether there is any flow in the toe drain						
27.	Whether the toe drain is clean with no obstruction for flow of water.						
28.	If no,						
28.a	Whether the toe drain is filled with dyke material						
28.b	Whether the design downstream slope of the dyke is maintained (Slope to be always maintained)						
29.	Whether the toe drain is shifted / slide from its original position						
30.	Whether there is any blockage in the cross pipes provided in the drain						

Observations:

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ANNEXURE R-10/4

मध्य प्रदेश MADHYA PRADESH

S.No. 11222/19 AU 595480
Dated 19-10-19
AT

AFFIDAVIT ON BEHALF OF NTPC VINDHYACHAL FOR ENSURING DYKE SAFETY IN COMPLIANCE OF DIRECTIONS ISSUED BY OVERSIGHT COMMITTEE OF HON'BLE NGT IN THE MEETING HELD ON DATED 09TH SEPTEMBER 2019 AT NTPC VINDHYANAGAR

I, Sunil Kumar, aged about 55 years, S/o B.S. Sharma, Chief General Manager (Operation & Maintenance) of VINDHYACHAL Super Thermal Power Station (VSTPS), NTPC Ltd., P.O. Vindhyanagar, District-Singrauli-486885, M.P., do hereby most solemnly state and affirm as under:-

1. Tht VSTPS has six ash ponds/ash dykes in its premises namely V1, V2, V3A, V4A, V4B.

2. That the said ash dykes are constructed as per approved NTPC engineering design & drawings and are technically sound and safe.

NOTARY SURENDRA PANDEY Advocate Waidhan Distt. Singrauli M.P. 45/07/19/Singrauli 21(B-Law) 2018 GOVT. OF M.P. PRADESH

SURENDRA PANDEY, ADVOCATE
NOTARY
Waidhan, Distt.- Singrauli (M. P.)

S.R. No. 1155/18
Dated 19.10.18
AT Contd...2/-

:2:

3. That regular monitoring and maintenance of said ash dykes is being done to ensure healthiness.

4. That ash dykes of NTPC VINDHYACHAL are safe and there is no chance of any breach or damage during its normal operation and maintenance except due to natural calamities like earthquake, cloudbursts, volcanic eruption and sabotage by miscreants etc.

VERIFICATION

I, Sunil Kumar, the deponent mentioned above do hereby most solemnly affirm that whatever is stated in the above Affidavit is true to my knowledge.

DEPONENT

Date: 19.10.19

Place: Vindhyanagar

NOTARY GOVT. OF MADHYA PRADESH

SURENDRA PANDEY ADVOCATE
NOTARY
Waidhan, Distt.- Singrauli (M. P.)

Identified by

Sig. of Deponent Executant

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ANNEXURE R-10/5

Evaluation Report

of

Structural design of Ash Dykes (Lagoons V-1, V-2, V-3A, V-3B, V-4A & V-4B) of Vindhyachal STPS (6x210+2x500+2x500+2x500+1x500MW)

N K Samadhiya
Professor

Submitted to

M/s NTPC Limited

EOC Noida, U.P.

Department of Civil Engineering
Indian Institute of Technology
Roorkee – 247 667

November, 2019

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EVALUATION REPORT OF STRUCTURAL DESIGN OF ASH DYKES (LAGOONS V-1, V-2, V-3A, V-3B, V-4A & V-4B) OF VINDHYACHAL STPS (6x210+2x500+2x500+2x500+1x500MW)

N. K. Samadhiya
Professor, Department of Civil Engineering, IIT Roorkee

1.0 INTRODUCTION

Er. Prabhat Kumar, Manager (O&M-Civil) NTPC Ltd. VSTPS, Vindhyachal, Madhya Pradesh vide e-mail dated October 22 2019 requested Prof N K Samadhiya, Department of Civil Engineering, Indian Institute of Technology (IIT) Roorkee to Evaluate/Vet the Design and Drawing of Six Ash Dykes (V1, V2, V3A, V3B, V4A and and V4B) of NTPC VSTPS. The proposal was given by Dr. N.K. Samadhiya, Professor, Department of Civil Engineering, IIT Roorkee vide letter No. CED/GTE/NKS/2310 dated October 23, 2019. The acceptance of the proposal was communicated by AGM (CS), NTPC, SSC-VSR station vide Purchase Order No. 4000229511-026-1018 Dated 28.10.2019. Further, the details of in-house Design & drawings of the Starter dyke and raisings (Lagoons V-1, V-2, V-3A, V-3B, V-4A & V-4B) were furnished by Er. Vinod Kumar Mauriya, DGM (PE-Civil), NTPC, EOC, Noida vide their letter No. CC:PEC:2220/2240/2250:01 dated 05.11.19. A site visit was also done by IIT Roorkee team from 14th to 16th Nov'19 for assessing the site conditions of above dykes.

This report is based on the observations at site and the data provided by NTPC, Noida.

2.0 GENERAL

The ash generated from the power plants is disposed-off in the Ash ponds. Unlike water reservoir, the dyke embankments for ash pond are generally not constructed upto ultimate height in one go and initially constructed upto a limited height with provision of subsequent raising as per requirement. Ash pond is divided into lagoons and provided with garlanding arrangements for changeover of the ash slurry feed points for even filling of the pond and for effective settlement of the ash particles. Having two or more storage lagoon facilitates sequential raising of lagoons by putting one lagoon for ash filling while

Samadhiya

N. K. Samadhiya
Ph.D.
Professor
Department of Civil Engineering
Indian Institute of Technology
Roorkee-247 667, U.K., INDIA

the other lagoon is used for raising its dyke. Overflow lagoon helps in controlling the effluent quality of the supernatant, which is recycled back to plant for making ash slurry.

NTPC's Vindhyachal Super Thermal Power Station (6x210+2x500+2x500+2x500 +1x500MW) is 2 kilometres from Shakti Nagar Railway Station and located in Vindhyanagar, District Singraulli of Madhya Pradesh Bihar. The ash disposal areas of Vindhyachal STPS is located in earthquake Zone-III as per IS: 1893.

3.0 EVALUATION OF STRUCTURAL DESIGN OF NTPC

3.1 General Arrangement

The scheme for ash disposal of VSTPS envisages storage lagoons namely V-1, V-2, V-3A, V-3B, V-4A & V-4B for storing ash (fly ash & bottom ash) to be discharged in slurry form. The two storage lagoons have one common over flow lagoon (OFL) to collect decanted water for recirculation back to plant. The lagoons V-1, V-2, V-3A, & V-3B having total area (including OFL) of about 1560 acres is located in Shahpur area and lagoons V-4A & V-4B having total area (including OFL) of about 500 acres is located in Baliyari area.

Ash disposal areas are designed as multi-lagoon systems with minimum two storage lagoons and one over-flow lagoon. Overflow lagoon helps in controlling the effluent quality of the supernatant, which is recycled back to plant for making ash slurry. The lagoons are provided with garlanding of ash slurry pipeline with arrangements for changeover of the ash slurry feed points to ensure uniform filling of the pond and to ensure effective settlement of the ash particles. Construction of Spillway/ well type water escape structure (WES) is also envisaged in the lagoon for taking out the decanted water from storage lagoon to over flow lagoon. The flexible opening provided in the WES wells is used to maintain adequate water cover over the deposited ash in the lagoon under charge to prevent any fugitive dust emission from storage lagoon. For safety of dyke against overtopping adequate free board has been provided as per codal provisions between the maximum ash fill level and top of dyke. For collection of any water below phreatic line from dyke, provision of a toe-drain all around the dyke has been kept, so that the toe drain water is collected and recirculated back to the plant. All the storage lagoons have been initially designed with Starter dyke to be constructed with earth and 4 subsequent raisings of 3 m height each (effective height) using ash as main

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construction material with an earth cover over the ash dyke embankment in order to have better resistance against erosion due to rain cuts. For safety of dyke against overtopping a free board of 1.5m as per codal provisions has been provided between the maximum ash fill level and top of dyke.

The NTPC's structural design has been checked for stability in all critical states. The stability of the dyke embankment (for ultimate height) has been checked for i) static and ii) seismic conditions as per IS: 7894 for all the Lagoons. Additionally, stability for buttressing (Stage-I) up to 4th raising of V-1 lagoon is also checked. The design is found to be safe as per obtained factor of safety (FoS) in line with IS:7894. The provided slopes of 2.5 H:1.0 V for the starter dyke (constructed with earth) and 3.0 H:1.0 V for raising dykes (constructed with pond ash and earth cover) are as per safe. The adopted method of construction for raising dykes with an earth cover of 500mm over ash fill is a standard practice in order to have better resistance against erosion due to rain cuts.

Based on above analysis, it is seen that, the design of the ash dykes has been done in line with codal provisions of Dam design and as per prevalent engineering practices.

3.2Additional features

The other elements of ash dykes are as follows:

a) **Dyke Height**

a. Lagoons: V-1, V-2, V-3A, V-3A and V-3B

Starter Dyke (Varying as per NGL)	:14.00m (Maximum)
Raisings	:3m each(Effective)
Number of raisings	:4 Nos
Freeboard	:1.5m

b. Lagoons: V-4A and V-4B

Starter Dyke (Varying as per NGL)	:20.00m (Maximum)
Raisings	:3m each(Effective)
Number of raisings	:4 Nos
Freeboard	:1.5m

b) **Dyke Slope:**

Slope of 2.5 H: 1.0 V with berms of width 3m at 6 m height intervals (from top) for starter dyke and slope of 3.0 H: 1.0 V with no berms for raising dyke

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is adopted. A top width of 6.0m has been adopted to accommodate maintenance road and ash slurry pipelines.

c) **Internal drainage arrangement:**

For safety against internal erosion, internal drainage as chimney filter and horizontal blanket filter connecting chimney filter to the rock toe is provided as below to guide the water from within the embankment to the rock-toe/ drain. The filter criteria have been considered at all interfaces of dis-similar materials.

- Chimney filter upto 1m below dyke top meeting the filter criteria
- Blanket filter connecting chimney to rock-toe at the base of dyke
- Slope filters wherever required in case of buttressing

d) **Slope Protection :**

i) Upstream Slope:Brick lining in panel walls for protection from wave section

ii) Downstream Slope :Stone pitching with aggregate and filter up to HFL and turfing from HFL to top of the dyke.

iii)Free Board :A free board of 1.5m is provided as per IS: 10635

e) **Rock toe :**

The rock-toe using stone boulder, aggregate & fine filter and 300mm thick RR masonry cap over rock-toe to protect filters against contamination is provided in order to release any residual pressure at the toe of the dyke and to arrest any material loss with water from the dyke. The filter criteria is considered at all interfaces of dis-similar materials.

f) **Kerb/dowel walls:**

230 thick dowel walls is provided to guide the surface water from the top of the dyke to the slope drains on downstream side.

g) **Slope Drains:**

As a safety measure against the soil erosion due to rain water, 300 mm wide x 150 mm deep brick masonry drains is provided. The slope drains are

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either connected to the toe drain or taken off through network of pipes (in case of raising dyke).

h) **Toe Drain:**

For collection of any seepage water from dyke, provision of a drain all around the dyke has been kept and the toe drain water is collected and recirculated back to the plant. The section of toe-drain is designed in order to release any residual pressure at the toe of the dyke.

i) **Instrumentation:**

Piezometers and settlement markers are provided at various locations in the dyke embankment as indicated in the construction drawings for monitoring the health of dyke embankment.

j) **Water Escape Structures (WES):**

Construction of well type water escape structure(WES) in each ash storage lagoon with flexible opening is provided for taking out the decanted water from storage lagoon to over flow lagoon for recirculation through AWRS pump house. The flexible opening provided in the WES wells would be used to maintain adequate water cover over the deposited ash in the lagoon under charge to prevent any fugitive dust emission from storage lagoon.

k) **Inspection Roads:**

WBM road over top of dykes is provided for inspection and maintenance of ash dyke.

4.0 SUMMARY & RECOMMENDATIONS

On the basis of design documents provided by NTPC & a site visit, it is seen that the construction of ash dykes of VSTPS is in line with design and drawings. The stability of the dyke embankment (for ultimate height) has been checked for i) static and ii) seismic conditions as per IS: 7894. The safe slopes of 2.5 H:1.0 V for the starter dyke (constructed with earth) and 3.0 H:1.0 V for raising dykes (constructed with pond ash) are adopted. However, for raising dykes, an earth cover of 500mm over ash fill has been provided in order to have better resistance against erosion due to rain cuts.

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The design & drawings submitted by NTPC for above dykes are checked and found to be in order. The copy of approved drawings of ash dykes (Lagoons V-1, V-2, V-3A, V-3B, V-4A & V-4B) is attached herewith.

Based on above, it is established that design of ash dyke embankment of Vindhyachal STPS has been carried out as per prevailing engineering practices/ codal provisions and found to be safe.

Encl:

1) Stability Analyses Outputs
2) Approved drawings of ash dykes

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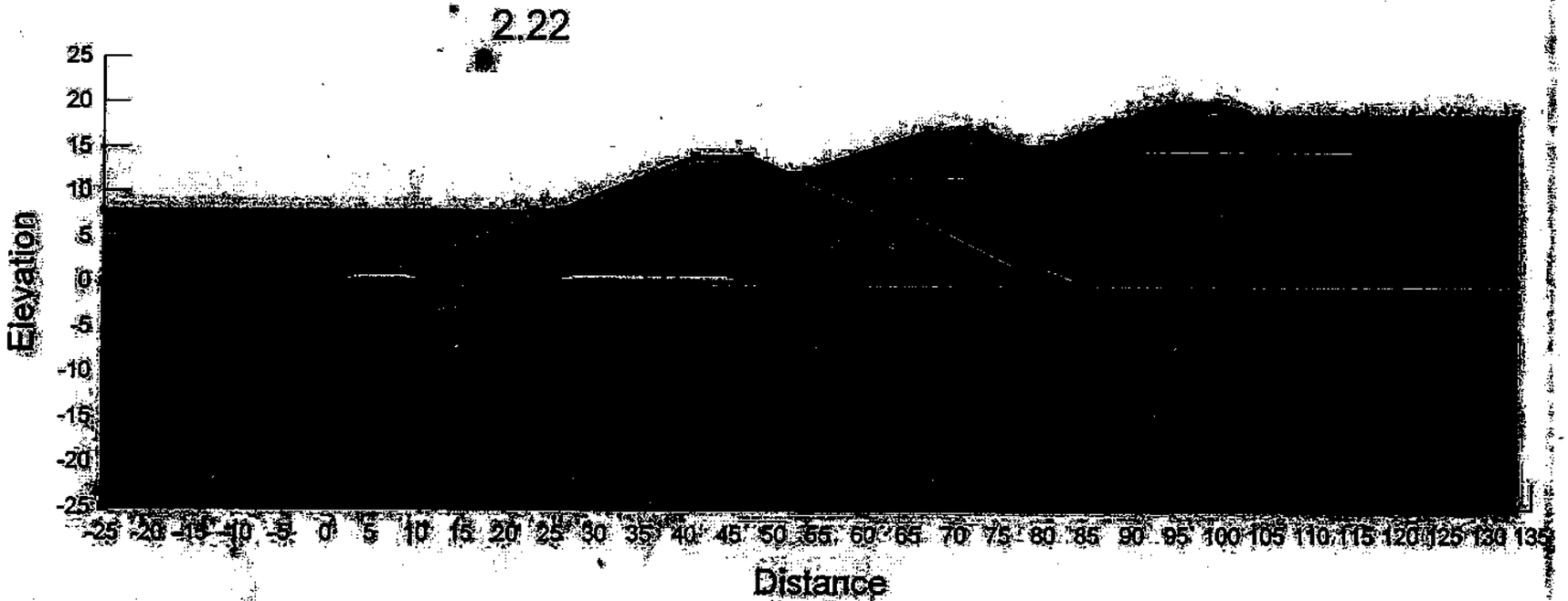
VINDHYACHAL STPS
(LAGOONS-V-1, V-2,V-3A&V-3B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH TWO RAISINGS
(STATIC CASE)

OBTAINED CRITICAL FOS>1.5, SO SAFE



Reviewed & Approved

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Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: 10 kPa Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

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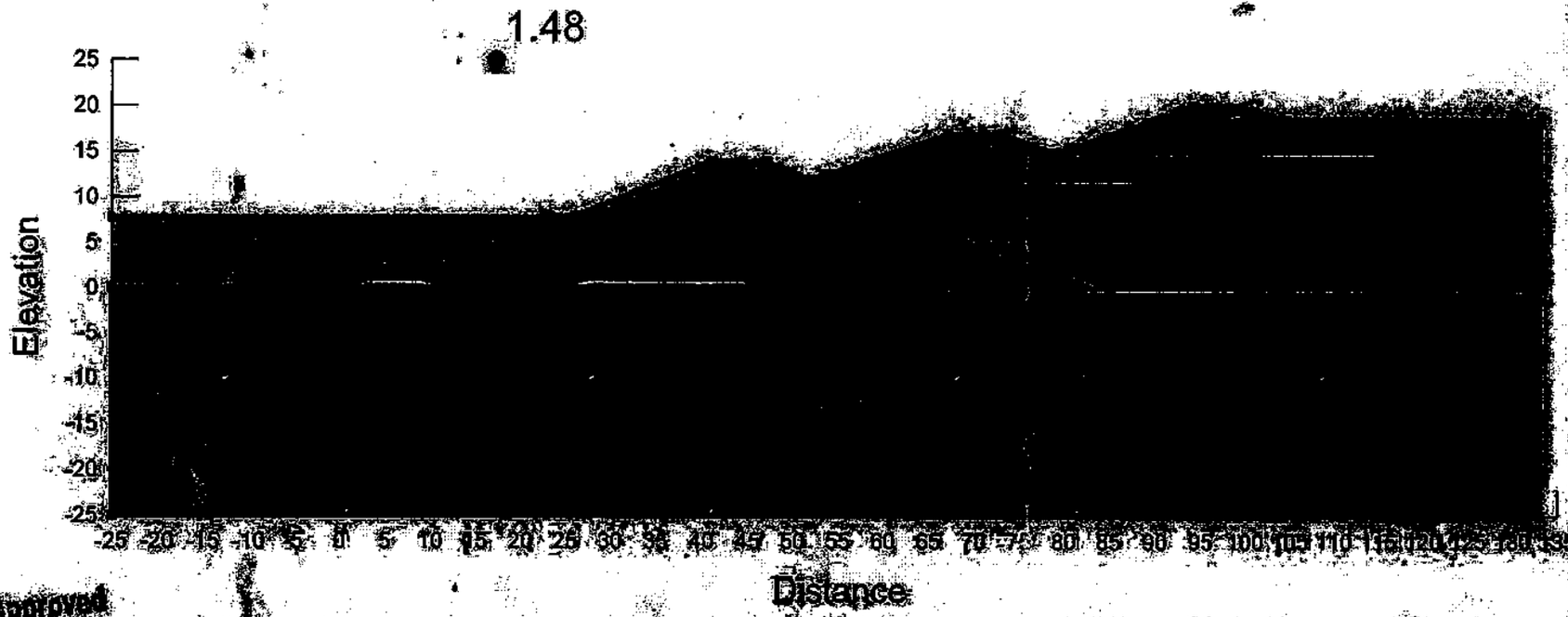
VINDHYACHAL STPS
(LAGOONS-V-1, V-2,V-3A&V-3B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH TWO RAISINGS (SEISMIC CASE)

OBTAINED CRITICAL FOS>1.0, SO SAFE



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Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

Reviewed & Approved

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VINDHYACHAL STPS
(LAGOONS-V-1, V-2,V-3A&V-3B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH FOUR RAISINGS

(STATIC CASE)

OBTAINED CRITICAL FOS>1.5, SO SAFE

2.48

Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: 10 kPa Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

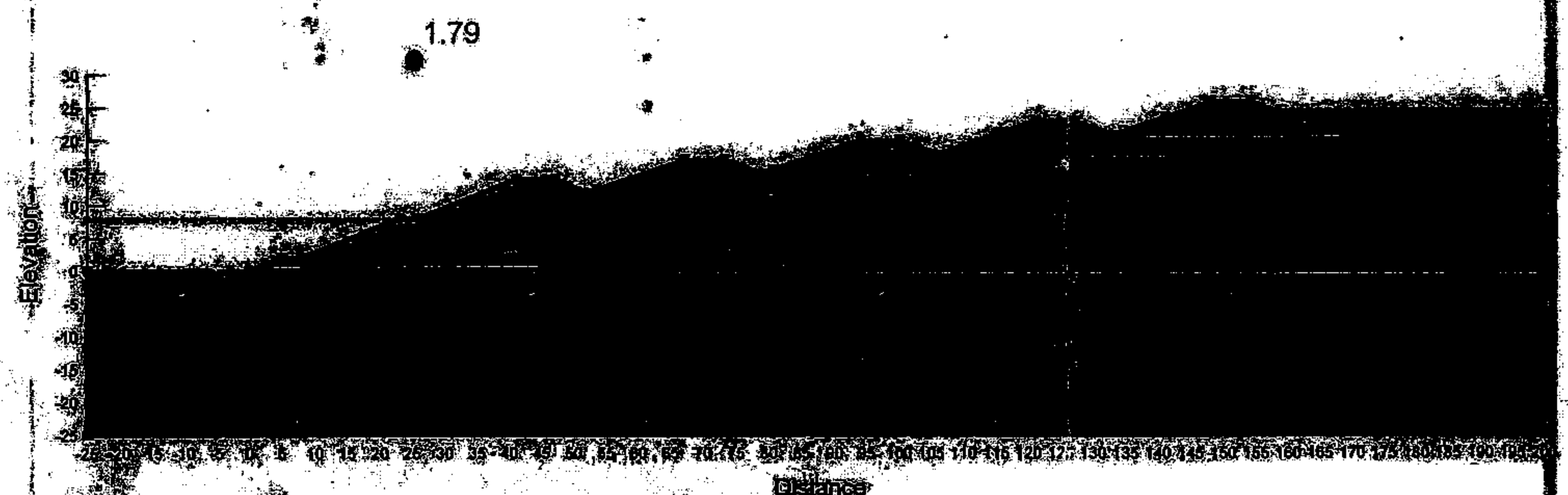
Viewed & Approved

VINDHYACHAL STPS
(LAGOONS-V-1, V-2,V-3A&V-3B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH FOUR RAISINGS

(SEISMIC CASE)

OBTAINED CRITICAL FOS>1.0, SO SAFE



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Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °

Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °

Name: Lagoon Ash Unit Weight: 14 kN/m³ Cohesion: 0 kPa Phi: 30 °

Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

63)

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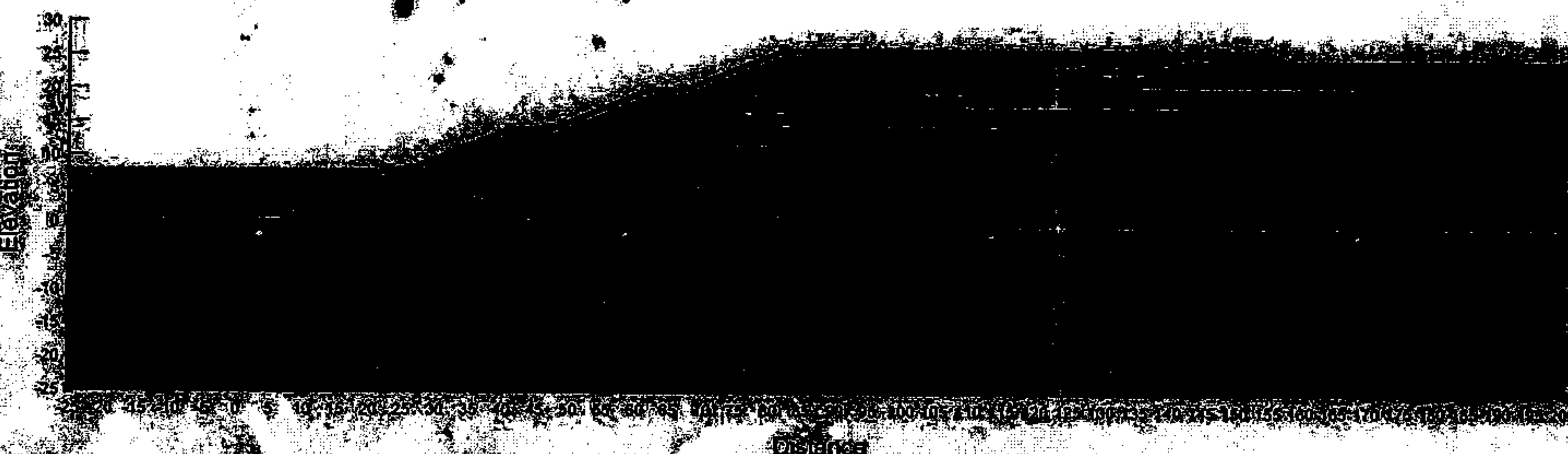
VINDHYACHAL STPS
(LAGOON-V-1)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR BUTTRESSING OF STARTER DYKE WITH FOUR RAISINGS

(STATIC CASE)

OBTAINED CRITICAL FOS>1.5, SO SAFE

1.78



Viewed & Approved

Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: 10 kPa Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

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VINDHYACHAL STPS
(LAGOON-V-1)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR BUTTRESSING OF STARTER DYKE WITH FOUR RAISINGS

(SEISMIC CASE)

OBTAINED CRITICAL FOS>1.0, SO SAFE

1.22

Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: 10 kPa Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 0.0 kPa Phi: 35 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

Reviewed & Approved

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VINDHYACHAL STPS
(LAGOONS- V-4A&V-4B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH TWO RAISINGS

OBTAINED CRITICAL FOS>1.5, SO SAFE (STATIC CASE)

2.18

Reviewed & Approved

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VINDHYACHAL STPS
(LAGOONS- V-4A&V-4B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH TWO RAISINGS

(SEISMIC CASE)

OBTAINED CRITICAL FOS>1.0, SO SAFE 1.52

Name: Foundation Soil   Unit Weight: 19 kN/m³   Cohesion: 10 kPa   Phi: 32 °
Name: Starter Dyke   Unit Weight: 18 kN/m³   Cohesion: 10 kPa   Phi: 31 °
Name: Raising Dykes   Unit Weight: 15 kN/m³   Cohesion: 0 kPa   Phi: 31 °
Name: Lagoon Ash   Unit Weight: 15.5 kN/m³   Cohesion: 0 kPa   Phi: 30 °
Name: Filter   Unit Weight: 19 kN/m³   Cohesion: 0 kPa   Phi: 35 °

Reviewed & Approved

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VINDHYACHAL STPS (LAGOONS- V-4A&V-4B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH FOUR RAISINGS

OBTAINED CRITICAL FOS>1.5, SO SAFE (STATIC CASE)

Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: [illegible] Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: [illegible] °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

Reviewed & Approved

N. K. Samadhiya
Professor
Department of Civil Engineering
[illegible]

VINDHYACHAL STPS (LAGOONS- V-4A&V-4B)

SLOPE STABILITY ANALYSIS(BISHOP METHOD) FOR STARTER DYKE WITH FOUR RAISINGS

OBTAINED CRITICAL FOS>1.0, SO SAFE (SEISMIC CASE)

1.52

Name: Foundation Soil Unit Weight: 19 kN/m³ Cohesion: 100 kPa Phi: 32 °
Name: Starter Dyke Unit Weight: 18 kN/m³ Cohesion: 10 kPa Phi: 31 °
Name: Raising Dykes Unit Weight: 15 kN/m³ Cohesion: 0 kPa Phi: 31 °
Name: Lagoon Ash Unit Weight: 15.5 kN/m³ Cohesion: 0 kPa Phi: 30 °
Name: Filter Unit Weight: 19 kN/m³ Cohesion: 0 kPa Phi: 35 °

Verified & Approved

N. [illegible] Ph.D.
Professor
Department of Civil Engineering
[illegible]

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ANNEXURE R-10/6

S.R. No. 1114 B 2219

भारतीय गैर न्यायिक

पचास रुपये

FIFTY RUPEES

रु.50

Rs.50

सत्यमेव जयते

INDIA

INDIA NON JUDICIAL

मध्य प्रदेश MADHYA PRADESH

AU 757800

NOTARY
SURENDRA PANDEY
GOVT. OF MADHYA PRADESH

CANCELLED

NOTARIAL

CANCELLED

NOTARIAL
NOTARIAL Rs. 10.00

AFFIDAVIT ON BEHALF OF NTPC VINDHYACHAL FOR ENSURING DYKE SAFETY IN COMPLIANCE OF DIRECTIONS ISSUED BY OVERSIGHT COMMITTEE OF HON'BLE NGT IN THE MEETING HELD ON DATED 22nd OCTOBER 2019 AT NTPC VINDHYANAGAR

I, Sunil Kumar, S/o Shri B.S. Sharma, aged about 55 years, Chief General Manager (Operation & Maintenance) of VINDHYACHAL Super Thermal Power Station (VSTPS), NTPC Ltd., P.O. Vindhyanagar, District Singrauli – 486885, M.P., do hereby most solemnly state and affirm as under:-

1. That VSTPS has six ash ponds / ash dykes in its premises namely V1, V2, V3A, V3B, V4A, V4B.

2. That the said ash dykes are constructed as per approved NTPC engineering design & drawings and are technically sound and safe.

SURENDRA PANDEY ADVOCATE
NOTARY
Waidhan, Distt.- Singrauli (M.P)
13/12/19

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S.R. No. 14858/19
Dated 13/12/19
AT

3. That the said ash dykes have been inspected by the experts from IIT, Roorkee. That the design and construction of ash dykes of NTPC Vindhyachal have been certified to be safe by IIT, Roorkee.

4. That regular monitoring and maintenance of said ash dykes is being done to ensure healthiness.

5. That ash dykes of NTPC VINDHYACHAL are safe and there is no chance of any breach or damage during its normal operation and maintenance except due to natural calamities like earthquake, cloudbursts, volcanic eruption and sabotage by miscreants etc.

DEPONENT

VERIFICATION

I, Sunil Kumar, the deponent mentioned above do hereby most solemnly affirm that whatever is stated in the above Affidavit is true and correct to my knowledge and belief as per the documented information available to my office.

DEPONENT

Identified by
A. K. Jaiswal
Adv.

Date: 13.12.2019

Place: Vindhyanagar

Sig. of Deponent

SURENDRA PANDEY ADVOCATE
NOTARY
Waidhan, Dist. Singrauli (M.P.)
13/12/19

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ANNEXURE R-10/7

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)

विंध्याचल/VINDHYACHAL

Ref. No. 060/ED(V)

Dated 11th September 2019

The Collector,
Singrauli Distt, (MP)

Sub: Request for allocation of abandoned stone quarries/mines for waste land development using Pond Ash of NTPC Vindhyachal and making earth cover over ash filled area.

Respected Sir,

This has reference to the discussions during the NGT Oversight Committee meeting on 09/09/19 held at NTPC Vindhyachal chaired by Hon'ble Justice Rajes Kumar (retd) with regard to the waste land development of abandoned/exhausted quarries/mines using ash from Thermal Power Plants.

As per the direction of the chair, all Thermal Power Plants are required to take up the waste land development of abandoned/exhausted quarries/mines using ash from their Plants and Distt. Administration is to facilitate the same. In this regard, it is submitted that NTPC Vindhyachal is very much willing to take up the task of waste land development and may please be allotted one or more such quarry/mine for development. Also, we are ready to take up the low lying area filling in any other Govt land if required, using pond ash. The filled up area will be properly compacted and covered with soil excavated from the site itself or from a nearby location. The details of the proposed process for mine filling is attached as **Annexure 1.**

NTPC Vindhyachal is the largest thermal power plant in the country which supplies power at a very low cost to the entire country. 27 % of which is supplied to the state of MP. The Thermal Power Plant being remotely located, the avenues for ash utilisation are very limited and current level for Ash Utilisation for the station is only around 30 %. The regulators as well as NGT has been continuously directing NTPC to take up ash filling in abandoned mines to reduce the burden in its ash dyke area and to develop waste land. We assure you that the filling of ash in an environmentally sound manner will not only prevent the contamination of ground water but also facilitate the reclaiming of a huge area.

We assure you that we will comply with all the directions issued for Environment Protection in this regard.

With regards.

Yours faithfully,

Debashis

(Debashis Sen)
Executive Director,
NTPC-Vindhyachal

Encl.: As Above

विंध्याचल सुपर थर्मल पावर स्टेशन, पोस्ट विंध्यनगर, जिला-सिंगरौली (म. प्र.)-486 885, दूरभाष : 07805-247919 (का.), फैक्स : 07805-247919
Vindhyachal Super Thermal Power Station, P.O. Vindhyanagar, Distt. Singrauli (M.P.)-486 885, Ph. : 07805-247919(O), Fax : 07805-247919
पंजीकृत कार्यालय : एनटीपीसी भवन, स्कोप काम्प्लैक्स - 7, इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली - 110 003
Registered Office : NTPC Bhawan, SCOPE Complex - 7, Institutional Area, Lodhi Road, New Delhi - 110 003

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Annexure 1.

PROCESS OF ASH FILLING AND MAKING EARTH COVER OVER ASH FILLED AREAS

The waste land development work will be taken up as per the approved process and due permission of MPPCB.

Pond Ash filling:

Pond Ash shall be excavated from the Ash Dykes of NTPC Vindhyachal by means of hydraulic excavators (poclain) and shall be loaded in Hyvas / Dumpers. Pond ash of the ash dyke is having moisture of more than 9 - 10% hence there is no chance of any dust emission during nuisance. Hyvas / Dumpers shall be properly covered with tarpaulin to avoid any ash spillage during transportation of pond ash from the ash dyke to ash filling site.

The pond ash shall be placed in the filling area in continuous horizontal layers, stretching right across the whole section, and not more than 300 mm in compacted thickness and rolled. The compaction of each layer of pond ash shall be carried out so as to achieve in-situ dry density not less than 95% of maximum dry density (MDD) of the material found out as per IS: 2720(Part-VII). To achieve the 95% compaction level of pond ash at ash filling site use of vibratory rollers shall be made. Required nos. of passes shall be made so as to achieve desired compaction. Regular water sprinkling at the ash filling site shall be done at the ash filling site to avoid any dust emission during ash filling process.

Earth Cover:

After completion of ash filling, a 500 mm soil cover will be placed on top of the filled area. Soil required for earth cover shall be excavated within 500 meters of the ash filling area. Only minimum quantity of soil shall be excavated from the ash filling site itself for making earth cover purpose. No stones, cobbles or rock fragments, having maximum dimensions more than 25 mm shall be placed in the earth cover. Void created due to soil borrow pit shall be back filled with pond ash with 95% compaction and earth cover of compacted thickness 500 mm shall be made on ash filling. Compaction of 95% shall be achieved for earth cover also. Water sprinkling shall be done regularly during all stages of ash filling and making earth cover over ash filled area. Grass turfing shall be done on the slopes.

Plantation:

After complete filling of void, the same shall be reclaimed and vegetated with native plant species so that topography and local aesthetics are restored, which will have dual benefit of conservation of land (for ash disposal) as well as reclamation of abandoned voids.

Handing over:

After the completion of ash filling and earth cover work the area of the mines will be handed back as per the directions of the Distt. Administration .

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एनटीपीसी NTPC
A MAHARATNA COMPANY

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
*(Formerly National Thermal Power Corporation Ltd.)

विंध्याचल/VINDHYACHAL

Ref.060/ED(V)/

Dated 11th Sept 2019

To

District Magistrate,
Sonebhadra Distt, UP

Sub: Request for allocation of abandoned stone quarries/mines for waste land development using Pond Ash of NTPC Vindhyachal and making earth cover over ash filled area.

Respected Sir,

This has reference to the discussions during the NGT Oversight Committee meeting on 09/09/19 held at NTPC Vindhyachal chaired by Hon'ble Justice Rajes Kumar (retd) with regard to the waste land development of abandoned/exhausted quarries/mines using ash from Thermal Power Plants.

Sir, as discussed, NTPC Vindhyachal is very much willing to take up the task and may please be allotted one or more such quarry/mine for development.

NTPC Vindhyachal is the largest thermal power plant in the country which supplies power at a very low cost to the entire country. The Thermal Power Plant being remotely located, the avenues for ash utilisation are very limited and current level for Ash Utilisation for the station is only around 30 %. The regulators as well as NGT has been continuously directing NTPC to take up ash filling in abandoned mines to reduce the burden in its ash dyke area and to develop waste land. We assure you that the filling of ash in an environmentally sound manner will not only prevent the contamination of ground water but also facilitate the reclaiming of a huge area. The details of the proposed process for mine filling is attached as **Annexure 1.**

In view of the facts and circumstances presented, you are requested to allott one or more quarry/mine for waste land development. We assure you that we will comply with all the directions issued for Environment Protection in this regard.

With regards.

Yours faithfully,

Debashis Sen

(Debashis Sen),
Executive Director(V)

Encl : As Above

विंध्याचल सुपर थर्मल पावर स्टेशन, पोस्ट विंध्यनगर, जिला-सिंगरौली (म. प्र.)-486 885, दूरभाष : 07805-247919 (का.), फैक्स : 07805-247919
Vindhyachal Super Thermal Power Station, P.O. Vindhyanagar, Distt. Singrauli (M.P.)-486 885, Ph. : 07805-247919(O), Fax : 07805-247919
पंजीकृत कार्यालय : एनटीपीसी भवन, स्कोप काम्पलैक्स - 7, इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली - 110 003
Registered Office : NTPC Bhawan, SCOPE Complex - 7, Institutional Area, Lodhi Road, New Delhi - 110 003

643

Annexure 1.

PROCESS OF ASH FILLING AND MAKING EARTH COVER OVER ASH FILLED AREAS

The waste land development work will be taken up as per the approved process and due permission of UPPCB.

Pond Ash filling:

Pond Ash shall be excavated from the Ash Dykes of NTPC Vindhyachal by means of hydraulic excavators (poclain) and shall be loaded in Hyvas / Dumpers. Pond ash of the ash dyke is having moisture of more than 9 - 10% hence there is no chance of any dust emission during nuisance. Hyvas / Dumpers shall be properly covered with tarpaulin to avoid any ash spillage during transportation of pond ash from the ash dyke to ash filling site.

The pond ash shall be placed in the filling area in continuous horizontal layers, stretching right across the whole section, and not more than 300 mm in compacted thickness and rolled. The compaction of each layer of pond ash shall be carried out so as to achieve in-situ dry density not less than 95% of maximum dry density (MDD) of the material found out as per IS: 2720(Part-VII). To achieve the 95% compaction level of pond ash at ash filling site use of vibratory rollers shall be made. Required nos. of passes shall be made so as to achieve desired compaction. Regular water sprinkling at the ash filling site shall be done at the ash filling site to avoid any dust emission during ash filling process.

Earth Cover:

After completion of ash filling, a 500 mm soil cover will be placed on top of the filled area. Soil required for earth cover shall be excavated within 500 meters of the ash filling area. Only minimum quantity of soil shall be excavated from the ash filling site itself for making earth cover purpose. No stones, cobbles or rock fragments, having maximum dimensions more than 25 mm shall be placed in the earth cover. Void created due to soil borrow pit shall be back filled with pond ash with 95% compaction and earth cover of compacted thickness 500 mm shall be made on ash filling. Compaction of 95% shall be achieved for earth cover also. Water sprinkling shall be done regularly during all stages of ash filling and making earth cover over ash filled area. Grass turfing shall be done on the slopes.

Plantation:

After complete filling of void, the same shall be reclaimed and vegetated with native plant species so that topography and local aesthetics are restored, which will have dual benefit of conservation of land (for ash disposal) as well as reclamation of abandoned voids.

Handing over:

After the completion of ash filling and earth cover work the area of the mines will be handed back as per the directions of the Distt. Administration .

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH AT NEW DELHI

ORIGINAL APPLICATION 164 OF 2018

IN THE MATTER OF:-

ASHWANI KUMAR DUBEY ... APPLICANT

VERSUS

UNION OF INDIA & ORS. ...RESPONDENTS

PROOF OF SERVICE

S. NO.	ADVOCATE NAME	SIGNATURES
1	ASHWANI KUMAR DUBEY, IN PERSON	BY email.
2		
3		
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