ADITYA BIRLA
HINDALCO

Appendix- XXXII

October 27, 2020

To,
The Chairman,
Oversight Committee, NGT,Lucknow

Sub: **Submission of information pursuant to the last e-meeting held on 25 September, 2020**

Respected Sir,

During the discussion in the e-meeting held on 25th September, 2020, certain queries were raised and we were required to submit details in support thereof for Hindalco, Renukoot and Renusagar.

We submit the following for your kind perusal and consideration,

a) **Fly Ash** – As directed, affidavit indicating current levels of generation, utilization/disposal, study conducted for ensuring stability of ash dyke, steps being taken for backfilling abandoned mines, reclamation of low lying areas as well as future plans for disposal of fly ash is attached as **Annexure - A.**

i. Sir, as submitted by us during the hearing on the 25 September, 2020, we are currently in compliance with the conditions of Consent to Operate granted to us by the UPPCB and we have a robust process of storing the fly ash in ash dyke which is monitored on a regular basis. You would also notice from the affidavit that we have carried out detailed examination through expert agency in this regard, on a regular basis. You would appreciate, Sir, while we can and are willing to take all efforts to ensure utilization (i.e. use of fly ash for alternate purposes e.g. input / raw material to cement manufacturing, brick manufacturing etc.,), but we face difficulty in the users of such fly ash not willing to accept the fly ash in such frequency or quantity that would ensure no storage of fly ash in ash dykes. Resultantly, we are compelled to acquire land, create scientifically designed ash dykes and continue to store. It is now well established that there are several productive uses to fly ash including building and construction, highways etc., which would require mandate on such users to also create the pull which would enable us to support utilization for such activities. We are confident that if necessary pull is created for alternate use of fly ash, the need for storage or create of ash dyke using virgin land could be mitigated and would be in the long term interest of environment sustainability as well. Till such time, that happens, we would have no choice but to continue to store fly ash in ash dykes in a scientific manner as also send fly ash to alternate use to the extent feasible.

ii. One such immediate step that we believe would take the utilization up would be prohibit use of red bricks manufacture and compel the use of fly ash for the making of bricks by the brick kilns in the State. This by itself would take care of a large quantity of fly ash.

iii. We would also like to submit for your consideration our submissions regarding abandoned mines / low lying areas in the forest land. Sir, you would kindly consider that an abandoned mine in a forest land should mean that the land is devoid of any forest growth while the title of the land in the revenue records is forest. Our submission in this regard is worth considering wherein we are

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ADITYA BIRLA

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revenue records is forest. Our submission in this regard is worth considering wherein we are seeking permission to backfill abandoned mines, put a top soil cover, plant saplings for trees for future, which would only result in creation of a forest. There is no requirement of deforestation for such purpose and in our humble view, it does not attract the provisions of Forest (Conservation) Act. The Government could consider issuing only permission to carry out the backfilling process under due supervision of the UPPCB/Forest Department and once the work is done, we would exit. It could be on a work order basis without there being any need for transfer of rights to the forest land including but not limited to lease or any other form of documentation. We would like to attach as **Annexure - B** for your consideration a copy of the minutes of the meeting received from the Office of DM, Sonbhadra dated 30 September, 2020. We believe some steps to unlock the process would still be required to expedite utilization of abandoned mines for backfilling purposes.

b) **Bauxite Residue - BR (Red Mud) -** A detailed presentation on the subject is attached as **Annexure - C** for your kind perusal and consideration. You would kindly see, Sir, BR, as in the case of fly ash, is also capable of being used for mine backfilling. We have already initiated the process with CPCB and NEERI in one of our Units in Odisha. We would obliged if the approval of site inspection and study is permitted at the earliest in the abandoned stone quarry near Dalla so that once we have the feasibility report, we can work closely with UPPCB as well as the Department of Mines, UP Government and take steps evacuate BR being stored over the years in our land.

c) **Compliance status of observations by Ld. Oversight Committee.** – We attached a chart indicating various points raised over the period and their current status as **Annexure-D.** We would happy to be of assistance in case you have any further questions.

d) **RO Plants installed and operational in Sonbhadra** – We have installed 13 No's RO plants at allotted villages and providing pure drinking water from January 2015 onwards in compliance of NGT order dated 13.05.2014. All plants are currently operational. We have also started supplying of drinking water through SS Tanker at allotted village Kusmha /Kirvani as per letter issued by SDM Dudhi, Sonbhadra on January 13, 2018.The details are attached as **Annexure - E**

We hope you would find the above as well as the documents attached in order. We remain available to provide any further clarifications / information as may be required.

Thanking you,

Yours faithfully

FOR HINDALCO INDUSTRIES LIMITED

(Mukesh Mittal)
V.P (Safety & Environment)

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उत्तर प्रदेश UTTAR PRADESH 21AE 583282

Before
The Chairman,
Oversight Committee,
National Green Tribunal, Lucknow

AFFIDAVIT

I, Kharpati Yadav S/o. Late Buddu Yadav, resident of House No. A-1, Renusagar Colony, P.O.Renusagar-231218, Dist.Sonebhadra, U.P., the deponent do hereby solemnly affirm on oath and state as under:

1. That I am currently working as President (Power) in Hindalco Industries Limited (Renusagar Power Division), Renusagar District Sonebhadra, U.P. and fully conversant with Orders passed by the Hon'ble National Green Tribunal (NGT), New Delhi and as such competent to affirm this affidavit.

2. That pursuant to the directions of the Oversight Committee (OC) constituted by the Hon'ble NGT, during its recent virtual meeting held on 25 September, 2020, I tender this affidavit to bring the following on record.

27.10.20

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क्रम संख्या 447
स्टाम्प बिक्री का दिनांक 24-10-2020
क्रय करने का प्रयोजन 1603/लखो इण्डस्ट्रीज लिमिटेड रेणुसागर पावर डिवीजन रेणुसागर जिला सोनभद्र (उ०प्र०)
क्रेता का नाम व पता
स्टाम्प का मूल्य 10/-

उषा (स्टाम्प विक्रेता)
लाइसेन्स नं0– 124
बीना रोड, परासी, सोनभद्र (उ० प्र०)

24/10/20

27 10 20
शपथ दि०
श्री/श्रीमती Khampati Yadav
पुत्र/पत्नी late Biddu Yadav
निवासी A-1 Renusagar PO - Rewsagar
द्वारा हुई। मेरे समक्ष उपस्थित होकर प्रमाणित किया
तथा इस शपथ पत्र के तथ्यों के विषय को पढ़ कर
8609

NOTARY
Nagendra Nath
Advocate
Tehsil Durdhi
Distt Sonebhadra
Regd No.
29(11)2001
GOVT. OF U.P. (INDIA)

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3. That with regard to the scientific management of Ash Dyke, I state that the 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 CBRI Roorkee and is maintained strictly as per the standard operating procedure with round the clock monitoring.

4. That stability analysis of the Ash Dyke is being conducted by reputed agencies i.e. CBRI Roorkee/IIT BHU/MIT Moradabad. The inspection reports do not suggest or indicate any threat to the structure of the Ash Dyke. Also, in a span of three years Stability analysis of Ash Dyke is being conducted by reputed agencies i.e. CBRI Roorkee/IIT BHU/MIT Moradabad. During inspection no leakage has been observed ever from Ash Dyke body.

5. That I attach a copy of the report of IIT BHU received in the month of June, 2020 to this affidavit (**Annexure I**), which clearly observes that no sign of distress is observed on the top of the embankment, upstream or downstream slope. It further states that the drainage system comprising of vertical and cross-drain appear to be clean and well maintained. It also notes that regular maintenance of the ash dyke is carried out as is evident from the record.

6. That the current level of generation of fly ash is 1280536 TPA and bottom ash is 320134 TPA for FY20. This quantity may varies depending on coal quality and running of units.

7. That currently fly ash generated is utilized as under:

   a. Fly ash is being provided to various Cement companies in closed Bulkers/Capsules to avoid any environmental pollution.
   b. Pond ash is being supplied to clay Brick-Kiln making companies (To use in place of sand for making red bricks).
   c. Fly Ash & Bottom Ash is also utilized in our own Brick making plant for making fly ash bricks.
   d. Enhancement of capacity of own Brick making plant from 30,000 to 60,000 bricks per day.
   e. Supply of Fly ash and Bottom Ash to external Brick Making plant in our surrounding area. Fly ash & Bottom ash is also being utilized in our Techplast plant for making Ready mix plaster material.

NOTARY Nagendra Nath Advocate Tehsil Dudhi Distt. Sonebhadra Regd. No. 29(11)2001 GOVT. OF U.P.

Contd... 3

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g. Fly ash is being supplied and used by cement sheet making companies.
h. Also used internally in cement plastering on a regular basis for civil jobs.
i. Fly ash is also being supplied to Road projects - Rewa to Varanasi and under Purvanchal express way projects.

8. That we are in the process of taking following actions to increase utilization of fly ash in the future,

a. Enhanced capacity of our own Brick making plant from 60,000 bricks per day.
b. Enhance the Fly ash and Bottom ash supply quantity to external brick making Plant.
c. Use in reclamation of low lying areas for which permission shall be granted by the UP PCB.
d. Use fly ash to backfill mind voids/ stone quarry for which application has been made to the Department of Mines to carry out feasibility study. Steps will be taken upon receipt of due approvals.

27.10.20

DEPONENT

VERIFICATION

Verified on this 27 day of October, 2020 at P.O. Duddhi. District Sonbhdra (U.P.) that the contents of this affidavit are true to the best of my knowledge based on reports of stability analysis by specialized agencies. No part of it is false and nothing material has been concealed there from.

NOTARY Nagendra Nath Advocate Tehasil, Duddhi Dist. Sonebhadra Regd. No. 29/11/2001 U.P. (INDIA)

27.10.20

DEPONENT

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मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में तापीय परियोजनाओं से जनित होने वाली फ्लाईऐश निस्तारण एवं सी0एस0आर0 के अन्तर्गत पेयजल आपूर्ति के सम्बन्ध में दिये गये निर्देशों के अनुपालन में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–30.09.2020 को आहुत बैठक की कार्यवृत्त

मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में फ्लाईऐश निस्तारण के सम्बन्ध में दिये गये निर्देशों के अनुपालन में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–30.09.2020 को मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड पॉवर प्लाण्ट, रेनुसागर, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा, मेसर्स लैंको अनपरा, सोनभद्र के प्रतिनिधियों के साथ पॉवर प्लाण्ट से निकलने वाली फ्लाइऐश को परितक्य स्टोन क्वैरी में निस्तारण करने हेतु बैठक आहुत की गयी है। बैठक में निम्न अधिकारी व उद्योग प्रतिनिधि उपस्थित थे :–

I. जिलाधिकारी, सोनभद्र।
II. श्री प्रखर मिश्रा, प्रभागीय वनाधिकारी, ओवरा, सोनभद्र।
III. श्री प्रकाश चन्द्र, उप जिलाधिकारी, ओवरा, सोनभद्र।
IV. मो0 महबूब, खान अधिकारी, सोनभद्र।
V. श्री राधेश्याम, क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र
VI. श्री के0एस0 मूर्ति, ए0जी0एम0 (एच0आर0), मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, सोनभद्र।
VII. श्री सुदीप मन्ना, ए0जी0एम0 (पर्या0), मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, सोनभद्र।
VIII. श्री ए0के0 राय, अधिशासी अभियन्ता, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र।
IX. श्री कुमार गौरव, अधिशासी अभियन्ता, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओवरा, सोनभद्र।
X. श्री अनिल सिंह, ए0जी0एम0 (पर्या0), मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र।
XI. श्री राजेश सैनी, हेड सिविल, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुसागर पॉवर प्लाण्ट, सोनभद्र।
XII. श्री एस0 गोस्वामी, निदेशक, मेसर्स श्री लैंको अनपरा, सोनभद्र।

1. जिलाधिकारी, सोनभद्र द्वारा अगवत कराया गया कि मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को सम्पन्न वर्चुअल मीटिंग में तापीय विद्युत ग्रहों से जनित होने वाली फ्लाईऐश को जनपद में परितक्य स्टोन क्वैरी में सुरक्षित तरीके से निस्तारण करने हेतु निर्देशित किया गया है। वर्चुअल मीटिंग के दौरान कुछ उद्योगों द्वारा ओवर साईट कमेटी को अवगत कराया

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गया था कि उन्हें परितक्य स्टोन क्वैरी आवंटित नहीं की गयी है तथा कुछ स्थलों पर प्रस्तावित स्वयं की लो–लाईंग भूमि पर फ्लाईऐश निस्तारण करने हेतु वन विभाग द्वारा अनापत्ति प्रमाण–पत्र निर्गत नहीं किया जा रहा है। ओवर साईट कमेटी ने उक्त प्रकरण को जिलाधिकारी स्तर पर सभी स्टैक होल्डर के साथ बैठक आयोजित कर निस्तारण करने हेतु निर्देशित किया गया है।

2. जिलाधिकारी ने बैठक में उपस्थित प्रभागीय वनाधिकारी, ओवरा, सोनभद्र से अनापत्ति प्रमाण–पत्र निर्गत करने सम्बन्धी विषय पर वास्तविक वस्तुस्थिति से अवगत कराने हेतु निर्देशित किया गया। प्रभागीय वनाधिकारी, ओवरा द्वारा अवगत कराया गया कि स्वयं की भूमि पर फ्लाईऐश को केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा प्रस्तावित एस0ओ0पी0 के अनुसार सुरक्षित ढंग से निस्तारण करने हेतु उद्योग को वन विभाग की अनापत्ति प्रमाण–पत्र की आवश्यकता नहीं है।

3. बैठक में उपस्थित तापीय परियोजनाओं के प्रतिनिधियों द्वारा फ्लाईऐश के निस्तारण हेतु जिलाधिकारी, सोनभद्र से परितक्य स्टोन क्वैरीज आवंटित करने का अनुरोध किया गया। मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर एवं मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र द्वारा स्टोन क्वैरी आवंटन करने हेतु लिखित रूप में जिलाधिकारी को प्रत्यावेदन प्रस्तुत किया गया। जिलाधिकारी, सोनभद्र द्वारा अवगत कराया गया कि चार परितक्य स्टोन क्वैरीज में फ्लाइऐश के सुरक्षित निस्तारण हेतु उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओवरा, सोनभद्र को पूर्व में आवंटन किया जा चुका है।

4. श्री अनिल सिंह, ए0जी0एम0 (पर्या0) मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र ने रेडमड के निस्तारण हेतु वन विभाग की सीमा में स्थित स्टोन क्वैरी से अध्ययन कार्य कराने हेतु अनुमति चाही गयी। प्रभागीय वनाधिकारी, ओवरा द्वारा अवगत कराया गया कि वन सम्पदा को विना किसी प्रकार की क्षति पहुँचाये अध्ययन कार्य कराया जा सकता है, परन्तु वन भूमि की मूल संरचना में किसी प्रकार का परिवर्तन अनुमन्य नहीं होगा।

5. जिलाधिकारी, सोनभद्र ने सुझाव दिया कि सर्वप्रथम वन विभाग की भूमि से बाहर की परितक्य स्टोन क्वैरीज का उपयोग फ्लाईऐश निस्तारण हेतु किया जायेगा। प्रभागीय वनाधिकारी, ओवरा द्वारा सूचित किया गया कि वन विभाग की भूमि पर उपलब्ध स्टोन क्वैरीज में फ्लाईऐश का निस्तारण करने से पूर्व वन (संरक्षण) अधिनियम, 1980 के प्राविधानों के अन्तर्गत अनुमति प्राप्त करना अनिवार्य है। जिलाधिकारी, सोनभद्र द्वारा खान अधिकारी से वर्तमान में वन विभाग की भूमि के बाहर उपलब्ध परितक्य स्टोन क्वैरीज की जानकारी माँगी गयी। जिला खान अधिकारी द्वारा अवगत कराया गया कि लगभग 05 ऐसी खदानें हैं, जो वन विभाग की भूमि से 100 मीटर की दूरी के अन्दर हैं, जिन पर भविष्य में खनन कार्य किया जाना सम्भव नहीं है। इन स्टोन

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क्वैरीज को फ्लाईऐश निस्तारण हेतु प्रयोग किया जा सकता है। जिलाधिकारी, सोनभद्र द्वारा खान अधिकारी को निर्देशित किया गया कि इस प्रकार की सभी स्टोन क्वैरीज का सर्वेक्षण कर सूची एक सप्ताह के अन्दर प्रस्तुत किया जाये, जिससे कि उक्त स्टोन क्वैरीज का आवंटन उद्यमियों को फ्लाईऐश निस्तारण हेतु किया जा सके। जिलाधिकारी, सोनभद्र द्वारा उक्त 05 स्टोन क्वैरी की सूची खनन विभाग से प्राप्त होने के उपरान्त निम्न उद्यमियों को आवंटित करने हेतु मौखिक स्वीकृति प्रदान की गयी :–

क्र0 सं0	उद्योग का नाम	उद्योग को आंवटित स्टोन क्वैरीज की संख्या
1	मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, सोनभद्र	02
2	मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, सोनभद्र	01
3	मेसर्स हिण्डाल्को इण्डस्ट्रीज लि0(पॉवर डिवीजन) रेनुसागर, सोनभद्र	01
4	मेसर्स लैंको अनपरा, अनपरा, सोनभद्र	01

6. जिलाधिकारी, सोनभद्र द्वारा यह भी बताया गया कि अन्य स्टोन क्वैरीज परितक्य होने की दशा में अन्य उद्योगों को भी आवंटित की जायेंगी। जिलाधिकारी, सोनभद्र द्वारा स्टोन क्वैरीज आवंटन हेतु अनापत्ति प्रमाण–पत्र निर्गत करने की प्रक्रिया में वन विभाग व खनन विभाग के प्रतिनिधि तथा उप जिलाधिकारी, ओबरा को संयुक्त रूप से कार्यवाही करने हेतु निर्देशित किया गया, जिससे कि उद्यमियों को उक्त तीनों विभागों से सिंगल विण्डो सिस्टम की तरह आसानी से एक साथ अनापत्ति प्रमाण–पत्र प्राप्त हो सके।

7. प्रभागीय वनाधिकारी, ओबरा द्वारा अवगत कराया गया कि वन विभाग की भूमि पर उपलब्ध परितक्य स्टोन क्वैरीज को वन (संरक्षण) अधिनियम, 1980 के प्राविधानों के अन्तर्गत वन विभाग को स्टोन क्वैरीज के क्षेत्रफल के बराबर भूमि विनियमित कराने के उपरान्त फ्लाईऐश का निस्तारण करने हेतु आवंटित करने का प्राविधान है। उक्त प्रकरण में उद्यमियों द्वारा रूचि नहीं ली गयी।

8. श्री ए0के0 राय, अधिशासी अभियन्ता, उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र द्वारा सूचित किया गया कि रिहन्द डैम के निर्माण के समय किये गये खनन कार्य से निर्मित स्टोन क्वैरी का उपयोग फ्लाइऐश निस्तारण हेतु किया जा सकता है एवं उक्त स्टोन क्वैरी उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र से कम दूरी पर है, जिसे उन्हें आवंटित किया जाये। प्रभागीय वनाधिकारी द्वारा अवगत कराया गया कि उक्त स्टोन क्वैरीज वन विभाग की भूमि पर है। अतः उसका आवंटन वन संरक्षण अधिनियम, 1980 में निर्धारित प्रक्रिया के उपरान्त ही किया जा सकता है।

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9. क्षेत्रीय अधिकारी, उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र द्वारा अवगत कराया गया कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड के पत्र दिनांक–12.05.2020 द्वारा स्टोन क्वैरी के अनुमति देने हेतु CTO Mechanism प्रख्यापित की गयी है, जिसकी प्रति सभी उद्यमियों को ई–मेल से प्रेषित कर दी जायेगी।

10. जिलाधिकारी, सोनभद्र ने ओवर साईट कमेटी द्वारा पेयजल आपूर्ति के सम्बन्ध में दिये गये निर्देशों के अनुपालन में सभी उद्योगों के प्रतिनिधियों से सी0एस0आर0 के अन्तर्गत क्षेत्र में की जा रही पेयजल आपूर्ति का विस्तृत विवरण प्रस्तुत करने हेतु निर्देशित किया गया। मेसर्स हिण्डाल्को इण्डस्ट्रीज, रेनुकूट के प्रतिनिधि श्री अनिल सिंह द्वारा अवगत कराया गया कि उद्योगों द्वारा पेयजल आपूर्ति हेतु आर0ओ0 प्लान्ट लगाये गये थे, परन्तु आर0ओ0 प्लान्ट के रिजेक्ट वाटर के निस्तारण की समस्या को दृष्टिगत रखते हुए पूर्व की बैठकों में टैंकर के माध्यम से पेयजल आपूर्ति करने हेतु उद्यमियों को निर्देशित किया गया था, जिसका अनुपालन उद्योगों द्वारा किया जा रहा है। जिलाधिकारी ने पेयजल आपूर्ति सम्बन्धी विस्तृत सूचना एक सप्ताह के अन्दर उपलब्ध कराने हेतु निर्देशित किया गया।

अन्त में सभी को धन्यवाद ज्ञापित करते हुए बैठक की कार्यवाही समाप्त की गयी।

(एस0 राज. लिंगम)
जिलाधिकारी,
सोनभद्र।

कार्यालय जिलाधिकारी, सोनभद्र

पत्रांक 6111/8/10 /ओवर साईट कमेटी/2020 दिनांक :09 /10 /2020

प्रतिलिपि:–निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अपर जिलाधिकारी, सोनभद्र।
2. प्रभागीय वनाधिकारी, वन प्रभाग ओवरा, सोनभद्र।
3. उप जिलाधिकारी, ओवरा, सोनभद्र।
4. खान अधिकारी, सोनभद्र।
5. क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र।
6. महाप्रबन्धक, मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर/मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर/मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा/मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा/मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट/मेसर्स श्री लैंको अनपरा/मेसर्स हिण्डाल्को लिमिटेड, रेनुसागर पॉवर प्लान्ट, सोनभद्र

जिलाधिकारी,
सोनभद्र।

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ADITYA BIRLA

HINDALCO

Renukoot
30.09.2020

To,
District Magistrate
Sonebhadra
Uttar Pradesh

Subject: **Utilization of BR (Bauxite Residue) / Fly Ash to fill and rehabilitate the stone quarry, mine voids and low lying areas in District, Sonbhadra, UP.**

Dear Sir,

We write with reference to the letter No. G114780/Oversight/2020 dated September 25, 2020 convening a meeting of all the stake holders pursuant to the meeting of the Hon'ble Oversight Committee (OSC) constituted by the Hon'ble NGT held on September 25, 2020 under the Chairmanship of Hon'ble Justice S.V.S. Rathore (Retd).

In this connection, we would like to submit the following for your kind consideration:

Bauxite Residue (BR) – Also known as Red Mud:

At Hindalco, during our Alumina Refining Process, a high volume low effect waste known as bauxite residue (BR) gets generated. Over the years, we have been storing BR in the identified disposal/storage sites. These sites are constructed at the earmarked area following the extant guidelines.

We are fast running out of space for storage of BR and have been exploring various alternatives for disposal/storage as well as alternate use of BR. One such solution is exploring backfilling of BR in mine voids/stone quarries as against using virgin land for storage of BR.

This offers the dual advantage of preservation of virgin land and in parallel, rehabilitate the mine voids/ stone quarries.

While it remains a fact that no definite solution has been found across the world on utilization or disposal of BR, we have developed considerable experience over the years in handling BR. In Renukoot as well as our sister location in Belagavi (Karnataka), we have taken expert help and have successfully created green patch/vegetation over BR reclaimed land. **A detailed presentation on our efforts in this regard is attached for your ready reference.** We have also initiated steps in close association with NEERI as well as CPCB in exploring backfilling of mined out bauxite area in our location at Utkal, Odisha. Pilot study is underway and based on the learnings from the study similar steps would be initiated in other locations in the country.

You would be pleased to note that we have also explored the possibility of utilizing BR in cement industry in place of laterite which is obtained by mining. We have thus far dispatched **10,37,980 MT as on September 29, 2020** of BR to various cement industries and are actively looking at scaling this up. But in relation to the quantity of BR generated and current consumption levels by the cement industries, we would still need to find large scale use of BR and mine void backfilling is one such option to remediate the need for virgin land for storage of BR.

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Website www.hindalco.com
E mail hindalco@adityabirla.com
Corporate Identity No. L27020MH1958PLC011238

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ADITYA BIRLA

HINDALCO

Fly Ash:

Fly Ash is a necessary consequence of using coal based Captive Power Plant at Renusagar as well as Co- Generation Plant at Renukoot. Fly ash from Renukoot and Renusagar is being sent to various cement industries and brick manufacturing units. The remaining fly ash/bottom ash quantity is being stored at our existing ash pond situated at Bichari around 8 KMs from Renusagar which is almost full. While our request for acquisition of additional land is in process with the State Government, we continue to face operational issue to run power plant.

At Renusgar, we have efficient Electrostatic Precipitators in which Fly ash collected in the hoppers is evacuated into ash silos in dry form. To facilitate the loading of fly ash into the bulkers of cement manufacturers, we have Dry Fly Ash Transporting System (DFAT System) within the plant premises which comprises of 8 (Eight) ash silo from where ash is loaded in closed ash bulkers through telescopic chutes. From silos, cement manufacturers are taking it for making of Potland Pozzolana cement. Dry fly ash is available free of cost to nearby cement manufacturers, ash brick manufacturers and other bulk users. The bottom ash coming out of the boiler bottom hopper is pumped to ash dyke in the form of slurry through long distance ash disposal system (LDAD).

The company has made all out efforts and in fact has achieved significantly high percentage of Fly Ash utilization through supplying Fly Ash to various Cement Companies in closed Bulkers/Capsules and production of fly ash Bricks/Blocks in its own Brick making plant. We are also supplying fly ash bricks to all our sister concerns in the vicinity and various other projects under erection.

Fly ash utilization and disposal at Renusagar for FY 20 and April to August 2020 is 100%.

Some of initiatives has been implemented for scientific disposal of fly ash are as follows:

- ✓ Pond ash is being provided to clay Brick-Kiln making companies (for use in place of sand for making red bricks).
- ✓ Fly ash & Bottom ash is being utilized in our Techplast plant for making Ready mix plaster material. We also use fly ash based Cement Plaster in our day-to-day civil jobs.
- ✓ Fly ash is being supplied and used by cement sheet making
- ✓ We have enhanced capacity of our own Brick making plant upto 60,000 bricks per day
- ✓ Fly ash is also being supplied to Road projects- Rewa to Varanasi and under Purvanchal express way projects.

Request:

Our request for conducting a detailed feasibility / site evaluation study on stone quarries near Dalla is pending consideration with the State Government. Our applications for reclamation of low lying area is also pending consideration.

You would appreciate, Sir, post backfilling of the mine void / store quarry, we would also be taking steps to rehabilitate the surface and make it capable for planation purpose. This would ensure greening of the area and aid afforestation initiatives of the Government.

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We would also like to submit a copy of the detailed process developed by the Odisha State Pollution Control Board with regard to reclamation of low lying area with fly ash. You would see the approvals received (sample copies) by us and steps taken for low lying reclamation with fly ash in the State of Odisha. Similar permissions can kindly be considered for grant.

We would further like to submit for your consideration that allotment of mine voids only to the State/Central Government PSU power industries puts us in a position of disadvantage in as much as compliance with the directions of Hon'ble Supreme Court or Hon'ble NGT, which applies equally to us and non-compliance to which would put us in line for consequential actions. We would most humbly request that the mine voids currently available, and perhaps allotted to some of the State/Centre owned PSUs be kindly allowed to be shared with us so that remediation of the fly ash storage challenges could be met. We understand a certain mine void in Gorbi has more than sufficient capacity which could be allotted on a shared basis. We undertake to dispense appropriate expenses on a sharing basis with any co-sharer of the mine to meet the larger purpose of environment sustainability.

Sir, on the question of use of forest land for non-forestry activity, we would most humbly submit for your consideration that use of mine voids in forest land would be go a long way in restoring the forest. As submitted above, post the mine voids are filled, it would be covered with top soil and plantation/ afforestation activity would be conducted, which would only restore the forest that would have been denuded for the purpose of commencement of mining operations. Sir, no transfer of rights on the forest land is sought or is required in this regard. The Forest Department may consider giving a permission / direction to fill the mine void using fly ash and/or Red Mud and Fly Ash for backfilling and restoration of the surface with greenery. We are sure in the overall interest of environment sustainability suitable via media can be explored and found to achieve the desired objective.

In view of the above, we would request your urgent intervention and approvals to.

a. Permit use of Fly Ash for backfilling mine voids / stone quarry as well as low lying areas.
b. Permit carrying out site evaluation / assessment study for using BR for backfilling mine void / stone quarry.
c. Consider allotment of available mine voids on co-sharing basis.

Thanking You,

Yours faithfully,
For **HINDALCO INDUSTRIES LIMITED**

(Mukesh Mittal)
Vice President (Safety & Environment)

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October 23, 2020

Compliance of Oversight Committee Constituted by Hon'ble NGT for HIL Renukoot & Renusagar

S.No.	Oversight Core Committee Direction	Compliance Status
1	Industry to achieve emission limit of 50 Mg/nm3 for particulate matter in respect of all Baking Furnaces.	In compliance of this direction, it is submitted that the Industry has achieved emission limit of 50mg/Nm3 for particulate matter in respect of all Baking Furnaces.
2	To reduce emission level to 50 Mg/nm3 from the existing norms of 150 Mg/nm3 by December 31, 2019 by retrofitting of existing ESPs and also meet emission limit of SO2 and NOx notified for industrial Boiler.	As the said recommendation was not in consonance with EPA notified standard of Boiler emission, the Company challenged it before Hon'ble Supreme Court on December 07, 2019 which is registered as dairy no. 44191-2019 and the Hon'ble Supreme Court of India vide order dated 17.12.2019 stayed the operation of order and matter is still, pending before the Hon'ble Supreme Court of India However, for SOx & NOx, third party monitoring is in place on quarterly basis. Moreover,we have already installed online Sox & NOx analyzers at our Boilers. The equipment's have been commissioned. The connectivity with CPCB server has not been established yet due to postponement of engineer visit as a Covid -19 precaution.
3	Utilization of Red Mud in nearby cement industries including those located in MP.	We stored red mud as 65-70% solid as per CPCB guidelines surrounded by earthen dam. We have explored the Red Mud utilization in cement industries. Company took a challenge and made tireless and intensive efforts to advocate its gainful use in various cement industries even in far way location. In parallel Company has also developed its rail head and other infrastructure to support time bound logistic. With the above extensive efforts company could able to supply **Red Mud 362275 MT during April 2019 to March 2020** to various Cement manufacturers including of MP by rail/road.
4	ZLD to be established.	We have commissioned PWRP for establishing ZLD. Plant is in operation and we are able to maintain ZLD for around 25 days in a month. However, in spite of our best efforts, we are not getting consistent result of desired treated water quality, this may be due to teething problem in PWRP & unforeseen fluctuation in manufacturing process.

		Presently, R&D team of M/s Ion Exchange is working extensively to establish 100% ZLD concept by overcoming teething problem for the remaining days also by suitably modifying the process. It was targeted to establish by June, 20 but progress in this direction have been halted due to Covid -19 precaution. Now some of the balancing equipment are expected to arrive in Nov'20 and same to be erected & commissioned by Feb'21.
6	Road transportation of coal by covering with metal sheet on vehicle. Subject to decision of Hon'ble Supreme Court.	In transportation of coal by road, we ensures that all trucks are completely covered by water proof thick tarpaulin tagged with heavy rope, sealed and fix with Dalla in such a manner that it will not fly so that coal is not scattered on road. We have filed a CA before the Hon'ble Supreme Court of India and Hon'ble Supreme Court vide its order dated 8.11.2019 has directed the oversight Committee to hear all the stakeholders in this regard and submit the report in seal cover to Hon'ble Supreme Court and in the meantime stay was given on transportation of trucks containing steel plates. The matter is since then pending before the Hon'ble Supreme Court of India.
7 .	Utilization of Fly Ash/Red Mud for backfilling low lying areas and mine voids.	We have consistently been engaging with the State Government as well as Central Government for guidelines for backfilling of mind voids as well as low lying areas. In fact, we have successfully executed several projects in the State of Odisha with all due permissions from the relevant authorities. The list of permissions as well as the policy issued by the Odisha State Pollution Control Board have been shared with the State Government with a request for a similar policy for the State of Uttar Pradesh so that utilization of fly ash and/or Red Mud can be accentuated. We have also given a request to the State Government for permission to carry out a suitability study in the open mine voids particularly stone quarry. The study would be conducted by an IIT BHU / NEERI and basis their report further steps for approval to backfill the mine voids could be initiated. We continue await clearance for evaluating suitability of the site. In fact, a similar study (initiated by us) is currently underway in the State of Odisha. Expeditious approval for the same would go a long way in freeing up precious land which is otherwise used for safe storage of fly ash and red mud. Another submission that would merit consideration of the Hon'ble Committee is absence of any statutory obligation on the industries that could potentially utilize the fly ash/red mud. While obligation is being cast on the industries

		operating coal based power plant to ensure utilization, in the absence of any collateral obligation, we face immense practical and financial difficulty in ensuring such utilization. We have submitted our representation on reclamation of void mines/queries/low lying areas to DM, Sonbhadra on September 30, 2020 during the meeting held at DM Office, Sonbhadra. At Renukoot, we have applied to UPPCB on April 29, 2020 to develop low-lying area approx. 1.25 hectare by filling of ash/pond ash in Village Murdhawa. Approval is still pending.

ADITYA BIRLA
HINDALCO

Renukoot
01.10.2020

To,
The Regional Officer,
UPPCB, Office- H.N. 162,
Uttar Mohal,
Sonbhadra – 231216

Subject: - Status of distribution of drinking water through 13 no's RO plant and through Tanker in compliance of NGT order- Hindalco Renukoot

Sir,

As suggested during meeting held on September 30.2020 with DM, Sonbhadra, please note that, we have installed 13 no's RO plant to provide pure drinking water to residents of allotted villages and in operation smoothly since January 2015 onwards in compliance of NGT order dated 13.05.2014. We have also started supplying of drinking water through SS Tanker at village Kusmha /Kirvani as per letter issued by SDM Dudhi, Sonbhadra on January 13, 2018.

The drinking water to allotted villages is supplying regularly and smoothly. For strict vigilance, we have also installed GPS system in our stainless steel tanker that can be accessed at URL **https://www.autocoptrackpro.com** with user name: **215894** and password: **BSUQE2LS3**.

Please find below locations/villages of RO installed/drinking water distribution through SS tanker by Hindalco Industries Limited, Renukoot for your kind reference.

1. **RO Plant Location Details**

S. No.	Name of Cluster	Name Of Panchayat/Village	Location Detail's
1	Renukoot	Belhatthi	At Raghunath's Land, Ranitali
2	Renukoot	Village Kharpathar	Renuka site near Sonanchal school
3	Renukoot	Village Kharpathar	At Pappu's Land near primary school
4	Renukoot	Village Kharpathar	Near Babu Ram College
5	Renukoot	Renukoot	Chacha Colony(Hindalco Land)
6	Renukoot	Murdhawa	Near V-mart
7	Renukoot	Murdhawa	Behind Murdhawa Mandir
8	Renukoot	Village Rantola	Village Rantola
9	Renukoot	Village Manbasa	Westside of main gate of primary school
10	Renukoot	Village Kataudhi	Near Surajmani house, Kataudhi
11	Renukoot	Village Kataulee	Near primary health centre, Kataulee
12	Renukoot	Duddhi	Duddhi – Munsif Court
13	Renukoot	Duddhi	Duddhi-Tahsil

HINDALCO INDUSTRIES LIMITED

Renukoot Works
P.O.Renukoot - 231217
Distt. Sonebhadra (U.P.)
Telephone +91 5446 252077-79 / 254791-96
Fax +91 5446 252107 / 252427

REGISTERED OFFICE
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Mahakali Caves Road,
Andheri(East), Mumbai 400 030
Telephone +91 22 66917000
Fax +91 226691 7001

Website www.hindalco.com
E mail hindalco@adityabirla.com
Corporate Identity No. L27020MH1958PLC011238

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ADITYA BIRLA
HINDALCO

2. **Location Details for distribution of drinking water through SS Tanker, Cap – 10 KL**

S. No.	Name Of Panchayat/Village	Majra/tola
1.	Village - Kusmha	Harijan Basti
		Godani Basti
		Patel Nagar Basti
2.	Village - Kirvani	Muslim Basti
		Harijan Basti
		Baigani Basti
		Godani Basti

Thanking You,

Yours faithfully,
For **HINDALCO INDUSTRIES LIMITED**

(Anil Singh)
AGM (Environment)

HINDALCO INDUSTRIES LIMITED

Renukoot Works
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Website www.hindalco.com
E mail hindalco@adityabirla.com
Corporate Identity No. L27020MH1958PLC011238

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ADITYA BIRLA

HINDALCO

Ref. No. Env/ 274 A

Date: 12.10.2020

The Regional Officer
U.P. Pollution Control Board
House No. 162, 1st Floor
Uttar Mohal,Robertsganj
Distt: Sonebhadra - (UP) – 231 216

Sub: Status of Drinking Water supply in compliance of NGT Order-Hindalco-Renusagar

Dear Sir,

As suggested during meeting held on September 30, 2020 with DM Sobhandra, please note that we are supplying drinking water to the residents of allotted villages through dedicated Pipeline since September1, 2014 onward in compliance of NGT order dated 13 05 2014.

We are supplying Company's water works treated Drinking water to allotted villages Garbandha & Partaliya since September 1, 2014 onward on regular basis.

We have also started supplying of drinking water through SS tanker at village Kirvani (Majra-harijan Basti,Baigani Basti,Muslim Basti, and Godani Basti) as per letter issued by SDM Dudhi,sonbhadra on January13,2018.

Thanking you.

Yours faithfully,

For-HINDALCO INDUSTRIES LIMITED
(Renusagar Power Division)

(Kamlesh Maurya)
Asst Manager- Env.

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2020

Report on Physical Condition and Maintenance Requirements of Bichhari Ash Pond Hindalco Industries Ltd. Renusagar (UP)

(Reference # IIT (BHU)/CE/2020-21/58, Dated: 11-06-2020)

Dr. Arun Prasad
Professor in Geotechnical Engineering
Dept. of Civil Engineering
Indian Institute of Technology (BHU)
Varanasi – 221005

Report on Physical Condition and Maintenance Requirements of Bichhari Ash Pond, Hindalco Industries Ltd., Renusagar

A visit to the ash pond was made by the undersigned as detailed below:

Date of visit: 30-05-2020

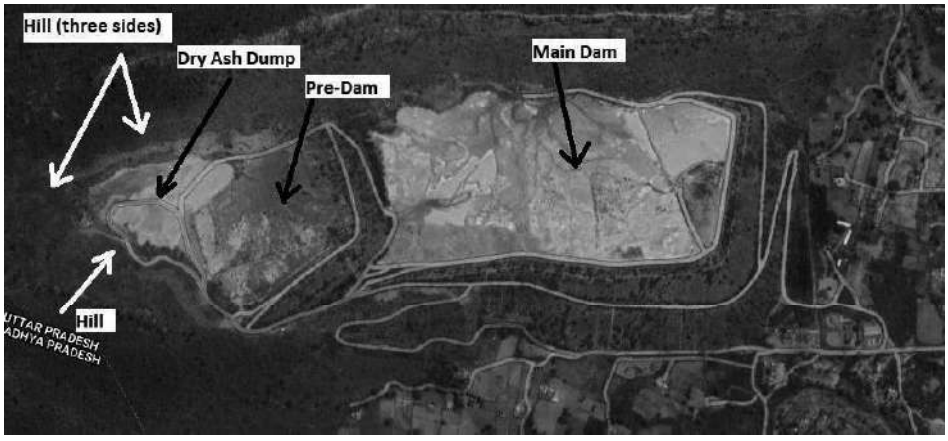
Members Present:

(A) **IIT (BHU):** Dr. Arun Prasad, Professor in Geotechnical Engg., Dept.of Civil Engg.

(B) **Hindalco Industries Ltd**.: 1. Sri K. P. Yadav, President & Unit Head
2. Sri C. S. Singh, Vice-President (Maintenance)
3. Sri Rajesh Kumar Saini, A.G.M. & Head, (Civil & Str.)
4. Sri Shashi Kant Dubey, Dy. Manager & I/C Ash Management
5. Sri Randheer Singh, Dy. Engineer

INTRODUCTION

The ash pond at Bichhari is used for the disposal of ash (fly and bottom) produced from the power plant of Hindalco Industries Ltd., Renusagar. The ash dyke consists of two compartments, pre-dam and main dam. The main dam is nearing its capacity and the free board is varying from 1-1.5 m. In order to generate new disposal capacity in the main dam, the ash is excavated (usually top layer is in a dry condition) and disposed of at a newly created site adjacent to the pre-dam (Fig. 1a). A picture of the ash pond from near its foot is shown in Fig. 1(b)



(a) A general layout of Bichhari Ash Pond

(Source: https://www.google.com/maps/@24.2055731,82.7458047,1299m/data=!3m1!1e3; retrieved on 30-05-2020)



(b) A picture of the ash dam from near its foot

Figure 1 A picture of Bichhari ash pond detailing its layout

OBSERVATIONS

1. In general, the ash pond appears to be in a healthy condition, with no sign of distress.
2. The system of drain and cross-drain appeared to be satisfactory (Figs. 2 and 3).



Fig. 2 A well maintained drain



Fig. 3 Cross-drainage system

3. The main dam is nearing its capacity and the available free board is 1-1.5m. Hence, further ash disposal can be continued with condition that dry ash from the area away from disposal points should be excavated and removed; so that the free board is maintained. The excavated dry ash can be dumped in the newly created disposal site at pre-dam, adjacent to the hill (Fig. 1).
4. The decantation well in the main dam (one in working condition, out of two) is working satisfactorily (Fig. 4). Water should not be allowed to accumulate in the main dam by more than 1.0m. A daily record of water coming from the decantation well should be tallied with the water used for disposal of ash. Loss due to evaporation and evapotranspiration should be accounted for.
5. For an additional safety, to remove excess water from the ash pond, a siphon is also provided, that is working satisfactorily (Fig. 5).



Fig. 4 Decantation wells in the main ash dam



Fig. 5 A Syphon in the main ash dam

6. The top of the embankment is given a slope towards the ash pond, so that the rain water can be taken in the dam and removed by the decantation well. However, at a few places, probably due to the uneven settlement of the embankment, the slope was towards the downstream side. All such instances should be corrected immediately.

7. The lower end of the downstream slope is covered with stone pitching and looks safe (Fig. 6).

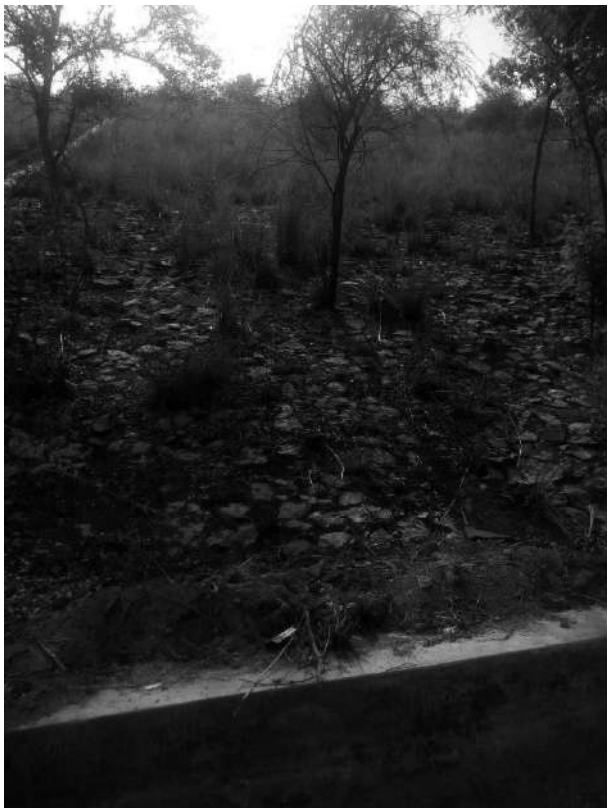


Fig. 6 Stone pitching on the lower end of the downstream slope

8. The toe drain is also maintained properly and was clean all throughout (Fig. 7).
9. The disposal of dry ash excavated from the main dam is being done in the pre-dam, towards the hills (on three sides, Refer Fig. 1) separated by bench (Fig. 8a). A toe wall is being constructed for safeguarding the slope (Fig. 8b) and the slope adjacent to the toe wall is covered with fly ash block (Fig. 8c). A proper drainage is required for safe removal of the rain water. Two drains have been suggested for the same, one on both sides of the dry ash. Care should be taken during a rain, so that the drains neither clog nor collapse.
10. A record (check list) of periodical maintenance of ash dyke, all drains, slopes are maintained properly, showing regular maintenance.



Fig. 7 Toe drain in a clean condition



(a) Dry ash disposal



(b) Toe wall for protecting dry ash dump



(c) Slope covered with fly ash block

Fig. 8 Dry disposal of ash with a toe wall and pitching on slope with fly ash block

CONCLUSION

In general, the ash dyke appears to be in a healthy condition. No sign of distress is observed on the top of the embankment, upstream or downstream slope. Drainage system comprising of vertical and

cross-drain appear to be clean and well maintained. Regular maintenance of the ash dyke is carried out as evident from the record (check list).

Since only one decantation well is working in the main dam, special daily observation is needed to ensure that it is working, especially during the rainy season. No water should be allowed to accumulate on the top of the embankment. As a safety precaution, all the components of the embankment should be checked every day to ensure its safety.



(Arun Prasad)
Professor & Consultant

Place: IIT (BHU) Varanasi
Date: 11th June 2020

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STATE POLLUTION CONTROL BOARD, ODISHA
[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII
Bhubaneswar – 751 012, INDIA

No. 11047 / IND-IV-PCP-FARC-120 Date: 21.08.2017 /

RESOLUTION

Reclamation of low lying area and abandoned quarries with Ash generated from Thermal Power Plants is an acceptable method of utilization under Fly Ash notification of Ministry of Environment & Forests & CC, Govt. of India. The SPC Board, Odisha has been following the Manual on Technology and Methodology prepared by Centre for Fly Ash Research and Management (C-FARM) in association with State Pollution Control Board, Odisha since 27.09.10 for the purpose.

Over the period, utilization of Fly Ash in various sectors has gained momentum. Reclamation of low lying area and quarries is a major area of utilization. It is, therefore, felt imperative to put in place a set of new guidelines to ease the procedure, standardize and simplify processing of the applications as well as introducing a monitoring protocol for minimizing adverse impact on the environment.

After due deliberation, a revised Guideline for reclamation of low lying areas and abandoned quarries with ash, prepared by Fly Ash Resource Centre (FARC), SPC Board is brought out. Copy of the revised Guidelinesis enclosed for reference. Here after, the revised Guideline shall be followed by all concern.

This resolution supersedes the earlier resolution no. 15934 dated 27.09.10 and will come into force with immediate effect.

By order of the Chairman,

Encl: As above

Member Secretary

Contd..

Memo No. 11048 / Dt. 21.08.2017

Copy forwarded to the Additional Chief Secretary., Forest & Env. Deptt., Govt. of Odisha, Bhubaneswar for information and necessary action.

Encl: As above

Member Secretary

Memo No. 11049 / Dt. 21.08.2017

Copy forwarded to the Principal Secretary, Industries Department, Govt. of Odisha, Bhubaneswar for kind information.

Encl: As above

Member Secretary

Memo No. 11050 / Dt. 21.08.2017

Copy forwarded to the Director (Env.)-cum-Spl. Secretary to Govt., Forest and Env. Deptt., Govt. of Odisha, Bhubaneswar for favour of information.

Encl: As above

Member Secretary

Memo No. 11051 / Dt. 21.08.2017

Copy forwarded to All District Magistrates & Collectors for favour of information and necessary action.

Encl: As above

Member Secretary

Memo No. 11052 / Dt. 21.08.2017

Copy forwarded to the Sr. Env. Engineer (N) / Sr. Env. Engineer (C) / Sr. Env. Scientist (L) / All Regional Officers / A.O. / All Env. Engineers / All Env. Scientists / Sr. Law Officer / All AEEs / All AESs, SPC Board, Bhubaneswar for information and necessary action.

Encl: As above

Member Secretary

Memo No. 11053 / Dt. 21.08.2017

Copy forwarded to the System Administrator, State Pollution Control Board, Odisha with a request to publish the Resolution Guidelines for Reclamation of low lying areas and Abandoned Quarries with Ash in the official website of the Board immediately.

21/8/2017

SR.ENV.SCIENTIST, L-I (PCP)

Guidelines for Reclamation of Low Lying Areas and Abandoned Quarries with Ash

August, 2017

FLY ASH RESOURCE CENTRE (FARC)

STATE POLLUTION CONTROL BOARD, ODISHA
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII
Bhubaneswar - 751 012
E-mail-farc.spcb@rediffmail.com

ODISHA

PREFACE

Huge quantity of ash is generated from the Boilers of Coal fired Thermal Power Plants. At present Odisha is generating about 32.5 Million Tons (MT) of Ash per annum. This is likely to increase further if the Thermal Power Plants in pipeline are established in the State. The management of ash is one of the largest environmental challenges for the State. Utilisation of the ash generated in various sectors such as construction material (bricks, blocks, tile, cement etc.), road construction, reclamation of low laying area and abandoned quarries, agriculture, mine void filling etc. has been encouraged to increase the percentage of use. In order to facilitate ash utilisation in the State, Fly Ash Resource Centre (FARC) has been set up in the State Pollution Control Board, Odisha. Reclamation of low lying area and abandoned quarries are potential area for bulk utilization of ash. Various studies have been undertaken by the Thermal Power Plants which reveal its safe to use in the activities as stated above. The present guidelines have been prepared to ease the procedure for reclamation of low lying area and abandoned quarries with ash. I place on record my appreciation for the effort made by Centre for Fly Ash Research & Management (C-FARM), New Delhi, in providing the technology and methodology for preparing the guidelines for reclamation of low lying area and abandoned quarries with ash. I also appreciate the efforts of the committee members headed by Dr. D. K. Behera, SES, in preparing the said guidelines. These guidelines will help all the stake holders i.e. Thermal Power Plants / individuals / different users in smooth supply and safe use of ash for reclamation of low lying areas and abandoned quarries.

Member Secretary

-: CONTRIBUTORS :-

Overview	:	Shri Debidutta Biswal, IFS, Member Secretary
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Report Preparation	:	Er. S. K. Sahu, Env. Engineer Shri S. K. Mishra, Consultant, FARC Shri B. Mallick, Consultant, FARC
Review of Report	:	Dr. P.K. Prusty, Sr. Env. Scientist Dr. A.K. Swar, Sr. Env. Engineer Er. R.N. Prusty, Sr. Env. Engineer Er. B.K. Behera Sr. Env. Engineer
Computer Type-Setting	:	Shri Prakash Chandra Jena, DEO Shri Pramod Kumar Behera, DEO

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Guidelines for Reclamation of Low Lying Areas and Abandoned Quarries with Ash Generated from Coal Fired Thermal Power Plants

1.0 Introduction:

Management of huge quantity of ash (fly ash, bottom ash and pond ash) generated from coal fired Thermal Power Plants (TPPs) is a serious environmental concern. Ash generation from coal or lignite based thermal power plants in our country, has increased from 40 Million tonne per year in 1993-94, to more than 200 Million tonne per year at present and is projected to increase to 275 Million Tons / year by end of this decade. In Odisha, around 32.50 Million tonne of ash was generated in the year 2016-17 from 40 thermal power plants of more than 10 MW capacity, out of which around 22 Million Tonne is being utilised in different sectors.

The ash generated in a thermal power plant has various forms such as dry ash, bottom ash, pond ash and mound ash that are required to be managed in such a manner that, it does not affect the environment. Gainful utilisation of ash is recognised as an attractive ash management option and therefore, MoEF&CC has also issued a notification to address this specific-subject.

SPCB's experience, in the past years, has shown that, a substantial fraction of ash utilisation has taken place for reclamation of low-lying area. Reclamation of low-lying area has many advantages such as, conservation of top soil, prevention of water logging besides utilisation of ash.

1.1 Need of the Guideline :

It has become necessary to protect the environment, conserve top soil, prevent dumping and regulate indiscriminate disposal of ash generated from coal-based thermal power plants. Ever since the Ministry of Environment Forest and Climate Change (MoEF&CC) emphasised on utilisation of ash, the SPC Board, Odisha realised the gravity of the issue and effective steps are being taken to ensure increase of Ash utilisation in

all possible sectors. Considering the huge quantity of ash generation in the State, continued efforts are being made for its gainful utilisation in accordance with the provisions of Fly ash Notification 1999, 2003, 2009 and 2016. One of the potential areas for gainful utilisation of ash has been recognised to be reclamation of low lying area. For reclaiming low lying area and abandoned quarries with ash, a guideline was formulated by Odisha State Pollution Control Board in July' 2010 in association with C-FARM, New Delhi. Over the years, several technical and administrative issues have been encountered while permitting reclamation of low lying areas with ash and very often those are observed as hindrance in the process. It was, therefore, felt necessary to review the Guideline and make it consistent.

A committee of SeniorTechnical Officers of the State Pollution Control Board, Odisha was constituted to review the existing guideline for necessary modification. The committee reviewed the contents relating to technical and environmental aspects and suggestions of the Committee have been incorporated in this guideline.

1.2 Objective of the Guideline :

This Guideline has been prepared with an objective to guide, facilitate and ensure filling and reclaiming the low lying area with ash in an environmentally sound manner. These guidelines have been prepared keeping in view the provisions of Fly Ash Notification and use of Ash as a substitute of soil for Geotechnical Applications.

1.3 Legal Provision :

The Ministry of Environment and Forests and Climate Change (MoEF&CC) in its Notification No. S.O. 763 (E) dated 14th September 1999, last amended on 25th January, 2016 mandates the following on reclamation ;

i. No agency, person or organization shall within a radius of three hundred kilometres of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low-lying areas with soil; only ash shall be used for compaction and reclamation.

ii. Soil required for top or side covers of embankments of roads or flyovers shall be excavated from the embankment site and if it is not possible to do so, only the minimum quantity of soil required for the purpose shall be excavated from soil borrow area. In either case, the topsoil should be kept or stored separately. Voids created at soil borrow area shall be filled up with fly ash with proper compaction and covered with topsoil kept separately as above and this would be done as an integral part of embankment project.

iii. No person or agency shall within fifty kilometers (by road) from coal or lignite based Thermal Power Plants, undertake or approve stowing of mine without using at least 25 % of fly ash on weight to weight basis, of the total stowing materials used and this shall be done under the guidance of the Director General of Mines Safety (DGMS).

iv. No person or agency shall within fifty kilometers (by road) from coal or lignite based Thermal Power Plants, undertake or approve without using at least 25 % of ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of back filling of opencast mines and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

v. All agencies undertaking construction of roads of flyover bridges and reclamation and compaction of low lying areas, including Department of Road Transport and Highways (DORTH), National Highways Authority of India (NHAI), Central Public Works Department (CPWD), State Public Works Department and other State Government Agencies, shall within a period of four months from the publication of this Notification " make provisions in their tender documents, schedules of approved materials and rates as well as technical documents for implementation of this Notification, including those relating to soil borrow area or pit ".

2.0 Properties of Fly Ash :

Dry Fly Ash (DFA), collected in air pollution control equipment and the Bottom Ash (BA) are fine particles with particle size ranging from few microns to about 150 micron. The percentage of +100 micron size

particles is generally around 5 and that of particles finer than 25 micron is around 15. Bottom Ash generally consists of particles of 200 to 2000 micron size. A small proportion of +2000 micron and some percentage of -200 micron size particles are also present. Bottom Ash (BA) is a granular material like coarse sand. Coarser material with good particle size distribution is generally the best material for geotechnical applications. However Dry Fly Ash is also a good material for this purpose as it gives very good compaction by virtue of excellent packaging due to good range of particle size distribution. The compaction is to be done maintaining optimum moisture content and procedure as detailed in this document.

The comparative physical and Geotechnical properties of ash and soil are given in **Table 1** and Chemical properties are given in **Table 2**. Fly ash is easier to consolidate and settles much faster without any subsequent settlement. It is lighter in weight and thus can be conveniently used on weak soils. It has higher angle of internal friction and thus is more stable even with steeper slopes.

Table-1

Physical and Geotechnical Properties of Fly Ash and Soil

Properties	Fly Ash	Natural Soil
Bulk Density (gm/cc)	0.9 – 1.5	1.3 – 1.8
Specific Gravity	1.6 – 2.6	2.50 – 2.80
Maximum Dry Density (gm/cc)	0.9 – 1.6	1.6 – 2.0
Optimum Moisture Content (per cent)	18.0 – 40.0	12 – 22
Cohesion (kN/m^2)	Negligible	0 – 50
Angle of Internal Friction (degrees)	28 – 42	26 – 36
Coefficient of Consolidation C_v (cm^2/sec)	1.80×10^{-5}-2.00×10^{-3}	$10^{-5} – 10^{-3}$
Compression index C_c	0.05 – 0.40	0.05 – 1.0
Permeability (cm/sec)	$8 \times 10^{-6} – 7 \times 10^{-4}$	$1 – 10^{-7}$
Coefficient of Uniformity	3.1 – 10.7	1 – 20
Plasticity	Non – Plastic	Low to High
Shrinkage Limit	Very Low	Low to High
Grain size	Silty / Sandy	Varies according to type of soil
Clay content	Negligible	Depend on type of soil
Free Swell Index	Very Low	Variable
Classification	Sandy silt to silty sand	Variable

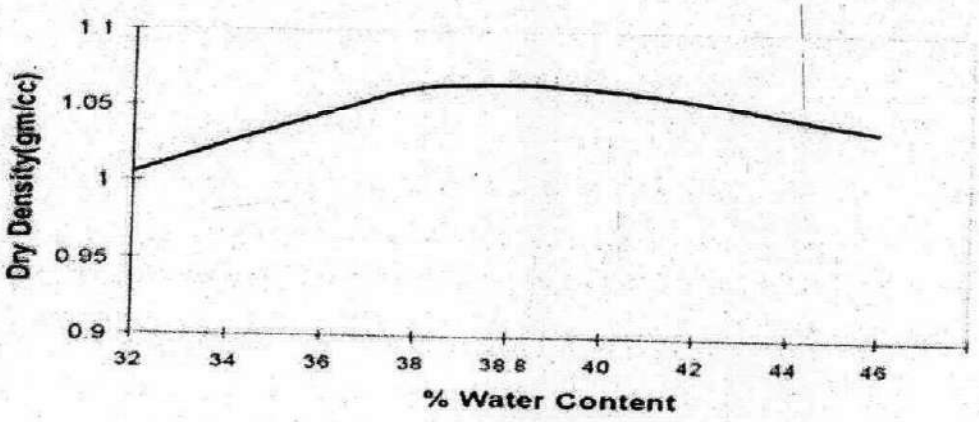
Table-2

Chemical Properties of Fly Ash and Soil

Constituents (in %)	Fly Ash	Natural Soil
Sio2	35 – 70	40 – 65
Al_2O_3	10 – 35	10 – 30
TiO_2	0.2 – 2.0	0.2 – 2.0
Fe_2O_3	2.0 – 7.0	1 – 14
MnO	0.1 – 0.5	0 – 0.1
MgO	0.01 – 4.5	0.2 – 3.0
CaO	0.2 – 20	0 – 7.0
K_2O	0.05 – 0.9	0.2 – 0.4
Na_2O	0.05 – 2.0	0.2 – 2.5
LOI	0.1 – 8.0	5 - 15

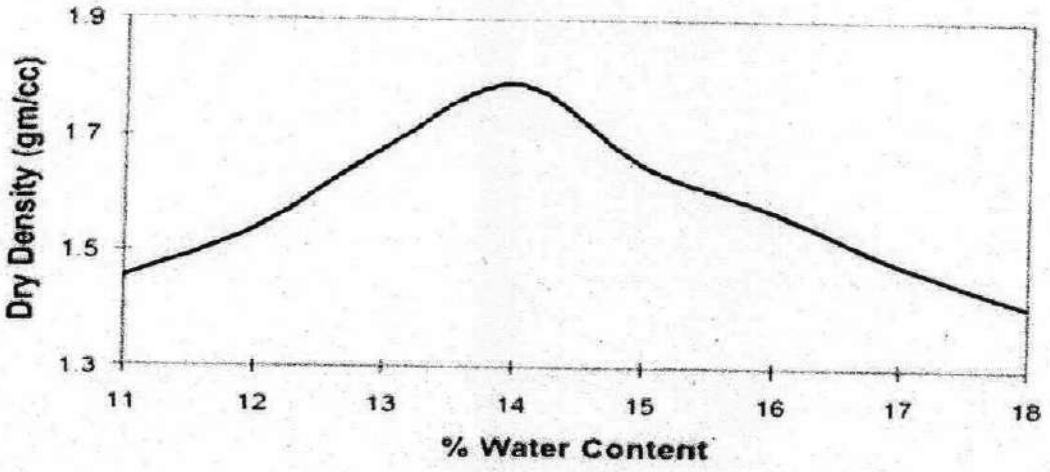
2.1 Fly Ash a Substitute of Soil for Geotechnical Applications :

Fly Ash, by virtue of its physical and geotechnical properties, is a better or at least a competing material to soil for geotechnical applications. Proctor compaction test curve for ash is flatter than that for soil **(Figure 1 & 2)**. Thus, desired compaction can be achieved on ash over a wide range of moisture. Further, fly ash being a free draining material, work can be restarted much faster than on soils in rainy season. In case, fly ash compaction is complete in the initial stages itself, subsequent settlement is practically nil.



Typical Proctor Test on Pond Ash

Figure-1



Typical Proctor Test on Soil

Figure-2

3.0 Transportation and Handling of Ash :

Transportation of ash to the site of low lying area or abandoned quarry for reclamation is to be done in an environmentally friendly manner without polluting the environment en-route. The trucks, trolleys and dumpers carrying the ash should be closed or be properly covered with tarpaulin which is tied properly and the carriers shall be filled with ash only to the extent that it does not spill over en-route. Alternatively, bulkers can be used for transportation of ash. The ash before transportation shall be adequately moistened with water, so that a minimum of 15% moisture is maintained on arrival at the destination. At the worksite, ash is to be managed in such a manner that it does not get airborne even in dry season and should not get carried away with runoff water during rain. It should be placed / stockpiled in well- drained area during rainy season and be kept wet or covered with tarpaulin or two inch layer of soil during summer season, as may be practicable.

The following precautionary measures be adhered to :

(i) In case of any accidental spillage en-route in transporting ash, the agency shall ensure that the spilled ash is lifted immediately and transported to the disposal / usage site.

(ii) All the carriers shall be fitted with speed governor so that in no case the speed exceeds 40 km/hr.

(iii) Transportation of ash during day time in residential areas is to be minimised.

3.1 Excavation and Supply of Ash from Ash Pond:

Before supply, the existing vegetation in Ash pond / Mound shall be cleared. The pond ash shall be excavated in layers of maximum 4-5 meters and not by scrapping. The excavation of ash should be carried out in a safe manner so that the safety and stability of the ash pond is ensured. The area from which, ash is to be excavated, shall be properly conditioned by water sprinkling. The agency shall develop proper haulage road and provide adequate water sprinkling facility to avoid any fugitive dust emission during loading, unloading, transportation and excavation activities.

3.2 Management of Ash Pond Area/ Silo Area

The ash pond area from where the ash is excavated, shall be kept moist to avoid air pollution. The silo area, (if the ash is taken from silo) to be maintained in dust free condition with facilities of humidifiers and mechanised system for dispensing ash with minimum 15 percent moisture content. Mechanised road sweepers would be preferred to sweep the spilled ash form the silo area.

4.0 Execution of Reclamation work :

4.1 Pre Disposal :

(i) Stripping and grading:

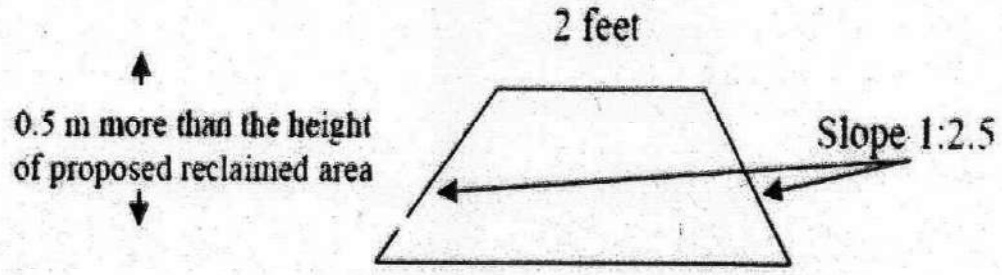
The site selected for reclamation of land shall be suitably stripped and the area should be properly levelled.

(ii) Water logged area:

If the entire area or a part of it, for reclamation is water logged or slushy, dewatering may be done first, followed by removal of slushy layer of soil and/ or filling and compacting the area with gravel and boulders.

(iii) Protection of pond or water body adjoining or within the working site:

If any pond or water body exists within or adjoining the low lying area / quarry then an earthen embankment of the cross-section as given in **Figure 3** be constructed around the pond or water body to protect it from spilling of ash or ingress of surface runoff into it.



Cross-section of water body protection embankment

Figure-3

The soil used for the embankment should neither be granular nor black cotton soil. It should be of good quality for geo-technical application. Soil should be compacted to 95% proctor by Vibratory Roller of 15 T minimum capacity, in the layers of 25-30 cm and the optimum moisture content determined before execution of work. After attaining the desired height, the disposal area should be thoroughly compacted, graded followed by soil cover at least 15 cm thickness for proper reclamation of the land by grass turfing or appropriate plantation.

4.2 Spreading and Compaction (Disposal of Ash)

Ash should be spread uniformly by means of earth moving equipment like dozers, tractors, spreader etc. having capacity commensurate to the size/ configuration of work site. Uniform spreading be done in layers of 250-300 mm thickness in the entire area or in strips of about 10-15 meters width whichever is less **(Figure 4).** The length of each strip may also be restricted up to maximum 150 meters. The compaction be done with vibratory rollers of at least 15 tonne capacity and to 95 % proctor.

Optimum moisture content maybe maintained during compaction. The moisture content may vary in the Ash and especially during dry season. Addition of water with sprinklers may be required to adjust the moisture content to achieve best results.

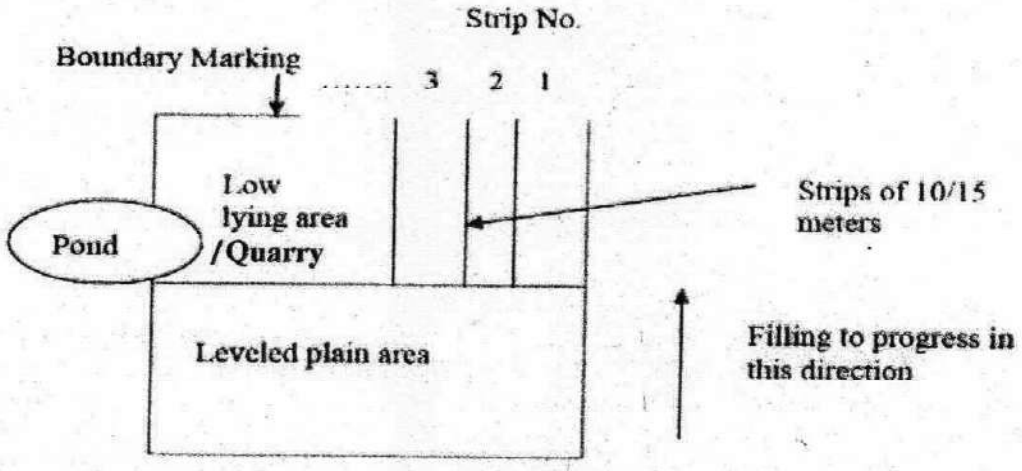


Figure-4

Spreading of Ash in Low Lying Area

Precaution :

The following precautionary measures are required for safe working during the reclamation activity :

(i) Appropriate measures should be taken to prevent entry of cattle/livestock inside the disposal area during execution period.

(ii) Care shall be taken to avoid any kind of nuisance / inconvenience to the public due to such dumping / filling activities.

(iii) Water sprinkling for dust suppression during handling of Ash shall be ensured to prevent it from being air borne.

(iv) After complete reclamation of the site, sign board shall be put up showing that the low lying land / abandoned quarry was reclaimed with ash. This will propagate the message of land reclamation by use of ash.

4.3 Schematic arrangement of reclamation of low lying area / abandoned quarries

For reclamation low lying area / abandoned quarries with ash, the following schematic arrangement is to be followed :

i. Spreading and compaction to move from strip (1) to (2) to (3) and so on and from levelled land to the boundary marking as indicated by the arrow in **Figure-4**.

ii. Two or three layers be laid on strip (1) and then one or two layers can be laid on strip no (2) and progressively subsequent strips can be taken up while raising the height of preceding strips. Overlap of 2m be maintained between two adjacent stripsin different layers as shown in **Figure- 5**

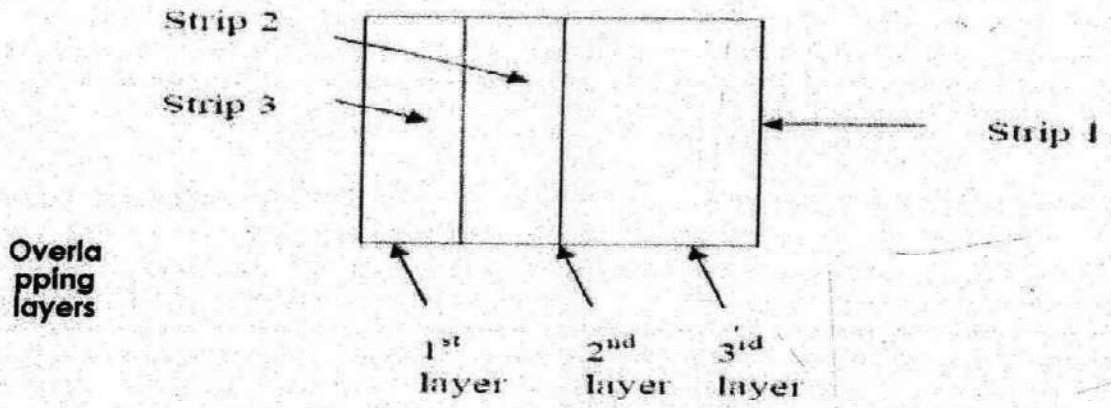
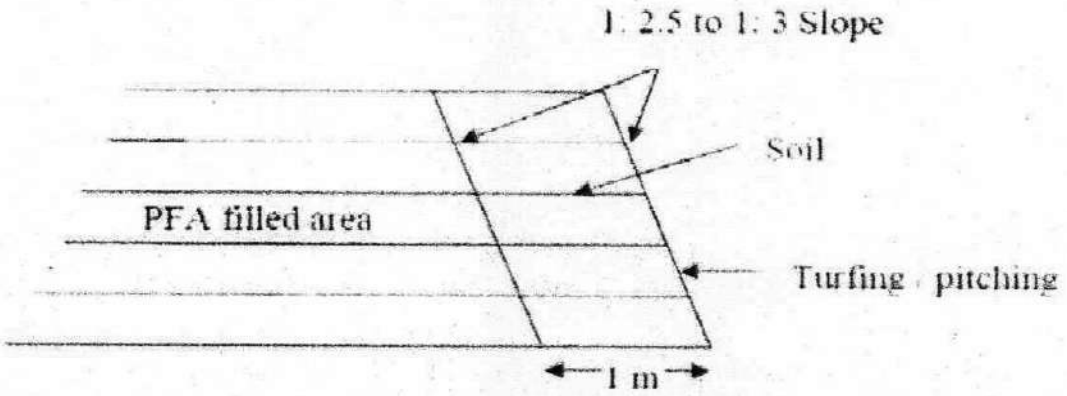


Figure-5

iii. Similarly, 5 to 10 meter longitudinal overlap may also be maintained between two adjacent layers when the length of the area is more than 150 m.

iv. At the boundary limits, where the fill material is likely to be exposed to air and water, it needs to be protected / confined with soil and pitching / turfing on the soil layer as for soil embankments. Soil cover of one meter thickness be provided and be compacted along with ash in each layer as shown in **Figure-6**



Exposed boundary configuration

Figure-6

v. Vibratory rollers are generally not to be operated within 1 meter of concrete and masonry structure as well as at the edges. Compaction be done by hand held compactors or small rollers at locations near to concrete/ masonry structure. For exposed boundary conditions of filled material, spreading, rolling and compaction of soil layer be done for 1 meter extra length (total 2 meters) and the extra last 1 meter which is not properly compacted be removed by cutting and scrapping. Thereafter, the slope surface be compacted with hand compactor or other means.

4.4 Soil Cover:

The area reclaimed with ash along with its side slopes all around should be provided with soil cover of 200 mm, which shall either be excavated from the site itself before reclamation (if good earth is available there and be stored aside) or excavated from a borrow pit which has to be filled up/ reclaimed with ash as per the procedure laid in this document.

4.5 Restriction :

Reclamation of area by ash shall not be permitted in the following areas :

i. Flood plain area.

ii. Agriculture land / area.

iii. Reclamation of Forest land / area is permissible only if clearance from MoEF&CC as per Forest Conservation Act, 1980 is available.

iv. Gochar Kisam Land.

4.6 Environment Protection:

Adequate measures have to be taken for environment protection so that it may not result in adverse impact on human health and environment.

i) Ambient Air Quality monitoring and water quality test shall be carried out both inside and outside the site before start of work to record the environmental quality of the site and the surrounding. Air quality monitoring is to be done till completion of the work.

ii) Thereafter, the environmental quality monitoring (of air and surface water) shall be carried out once in a month at the boundary of disposal area and reported to the Board.

iii) Surface water quality at up- stream&down- stream of site is to be carried out once in a month from start of work and six months beyond completion of work if natural water bodies exist in the vicinity.

iv) Further, the side slopes of the completed site should be so maintained that there is no accumulation of water at garland drain, guard pond / connecting pit etc. at the site or at its immediate vicinity and ensure that there is noerosion or collapse of the slopes at least up to end of one monsoon after completion of work.

v) Monitoring of ground water quality in a radius of 0.5 km shall be carried out prior to execution of work and at quarterly interval up to one year post closure of the site.

vi) Water sprinkling shall be madeduring loading, unloading and spreading of Ash to minimise fugitive emission.

5.0 Quality Control:

The procedure prescribed in the foregoing paragraphs shall be adhered to while borrowing, transporting, spreading and compacting ash in the low lying area/ abandoned quarries/ laterite mine. The following aspects may specifically be monitored / controlled and recorded daily at the respective point of activity.

i. Ash filling, spreading and compaction shall be done in layers of not more than 30 cm and compaction shall be done at optimum moisture content with vibratory roller of at least 15 tonne to 95% proctor.

ii. Filling shall be done strip by strip and with recommended overlap side by side as well as length wise.

iii. Two numbers of core should be cut of the compacted material, to check the quality of compaction and immediate corrective action should be taken, as may be required, in terms of maintaining optimum moisture content or number of passes of roller to get the required proctor compaction.

iv. While the filling job is in progress, the ash surface at the reclaimed/ filled area should be kept moist to avoid ash getting airborne.

v. Constant vigil shall be kept at the ash loading point. Ash carriers shall be covered to ensure that no dust nuisance due to spilling of ash takes place during its handling and transportation.

vi. During summer months, extra measures for water sprinkling shall be provided to control fugitive dust.

vii. The quarry pits are to be filled up by following the progressive land filling method from bottom to top with proper compaction and water sprinkling instead of haphazard dumping.

viii. Filling of the low lying land (including borrow pits) without following the procedure stipulated in this guideline shall render the activity as noncompliant and liable for appropriate action under Consent Administration.

6.0 Regulatory Procedure for Processing the Application for consideration of grant of permission for Reclamation of Low Lying Areas / Abandoned Quarries :

The stipulations specified in this guideline is consistent with the provisions of Fly Ash Notification, 1999 and amended thereafter which is a special condition mentioned in Consent Order issued under the Water (PCP) Act,1974 and the Air (PCP) Act, 1981. Hence, the activity will be regulated

under the provisions of Water Act, 1974 and Air Act, 1981. Any violation to the guideline shall be treated as violation of Water (PCP) Act,1974 and Air (PCP) Act, 1981 and action as deemed proper shall be taken under Consent Administration by the Board.

6.1 Procedure for Processing of Application for reclamation of low lying area / abandoned quarry of area less than equal to 10 acres:

The procedure for reclamation of low lying area / abandoned quarries with ash, within or outside the plant premises, for land measuring 10 Acres and below is further simplified. In such cases, the thermal power plants are required to obtain Consent to Establish (CTE) & Consent to Operate (CTO) from the concerned Regional Officer, State Pollution Control Board, Odisha.

i. Application in the prescribed format in (**Annexure-I**) shall be submitted to concerned Regional Officer online by the applicant (Thermal Power Plant) intending to reclaim the area, accompanied with requisite documents as mentioned in the application form.

ii. The proponent (TPP) shall pay the minimum fees under orange category as per the fee structure Notified by F&E Dept.. vide No. 13123&13127, Dt. 16.07.2012. The amount shall be paid online through Payment Gateway of the State Pollution Control Board, Odisha.

iii. On receipt of complete application, concerned Regional Office shall conduct a site visit to examine the proposal by verifying the local environmental conditions within ½ km. radius including habitation, Water bodies, Schools, Hospitals, transportation route etc. to assess the possible impact.

iv. Findings of the site visit shall be appropriately reflected in the inspection report in the format (**Annexure-II**). Based on the findings of the inspection report, the Regional Officer shall take necessary decision in the matter.

v. The application shall be disposed by Regional Office within 30 days from the date of receipt of complete proposal. Permission if granted, shall be communicated to the Applicant in the prescribed format at **Annexure-III**

with copies to CTE Branch and Fly Ash Resource Centre (FARC) at Head Office. While according permission, suitable conditions shall be stipulated by Regional Office force. Such permission shall only be granted if the applicant (TPP / Industry) has a valid Consent to Operate (CTO).

vi. In case Regional Office is of the opinion that the site is not suitable for undertaking such activity, the same shall be communicated to the applicant in writing assigning reasons of refusal with intimation to CTO branch and FARC at Head Office.

vii. In case, the applicant (TPP) is not satisfied with the refusal made by Regional Office, they can appeal before the Member Secretary, SPC Board with proper justification for reconsideration on merit.

6.2 Procedure for Processing of Application for reclamation of low lying area / abandoned quarry of area more than 10 acres:

For reclamation of land / abandoned quarry in excess of 10 Acres, the application shall be processed under Consent Administration at Head Office. The procedure adopted to obtain Consent to Establish (CTE) and Consent to Operate (CTO) shall be followed.

i. Application in the prescribed format in (**Annexure-I**) shall be submitted to concerned Regional Officer online by the applicant (Thermal Power Plant) intending to reclaim the area, accompanied with requisite documents as mentioned in the application form with a copy to CTE branch at head office.

ii. The proponent (TPP) shall pay the fees under Orange category as per the fee structure Notified by F&E Dept. vide No. 13123 & 13127, Dt. 16.07.2012. The amount shall be paid online through Payment Gateway of the State Pollution Control Board, Odisha.

iii. On receipt of application, concerned Regional Office shall conduct a site visit to examine the proposal by verifying the local environmental conditions within ½ km. radius including habitation, Water bodies, Schools, Hospitals, transportation route etc. to assess the possible impact.

iv. Findings of the site visit shall be appropriately reflected in the inspection report in the format (**Annexure-II**) and the Regional Office shall submit the report along with online application of the proponent within 15 days to Head Office for consideration of the CTE.

v. The CTE cell at Head Office shall scrutinise the application and if found complete, shall grant / refuse CTE on approval of the Member Secretary within next 15 days. Grant / refusal of CTE shall be placed in Consent Committee for ratification.

6.3 Inspection / Monitoring procedure.

i. On receipt of the application and before granting permission, Regional Office shall conduct ambient air quality monitoring within the site and also habitation area (if existing within 500 meters) from the boundary of the land to be reclaimed with ash.

ii. Regional Office shall collect water samples from ponds, bore wells, dug wells and from surface water bodies at upstream and downstream of the site, analyse it to maintain the background environmental status of the area and compare with the data furnished by the applicant. This data will be considered in evaluating the impact of reclamation activity in future.

iii. Regional Office shall make routine inspection of the site during the period of execution of the work to verify adherence to the guidelines.

iv. Regional Office shall verify the compliance status to the conditions stipulated in the permission letter and furnish the report to CTO Branch and FARC at Head Office confirming about the compliance. In case of any non-compliance, Regional Office shall issue necessary direction to the applicant (TPP) for immediate compliance in a time bound manner.

v. Leachate test of ash to be used for reclamation of low lying area should be carried out by the TPP through NABL accredited laboratory and the report shall be submitted to the Board along with the application. The ash for which leaching test results are found to be in conformity to prevailing norms for discharge in to inland surface water, such ash can be permitted

for reclamation of low lying areas / abandoned quarries.

vi. If the leachate test result of the ash is found to be in conformity and the underneath strata of the area for reclamation has permeability value less than 10^{-7} cm/sec, then the ash can be used for filling without requiring any protection measures against leaching.

vii. In case the permeability is more than 10^{-7} cm/sec, appropriate lining like HDPE, Bentonite, clay or any other suitable liner shall be provided at the base layer of the low lying areas / quarries to prevent leaching and risk of ground water contamination. Permeability test should be carried out from NABL accredited laboratory only. The report shall be submitted to the Board as an enclosure while submitting the application.

viii. After completion of the permitted reclamation, the applicant (TPP) shall submit a certificate to the Regional Office to the effect that all the conditions stipulated in the permission letter as well as guideline have been adhered to in the process of execution of reclamation works.

ix. The applicant (TPP) shall be solely responsible for adverse environmental impact if any, observed or established to be a consequence of such reclamation activity and shall be duty bound to take appropriate remedial measures to minimise the adverse impact and also liable for appropriate action in case of persistent lapses.

7.0 Usage of Reclaimed Area:

The land reclaimed with ash in a manner as described in this document can be safely used for habitat construction, parking lots, play-grounds, recreation centre, agriculture, floriculture, horticulture, forestry etc. Wherever plantation is done, preferably local species be selected and 80 percent survival rate ensured. However, proper technical investigations and foundation design should be done before heavy construction/ usage. After complete reclamation of the site, signboard shall be put up showing that it was a low lying land reclaimed by filling with ash to popularize this practice.

Annexure-I

Application Form

(For Reclamation of Low Lying areas/ Abandoned Quarries with Ash)

To be submitted by Thermal Power Plants

1	Name and address of the Thermal Power Plant (Applicant)	:	
2	Name and address of the owner of land to be reclaimed.	:	
3	Land for reclamation with Ash	:	
	a) Ownership (substantiate with documents)	:	
	b) Area in Ac. (with supporting documents)	:	
	c) Mutual agreement for reclamation indicating end use. (If the land is not owned by the TPP)	:	
4	Site description :	:	
	a) Plot No and Kisam		
	b) Khata No.		
	c) Village / Mouza		
	d) Tahasil		
	e) District	:	
	f) Whether falls within eco-sensitive zone	:	
5	Results of test carried out (for all sites)	:	
	a) Leachability of Ash	:	
	b) Permeability of Site	:	
	c) Source of water for ash filling and dust suppression (Permission from local authority to be obtained if water to be drawn from public ponds / wells)	:	
	d) Transportation route from source to disposal site (Map showing the route)	:	

6	Vicinity Information **(within ½ km from boundary of the plot)**	:	
	a) Water body (Pond / Dam / Reservoir / lake / River etc.)	:	
	b) Distance from nearest Railway line / NH /SH / Major District Road (MDR)	:	
	c) Water in-take points / LI points (Public & Private)	:	
	d) Does the natural topography lead the run off from disposal site to get discharged at upstream of intake points	:	
	e) Distance from nearest river / embankment. (Whether natural topography permits surface runoff flow in to the river)	:	
	f) Distance from nearest Archaeological site if any.	:	
	g) Nearest habitation. (village / Basti with population and distance from boundary of site.)	:	
	h) Nearest Hospital / Education Institute / Place of worship	:	
7	Quantity of Ash estimated to be used (Supported with sectional contour map)	:	
9	Mode of Ash transportation	:	
10	Source of Soil (to be used as soil cover)	:	
11	Usage of Reclaimed area	:	

Signature of Authorised representative of TPP

List of document to be attached

1. Land documents in support at title / Ownership, Khata , Plot No., Mouza & Kisam
2. Mouza Map (scale 32" : 1 mile) of the area
3. Analysis report on soil permeability and leachability test of ash
4. Village Map / SOI Map showing transportation route from source to destination
5. Sectoral contour map to justify estimated quantity of ash disposal
6. Copy of the Agreement with the land owner to take up the activity (if land is not owned by TPP)
7. Permission from revenue authority for reclamation of abandoned quarry / Govt. Land.

Annexure-II

Inspection Format

(For Reclamation of Low Lying area / Abandoned Quarries with Ash)

To be submitted by the Inspecting Officer of SPCB

1	Name and address of the Applicant	:	
2	Date of receipt of Application	:	
3	Date of Inspection	:	
4	Site details :	:	
	a) Plot No. &Kisam		
	b) Khata No.		
	c) Village / Mouza		
	d) Tahasil		
	e) District		
	f) Owner of site		
5	Source of Water for sprinkling arrangement :	:	
6	Available bore wells / ponds / nullah or other water bodies for monitoring:	:	
7	Back ground data to be generated by Regional Office :	:	
	a) On site AAQ b) Water quality in surrounding area (Locations are to be defined and marked on mouza map)	:	
8	Source of supply of Fly Ash :	:	
	a) On road distance from TPP	:	
	b) Route Map of Transportation (Sketched on a Mouza Map or SOI Map in 1 : 25,000 scale)	:	
9	Vicinity Information : Within ½ km from boundary of the plot both natural and manmade	:	

	a) Presence of any water body (Pond / Dam / Reservoir / lake etc.	:	
	b) Type of top soil at the site (Sand / Murram / Clay etc.)	:	
	c) Details of borrow pit (Location, distance & permissibility from owner)		
	d) Distance from nearest Railway line / NH / SH /MDR	:	
	e) Nearest Archaeological site if any along with its details	:	
	f) Habitation area within ½ km surrounding the boundary of the site : (Village / Basti with population and clear distance from site)	:	
	g) Nearest Hospital / Educational Institute / Place of Worship	:	
10	End Use of Reclaimed Land	:	
11	Date of submission of report	:	
12	Views of Inspecting Officer (Recommended / Not Recommended & Conditions suggested specific to the site)	:	
13	Decision of R.O. (Permitted / Rejected)	:	
13	If rejected, reasons thereof.	:	

Signature of Inspecting Officer

Signature of Regional Officer

List of documents attached

(In case the proposal is for morethan 10 acres and referred to Head Office.)

Annexure-III

(Format for Grant of Permission)

STATE POLLUTION CONTROL BOARD, ODISHA

(Address – Regional Office)

No. _____/ Date_____/

OFFICE MEMORANDUM

In consideration of the application dt _____ of M/s (Name of TPP), the State Pollution Control Board is pleased to convey permission forreclamation (with Fly Ash) of the low lying area / abandoned quarries at Mouza _____ over an area of _____ Acres in Plot No _____), under Khata No _____, Kisam _____ as mentioned in the application, in the district of _____ with the following conditions :

This permission is an addendum to the consent order granted to the applicant under water (PCP) Act, 1974 & Air Act, 1981 and the conditions stipulated here-in are a part of conditions of the above said consent order for strict compliance.

General Conditions

1. This Permission is valid for _____ months from the date of issue and the quantity as mentioned in the application.
2. Reclamation of low lying area shall be carried out as per the guideline prepared by the State Pollution Control Board for the purpose. (copy enclosed)
3. The Thermal Power Plant shall dispose only ash for filling the low lying area. Under no circumstances, the industry shall dispose any other industrial solid waste in the low lying area other than ash without prior permission of the Board.
4. The Thermal Power Plants shall provide garland drain around the proposed site if fly ash is filled is above the contour of the surrounding land so that surface run off during rainy season shall not enter to the nearby human habitation and adjacent agricultural land.

5. The ash shall be dumped into low lying area / abandoned quarries and spread uniformly by engaging earth moving equipment. The spreading of ash shall be done in layers and compacted followed by concurrent top soil capping before rainy season, so that there shall not be any chance of mixing of the fly ash in nearby water body through rain water.

6. The Thermal Power Plants / Industry shall develop the approach road and shall provide adequate water spraying arrangement on the roads when ash is taken from the silo/plant to suppress any fugitive dust generated during working period.

7. Protective action to be ensured if the ash to be disposed at immediate vicinity of NH/SH.

8. The TPP / industry has to provide dust suppression like water sprinkling in and around the dump site. During summer extra care shall be taken to control fugitive dust.

9. For reclamation of land, irrespective of size located within administrative limit of any Municipality / Corporation or if the transportation route passes through its administrative limit,extra care to ensure non spillage of ash and non-congestion of traffic need to be exercised to prevent any pollution during transportation of fly ash.

10. **The following two condition are applicable if the permeability of the site is > 10^{-7}cm/sec :**

11. If the permeability is more than 10^{-7} cm/sec, theTPP shall provide appropriate lining as mentioned in the guideline at the base layer at the low lying area in order to prevent leaching and risk of ground water contamination.

12. Commencement of fly ash filling shall be made after provision of the lining is verified by the Pollution Control Board's Official and on obtaining necessary permission in this regard.

13. The environmental quality monitoring of air, surface and ground water shall be carried out every month at the boundary of the disposal area for the following parameters and the monitoring report shall be submitted to the Board every quarter.

    a. Ambient Air- PM_{10}, $PM_{2.5}$

    b. Surface runoff - SS, F, Cd, As

14. Water quality monitoring shall be done from start of the work till six months beyond completion of work. Air monitoring shall be done till completion of the reclamation work.
15. The area shall be properly fenced to prevent any entry of cattle / Livestock inside the quarry area.
16. After complete reclaiming the site, signboard shall be put up showing that the land was reclaimed by filling low lying area.
17. Attempt shall be made to avoid any kind of public nuisance due to proposed activities.
18. On completion of the reclamation, the TPPshall submit a certificate to the effect that all the above stipulated conditions have been duely complied.
19. Board reserves the right to revoke this permission if conditions stipulated are not implemented to the satisfaction of the Board.

Regional Officer

To,

Address of TPP

Memo No. _____/ Dt. _____/

Copy forwarded to :

1. The Member Secretary, SPC Board, Odisha
2. The District Magistrate and Collector, _____
3. FARC, SPC Board, Bhubaneswar
4. Copy to Guard file

Regional Officer

कार्यालय पुलिस उप महानिरीक्षक, ग्रुप केन्द्र, के0रि0पु0बल, सम्बलपुर, उडिशा
संख्याः एम.पॉच-1/2018.19.ग्रु0के0भवन दिनांक 16/10/2018

Hr. Anudiyer / Mrs. Hemlata Reddy [illegible]
Let us utilize this opportunity
of low lying area & our city
Area with Soil.
20/10/18

सेवा में,

मुख्य -सी0पी0पी
हिन्डालको इंडिया लिमिटेड
हीराकुद पावर
हीराकुद, सम्बलपुर, उडिशा

विषय निचले जगहों को मिट्टी भरने के संबंध मे।

उपरोक्त विषायंक लेख इस प्रकार से है कि, दिनांक 12/10/2018 को कमाण्डेन्ट के अध्यक्षता मे आपके कार्यालय के अधिकारी तथा सी0पी0डब्लु0डी अधिकारीयों के साथ बैठक का आयोजन किया गया था। उक्त बैठक के चर्चा के दौरान बताया गया था कि इस ग्रुप केन्द्र के जमीन पूरी तरह से समतल नहीं है जिसके कारण बारिश के मौसम में निचले जगहों पर पानी जम जाती है एवं जमे हुए पानी से मछरों की पैदावार होती रहती है। उक्त बैठक में आपके कार्यालय के अधिकारीयों ने यह बताया कि खेल कुद के मैदान व क्वार्टर गार्ड के समीप नीचले जगहो को पलाई आस (Fly Ash) से भरकर उस पर मिट्टी की चादर बिछाकर समतल किया जाएगा।

2. इस संबंध में श्री स्पन्दिल पाठाक, कार्यापालक अभियंता व श्री हरीश नायक, सहायक अभियंता, सी0पी0डब्लु0डी व आपके कार्यालय के अधिकारी श्रीमती मैसमी पाहडी से इस बारे में विस्तृत चर्चा करने के बाद इस निर्णय पर पहुचे कि इस जगहों को समतल किया जा सकता है जो कि पर्यावरण व आबो-हवा के भी अनुकुल होगा। इसके अतिरिक्त सी0पी0डब्लु0डी के द्वारा यह सहमति दी गई कि क्वार्टर गार्ड में भविष्य में होने वाली चारदिवारी का कार्य को करने पर कोई भी असुविधा नहीं होगी।

3. अतः आपसे अनुरोध है कि, क्वार्टर गार्ड और खेल का मैदान के नजदीक निचले जमीनों को पलाई आस (Fly Ash) से भरकर उसके उपर मिट्टी डालकर एवंम मशीन से उसे रोलर कर समतल करने का श्रम करें।

4. इस संबंध में आपके सहयोग की अत्यधिक सराहना की जाएगी।

16/10/18

(ए0ए0नवस्तिया)
कमाडेन्ट, ग्रुप केन्द्र सम्बलपुर

संख्याः एम.पॉच-1/2018.19.ग्रु0के0भवन दिनांक /10/2018

प्रतिलिपि कार्यापालक अभियंता (सिविल), सी0पी0डब्लु0डी, सम्बलपुर प्रोजेक्ट डिविजन, अईठापाल्ली, संबलपुर,उडिशा को सुचनार्थ हेतु प्रेषित है।

(ए0ए0नवस्तिया)
कमाडेन्ट, ग्रुप केन्द्र सम्बलपुर

Received

-24-

ADITYA BIRLA

HINDALCO

17th January 2019

To

The Regional Officer
State Pollution Control Board, Odisha
3070, Hospital Road
Mod'para,
Sambalpur - 768002

Sub: **Submission of Consent to Establish (CTE) application (submitted online) for filling of ash of our CPP in premise of CRPF Barrack, Basantpur Mouza of Sambalpur district.**

Ref: Online application no - **2320247**

Dear Sir,

Enclosed please find herewith the Consent to Establish (CTE) application, submitted online vide reference above, for filling ash of our CPP in plot no - 6, Khata no - 68(A)A) of CRPF Barrack premise in Basantpur Mouza of Sambalpur district. Fee of Rs 21000.00 (rupees twenty one thousand only) has been deposited through e wallet. Receipt of online payment along with relevant documents is enclosed herewith for your kind perusal and consideration at the earliest.

Thanking you

Yours very truly
for M/s Hindalco Industries Ltd

17/1/19

Arun Poddar
Head - Hirakud Power

Encl:- As above

Copy to: The Member Secretary, State Pollution Control Board, Odisha, A/118 Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

F/y Ash Resource Centre (FARC), State Pollution Control Board, Odisha, A/118 Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

BRIEF DESCRIPTION OF

PROCESS OF RECLAMATION

OF

LOW LYING AREA BY ASH

At

Central Reserve Police Force
Chipilima Road
Goshala
SAMBALPUR

By

HINDALCO INDUSTRIES LTD
HIRAKUD POWER

INTRODUCTION:

Hindalco Industries Ltd. the flagship company of Aditya Birla Group and a leading manufacturer of Aluminium, has set up Aluminium Smelting Unit of 216 KTPA capacity, at present, at Hirakud in the district of Sambalpur, Odisha state. The unit is situated at latitude 21°31'59"N and longitude 83°54'46"E. As the smelting process of aluminium requires a huge volume of electricity for its operation, power requirement of the Smelting unit at Hirakud is being met on demand basis by the electricity generated at its thermal Captive Power Plant (CPP), in the name of Hirakud Power, of capacity 467.5 MW at present

For production of electricity in Thermal Power Plants, coal is used as the prime raw material. The process of generating electricity involves burning of coal in the boilers of the power plant, producing a huge volume of steam required for operation of the Turbo Generators where the mechanical energy is converted to electrical energy

To generate electricity, Hirakud Power has employed 13 CFBC boilers, the most environment friendly boilers, with ESPs attached to each boiler and 5 Turbo Generators. During combustion of coal in the boilers ash is generated as non-hazardous solid waste. The unit has a full-fledged dry ash disposal system in place. Around 2500 - 3000 Ton of ash is generated daily when the plant runs at its full capacity. A part of the generated ash thus is used in various sectors of utilization and the rest is disposed dry at the ash mound situated nearby.

OBJECTIVE OF THE PROJECT:

Disposal of ash generated from the thermal power plants is a global environmental concern in today's scenario. In order to dispose the fly ash generated from thermal power plants the Government is enacting different Acts/Notifications and facilitating the utilization of ash in various ways which includes filling of low lying areas and wasteland for conversion in to useful land.

As per the Fly ash notification of 1999 and its amendment in 2009 under Environment (Protection) Act, 1986**"No agency, person or organization shall within a radius of hundred kilometers of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specification and guidelines laid down by the authorities".**

Further as per the said notification, **the ash generated by the units should be utilized 100% within 05 years from the date of commissioning of the unit.**

Being a committed organization for protection of environment and obliging the statutory enactments, Hirakud Power is emphasizing the utilization of generated ash through land filling activities in a scientific manner.

LOCATION:

The proposed place of ash filling is located adjacent to Goshala - Chipilima MDR, at village Basantpur of Sambalpur district. The site, is around 21 Km away from the unit. The owner of the said property i.e. Central Reserve Police Force (CRPF) had requested Hindalco for filling up of ash in the low lying areas which will be used for the purpose of converting the waste land in to use.

LAND DETAILS:

The site that will be reclaimed is an unused low lying land having a total area of 235.54 acres and the effective area of reclamation will be to a tune of 9.5 acres. Plot details are as follows:

Plot No.	Area	
	Acre	Decimal
6	68	82
Total Area	68	82
Effective Low land	9	50

The depth of the land to be reclaimed will be around 2meter.

PROCESS OF LAND-FILLING:

Reclamation of the land will be done with fly ash as well as bottom ash generated from the unit. The land-filling technique will be at par with the prescribed guideline.

The process will involve the following activities:

(i) **Preparation of the site:**

To start with, top soil of one portion of the area to be worked on will be stripped to a depth of around 500 - 600 mm thickness. The stripped soil will be stacked at one part of the land for top cover later.

(ii) **Transportation of Ash& Unloading at Site**

The moisturized ash unloaded from the silos will be transported to the site with tarpaulin covered trucks in such a manner that no ash will be air borne during transit. Spilled ash, if any, on the road will be lifted by sweeping gangs and will be sent back to the plant. Speed of the vehicles to be maintained to avoid fugitive dust emission.
Unloading from the trucks at the stripped of portion of the site, will be done with sprinkling of water at the point of unloading.

(iii) **Spreading& Compaction:**

The unloaded ash will be spread uniformly by means of earth moving equipment like dozers, spreader etc of appropriate size. Uniform spreading will be carried out in layers of300 mm loose thickness in the entire area or spreading will be done in strips. The compaction will be done with vibratory roller of 10 - 15 Ton. Optimum moisture content will be maintained during compaction through the engaged water sprinkler. The moisture content may vary in the ash, especially during dry season.

(iv) **Soil Cover:**

The area to be reclaimed with ash will be covered with stripped off soil (as described in (i) above),of adequate thickness to protect exposure of fly ash to air or water. The soil will be compacted using the vibro roller. After covering and compaction of the soil cover the worked over area will be handed over to the Registrar of the University for future planning.

ENVIRONMENTAL ISSUES:

Environmental issues likely to be arise during the activities and there mitigation have been described above. Issues, if any, apart from the above will be addressed suitably.

MANPOWER:

Transporting of ash to the site, spreading and compaction, soil covering will be done on outsourcing basis. To oversee the activities one site engineer and one supervisor will be deployed by the unit.

PROJECT COST:

The total project cost involved will be around Rs209 86lacs

OFFICE OF THE DISTRICT MAGISTRATE AND COLLECTOR, SAMBALPUR

Lt No 38 **/Spl.L.A./Dt** 22.1.19

To

The Complex Head,

M/s- Hindalco, Hirakud.

Sub:- Levelling of low land area in the premises of group centre, CRPF campus, Sambalpur.

Ref:- Letter No...—.../ Dt 21.01.19... of the DIG, GC, CRPF, Sambalpur.

Sir,

In inviting a reference to the letter on the subject cited above I am to say that the ditech and low land areas about 9.5 acres inside the premises of CRPF Campus, Gosala is required for development of infrastructures and pared ground for the use of jawans.

In this regard you are requested to fill the low land area in the premises of CRPF Campus, Gosala by dumping of fly ash as per the norms of the State Pollution Control Board, Odisha. The ash should be transported in close container.

This is for your information and necessary action.

Yours faithfully,

Collector, Sambalpur

Memo No 39 /Spl.L.A./Dt 22.1.19

Copy forwarded to the R.O., State Pollution Control Board, Sambalpur for information and necessary action.

Collector, Sambalpur

Memo No 40 **/ Spl.L.A./Dt** 22.1.19

Copy submitted to the Deputy Inspector General of Police, G.C., CRPF, Sambalpur for information.

Tel:0663-2522305
Email: rospcb.sambalpur@ospcboard.org
Website: www.ospcboard.org

ODISHA

OFFICE OF THE REGIONAL OFFICE, SAMBALPUR
STATE POLLUTION CONTROL BOARD, ODISHA
[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
1070, Hospital Road, Modipara, Sambalpur-768002

No....2014...../ III CON (NOC)/107/2018-19 Date 27.04.2019

OFFICE MEMORANDUM

In consideration of the application dt.**17.01.2019** of M/s. Hindalco Industries Limited, Power Plant, the State Pollution Control Board is pleased to convey permission of reclamation (with Fly Ash) of the low lying area at Mouza Basantpur (CRPF Barrack) over an area of 9.5 Acres in Plot No 6, Khata No.68 (AJA) Total Area-Ac.9.50 dec. Kisam *PATITA* as mentioned in the application, in the district of Sambalpur with the following conditions :

This permission is an addendum to the consent order granted to the applicant under water (PCP) Act. 1974 & Air Act, 1981 and the conditions stipulated here-in are a part of conditions of the above said consent order for strict compliance.

General Conditions

1. This Permission is valid for 6 months from the date of issue and the quantity as mentioned in the application.
2. Reclamation of low lying area shall be carried out as per the guideline prepared by the State Pollution Control Board for the purpose. (copy enclosed)
3. The Thermal Power Plant shall dispose only ash for filling the low lying area. Under no circumstances, the industry shall dispose any other industrial solid waste in the low lying area other than ash without prior permission of the Board.
4. The Thermal Power Plants shall provide garland drain around the proposed site if fly ash is filled is above the contour of the surrounding land so that surface run off during rainy season shall not enter to the nearby human habitation and adjacent agricultural land.
5. The ash shall be dumped into low lying area and spread uniformly by engaging earth moving equipment. The spreading of ash shall be done in layers and compacted followed by concurrent top soil capping before rainy season, so that

there shall not be any chance of mixing of the fly ash in nearby water body through rain water.

6. The Thermal Power Plants shall develop the approach road and shall provide adequate water spraying arrangement on the roads when ash is taken from the silo/plant to suppress any fugitive dust generated during working period.

7. Protective action to be ensured if the ash to be disposed at immediate vicinity of NH/SH.

8. The TPP has to provide dust suppression like water sprinkling in and around the dump site. During summer extra care shall be taken to control fugitive dust.

9. For reclamation of land, irrespective of size located within administrative limit of any Municipality / Corporation or if the transportation route passes through its administrative limit, extra care to ensure non spillage of ash and non-congestion of traffic need to be exercised to prevent any pollution during transportation of fly ash.

10. **The following two condition are applicable if the permeability of the site is > 10^{-7}cm/sec :**

11. If the permeability is more than 10^{-7} cm/sec, the TPP shall provide appropriate lining as mentioned in the guideline at the base layer at the low lying area in order to prevent leaching and risk of ground water contamination.

12. Commencement of fly ash filling shall be made after provision of the linings verified by the Pollution Control Board's Official and on obtaining necessary permission in this regard.

13. The environmental quality monitoring of air, surface and ground water shall be carried out every month at the boundary of the disposal area for the following parameters and the monitoring report shall be submitted to the Board every quarter.

    a. Ambient Air- PM_{10}, $PM_{2.5}$

    b. Surface runoff - SS, F, Cd, As

14. Water quality monitoring shall be done from start of the work till six months beyond completion of work. Air monitoring shall be done till completion of the reclamation work.

15. The area shall be properly fenced to prevent any entry of cattle / Livestock inside the quarry area.

16. After complete reclaiming the site, signboard shall be put up showing that the land was reclaimed by filling low lying area.

17. Attempt shall be made to avoid any kind of public nuisance due to proposed activities.

18. On completion of the reclamation, the TPP shall submit a certificate to the effect that all the above stipulated conditions have been duly complied.

19. Board reserves the right to revoke this permission if conditions stipulated are not implemented to the satisfaction of the Board.

Regional Officer
Regional Office,
State Pollution Control Board
Regional Office, Sambalpur

To,

Sri Arun Poddar, Head Hirakud Power
M/s Hindalco Industries Limited, Power Plant
At/PO: Hirakud, Dist: Sambalpur

Memo No. 2015 / Dt. 27.04.2019 /

Copy forwarded to :

1. The Member Secretary, SPC Board, Odisha
2. The District Magistrate and Collector, Sambalpur.
3. FARC, SPC Board, Bhubaneswar
4. Copy to Guard file

Regional Officer
Regional Office,
State Pollution Control Board
Regional Office, Sambalpur

Visiontek Consultancy Services Pvt. Ltd.
(An Enviro Engineering Consulting Cell)
ISO 9001 2008
ISO 14001 2004
OHSAS 18001 2007

Ref: ENVLAB/09 R-8938

Date: 26.10.2018

PERMEABILITY BY FALLING HEAD METHOD AS PER IS: 2720(P-17)

1. Name of the Industry: **M/s Hindalco Industries Ltd., Hirakud**
2. Sample Location: S1: Plot No-6, Khata No-68 (AJA) of CRF Barrack Campus, Basantpur, Sambalpur
3. Depth: 1.0 mtr.
4. Sampling Date: 24.10.2018
5. Length of specimen (L): 12.8
6. Diameter of Specimen (D): 10 cm
7. Area of Specimen (A) : 78.54 cm^2
8. Volume of Specimen [V]=AL: 1005.31
9. Area of Stand Pipe [a]: 1.00 cm^2
10. C=2.303 aL/A=0.3753 cm
11. Temperature of Water, T:27 ^{0}C

SL. NO.	Initial Time Ti (Second)	Final Time Tf (Second)	Initial Head h1(cm)	Final Head h2(cm)	h1/h2	Log to h1/h2	K_T = C X $\frac{(\log_{10} h1/h2)}{(Tf-Ti)}$ cm/sec	Average K_T in cm/sec
1	2	3	4	5	6	7	8	9
1	0	3500	56.1	55.8	1.005376	0.002329	2.49699×10^{-7}	2.48929×10^{-7}
2	3500	7000	57.9	57.6	1.005208	0.002256	2.41916×10^{-7}	
3	7000	10600	54.9	54.6	1.005495	0.002380	2.55172×10^{-7}	

Data of three selective & successive observations
Weight of wet soil specimen after test, Wt=2124.6 gm.
Weight of dry soil specimen ,Ws =1796.6 gm.
Water Content, $W = \frac{Wt - Ws}{Ws} \times 100 = 18.26\%$
Specific gravity of specimen, Gs=2.70
Void Ratio = e $\frac{VGs - Ws}{Ws} = 0.51$
Degree of Saturation, $S = \frac{Gs \cdot W}{e} = 96.5\ \%$
Permeability at 27 ^{0}C , $K_{27} = \frac{K_T \gamma_T}{\gamma_{27}} = 2.48929 \times 10^{-7}$ cm/sec.

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Odisha
State Pollution Control Board

Online Consent Management & Monitoring System
Ministry of Environment, Forest and Climate Change
Government of India

Welcome Hirakud Power (CRPF Barrack Ash Land filling)

Date : 17-1-2019

On-line Payment Receipt

Receipt No.	806868516
Depositor Name	Arun Poddar
Bank Id.	ICICI
Bank Name.	NA
Application No.	2320247
Name and Address of Industry	Hirakud Power (CRPF Barrack Ash Land filling), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of CRPF Barrack, Basantpur Mouza, Goshala-Chiplima Road, Sambalpur), Sambalpur, Sambalpur
Name of Regional Office	SE I
Applied For	CTE - both - new
Payment Date	Thu Jan 17 15:51:07 IST 2019
Payment Details	
CTE (Rs.)	21000.0
Total Amount Paid (Rs.)	21000.00
Transaction Status	Successfully Completed

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, NILKANTHA NAGAR,

UNIT - VIII BHUBANESWAR - 751012

Form IV (A)(a)

APPLICATION FOR CONSENT TO ESTABLISH UNDER SECTION OF 25 OF WATER(PREVENTION & CONTROL OF POLLUTION)ACT 1974/SECTION 21 OF AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981

(Special format for small scale industries other then 17 specified highly Polluting Categories)

From:

Hirakud Power (CRPF Barrack Ash Land filling), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of CRPF Barrack, Basantpur Mouza, Goshala-Chipilima Road, Sambalpur)
City:Hirakud
Tehsil:Sambalpur
District:Sambalpur

To

The Member Secretary,
State Pollution Control Board, ODISHA
Bhubaneswar - 751012

Sir,

I We hereby apply herewith the Consent to Estblish (NOC)for an industry namely **Hirakud Power (CRPF Barrack Ash Land filling)** for production of Land filling with ash, The site is located at **Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of CRPF Barrack, Basantpur Mouza, Goshala-Chipilima Road, Sambalpur) . Sambalpur**

1 The annexure and other particulars and plans etc are attached here with in triplicate

2. I We further declare that the information furnished in the annexure and plans etc. are correct to the best of my our knowledge.

3 I We hereby undertake to furnish any other information to be called for with in one month

Yours Faithfully

Name of the applicant Arun Poddar

----This is computer generated application ----
http://odocmms.nic.in - (OSPCB)

Designation Head Hirakud Power

Accompaniments -

1. other documents (Attached)
2. Water Balance Chart (Attached)
3. ENV CLEARNACE (Attached)
4. Copy of Approved Mine Lease (Attached)
5. EIA EMP Report (Attached)
6. Layout Map (Attached)
7. Vicinity map (Attached)
8. Project Report (Attached)
9. Land Schedule (Attached)

--- This is computer generated application ---
http://odisha.nic.in (OSPCB)

DATA SHEET
(TO BE FILLED IN BY THE INDUSTRY)

A. BASIC INFORMATION :

1.	Name of the Industry	:	Hirakud Power (CRPF Barrack Ash Land filling)
	a) Occupier Address & Phone,Fax	:	Hirakud Power (CRPF Barrack Ash Land filling), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of CRPF Barrack, Basantpur Mouza, Goshala-Chipilima Road, Sambalpur) City:Hirakud Tehsil:Sambalpur District:Sambalpur
	b) Proposed Factory Address	:	Ash land filling in the premise of CRPF Barrack
2.	Name & Address of Occupier with Telephone & Fax No.	:	Arun Poddar Hindalco Industries Ltd, Hirakud Power 0663-2481435 0663-2481324
3.	Project cost	:	Plant & machinaries: 210 (in lakhs), land & Building: 210 (in lakhs), Application Wise investment: 0.0 (in Lakhs), Others: 0.0 (in Lakhs)
4.	Site information		
	Location		
	a) (Village/Panchayat) /NAC/ Municipality/Municipal corporation/Industrial Estate)	:	Village ,5000 (in meters)
	(b) Plot No./Khata No.	:	PlotNo.- 6, Khata-68(AJA)
	(c) District	:	Sambalpur
	(d) Surrounding of the site		
	E		Barren Land
	W		Road
	N		Barren Land
	S		Barren Land
	(e) Present use of land	:	Agriculture
	(f)Distance from the nearest human habitation	:	5000
5.	Total area of the factory (in acre)		
	(a) Built up area	:	

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(b) Vacant area : 9.5

6. **Existing features within 500 mtrs of the proposed site**

Name of Surrounding	Distance(in meters)	Description
State Highway	500.0	Gosala-Chipilima MDR

B. TECHNICAL INFORMATION :

1. Product(S) List:

Name of Products	Quantity	Unit
Land filling with ash	100000.0	CubicMeter

2. Raw - meterials including:

Raw Materials	Raw Materials Name	Raw Materials Quantity
Coal Ash	100000.0	CubicMeter

3. Plant facility:

Plant Name	Quantity	Unit
Ash land filling in the premise of CRPF barrack premise	100000.0	CubicMeter

4. Fuel consumption:

Fuel Name	Daily Comsumption	Unit

5. Brief description of the manufacturing process with flow chart : (as attached)

6. List of reaction vassels/Boilers/Furnance/Heating chambers/Kiln etc.

Type	Number of Stack	Stack Attached to	Height above ground level(in metres)	Capacity	Unit

7. Water Requirment Detail:

Water requirment for	Quantity(KL)
Others(Dust Suppression)	10.0

8. Source of water supply

Source Type	Source Name	Quantity(KL/D)
Other	Own source	10.0

This is computer generated application ...
http://edocmms.nic.in (OSPCB)

C. POLLUTION INVENTRY :

1. Source of Air Pollution

Source of Air pollution	Control Measure

2. WATER

a) List of waste water generated:

Source of solid waste	Type/ Nature of Waste	Other Waste type detail	Quantity (Metric Tonnes/Month)	Quantity Reused	Quantity Sold	Quantity Disposed	Method of collection	Method of disposal	Place of disposal	Distance of discharge point from factor (in metres)

b) Proposed treatment of waste water

Uses	Treatment Arrangment Status	Treatment Type	Name of treatment Unit	Capacity(KL)	Treatment Unit

c) Proposal if any for waste water re-circulation/reuse : NO

d) Mode of final discharge

Source of solid waste	Type of Waste	Any other waste type detail	Method of disposal	Place of disposal

(e)Point of final discharge

Source of solid waste	Type of Waste	Any Other waste type detail	Place of disposal	Distance of discharge point from factor(in meters)

3. SOLID WASTE

Source	Nature	Quantity/Day	Mode of Disposal

4. Details of cost of Pollution Control Measures(in rupees)

5. Any other additional information on the proposed industry : N/A

Certified that the information furnished above are correct

Signature :

Name of the applicant: Aruni Poddar

---This is a computer generated application ----

http://edocuments.tn.in/TNSPCB/

Designation: Head Hirakud Power

Address of the applicant: Hindalco Industries Ltd. Hirakud Power

Application for Consent to Establish under section 25 of Water (Prevention and Control of Pollution) Act 1974 and section 21 of Air (Prevention and Control of Pollution) Act 1981

[For Industrial Projects]

1. Please read the instructions to fill up the application carefully and make sure that all the relevant information in the application is filled up.
2. Please enclose all the relevant documents and index them appropriately as Annexure - I, II, ... etc.
3. Please make sure that you have paid adequate consent fee along with the consent application.
4. If all the field in the application form is not filled up, the application is not accompanied with adequate fee, or necessary documents are not enclosed then the application will be treated as incomplete and not duly made.

Name of the Project	Hirakud Power (CRPF Barrack Ash Land filling)		
Location	Location name	**Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of CRPF Barrack, Basantpur Mouza, Goshala-Chipilima Road, Sambalpur), Hirakud**	
	District	**Sambalpur**	
	PIN Code	**768016**	
	General description of the site	**Village Basantpur,Gosala-Chipilima MDR,Sambalpur-Bargarh route,River Mahanadi,Basantpur,Burla Medical,NH 6**	
Name of the applicant	**Arun Poddar**		
Designation	**Head Hirakud Power**		
Address for communication	**Hindalco Industries Ltd, Hirakud Power**		
	Mail id		
Production Details	Products		Annual capacity
	Land filling with ash		100000.0
Manufacturing process			

Major plant facility details	Description of facility	Capacity of each unit	Numbers of units proposed
	Ash land filling in the premise of CRPF barrack premise	100000.0	CubicMeter

Raw material	Raw material Name	Annual Quantity
	Coal Ash	100000.0

Fuel consumption	Fuel	Annual Quantity

Water Consumption	Area of use	Quantity in m3/d	Source of water
	Other	10.0	Own source

Waste water management	Source of wastewater	Quantity in m3/d	Quantity Recycled Reused	Quantity discharged

Wastewater treatment	Wastewater stream	Quantity (m3)	Type of treatment	Discharge point

Please give a brief description of the receiving water body	

Air Pollution Assessment

Emission Assessment	Stack description	Height in m	Emission quantity (Nm3/h)	Gas temp in degree C
Emission control measures	Stack description	Air pollution control equipment		
Fugitive emission assessment	Source of fugitive emission	Proposed method of emission reduction		

Solid waste management

Solid waste generation	Source of generation	Type of waste	Quantity of generation (TPA)
Solid waste management	Type of waste	Quantity reused	Quantity disposed of
Solid waste disposal site description	Type of waste	Area of disposal site	Mode of Disposal

Declaration

---This is computer generated application ---
http://edocuments.nic.in (OSPCB)

1. I am duly authorised by the company to fill up this application for Consent to Establish
2. I have read the instructions carefully and has fully understood it and filled up the details as per the information available with the company.
3. I understand that if any information furnished in this application is found to be falsified at a later date then the company shall be fully responsible for the act.
4. I also understand that such falsification of facts amounts to violation of section of Water (prevention and Control of Pollution) Act, 1974 and Air (prevention and Control of Pollution) Act, 1981.

Signature	
Name	Arun Poddar
Designation	Head Hirakud Power
Date	Place

GC SAMBALPUR LAND SCHEDULE

Village (Mouza :) - Basantpur, Tahasil:- Sambalpur (Sadar),
District:- Sambalpur (Odisha).

Khata No.	Plot No.	Area in acre	Kissam	
68(AJA)	01	31.50	Patita	
	14/976	64.00	Patita	
	2/974	23.00	Patita	
	3/975	1.46	Patita	
	4	34.62	Patita	
	5	1.64	Patita	
	6	68.82	Patita	
	7	1.48	Patita	
	13	8.09	Patita	
	3/454	0.93	Patita	
	10 plots	**235.54**		

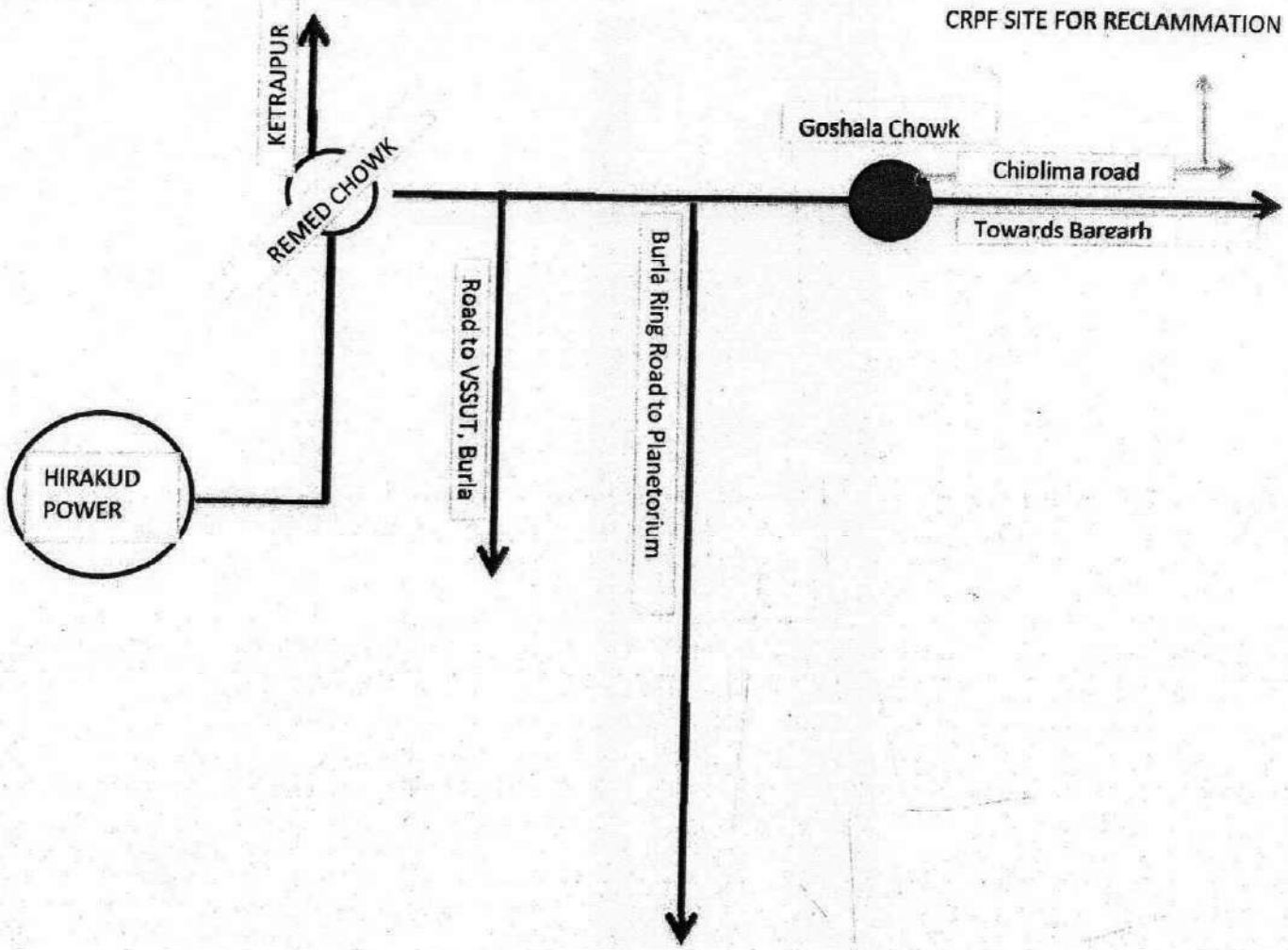
a) North by - Plot No. 2, 4, 1 - Kulamati Village Sarahad (Land of all plots belong to State Livestock Breeding firm Odisha Govt.)

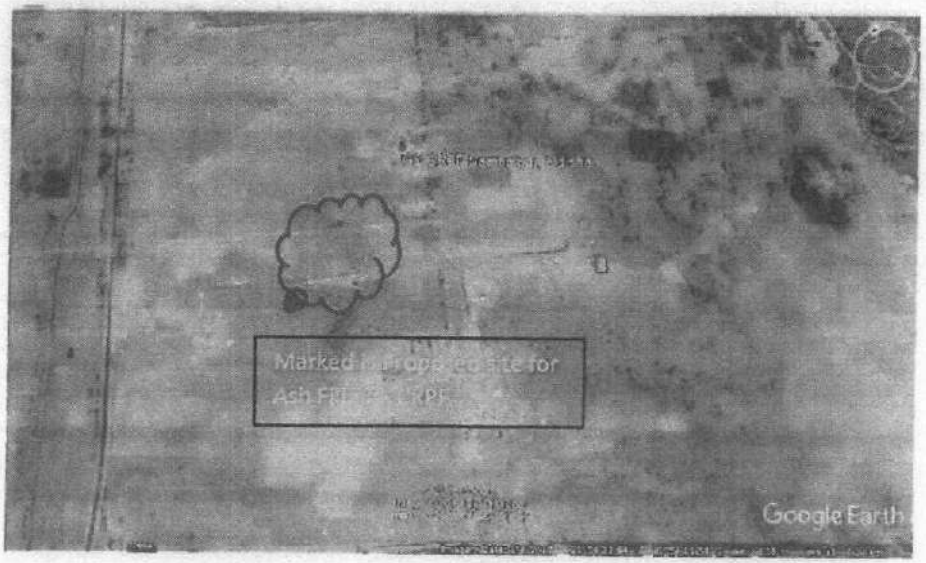
b) South by - Plot No. 8,10,12 belong to Revenue Department and Plot No. 14 belongs to Irrigation Department.

c) East by - Plot No.382 belongs to Irrigation Department. (Probable proposed road).

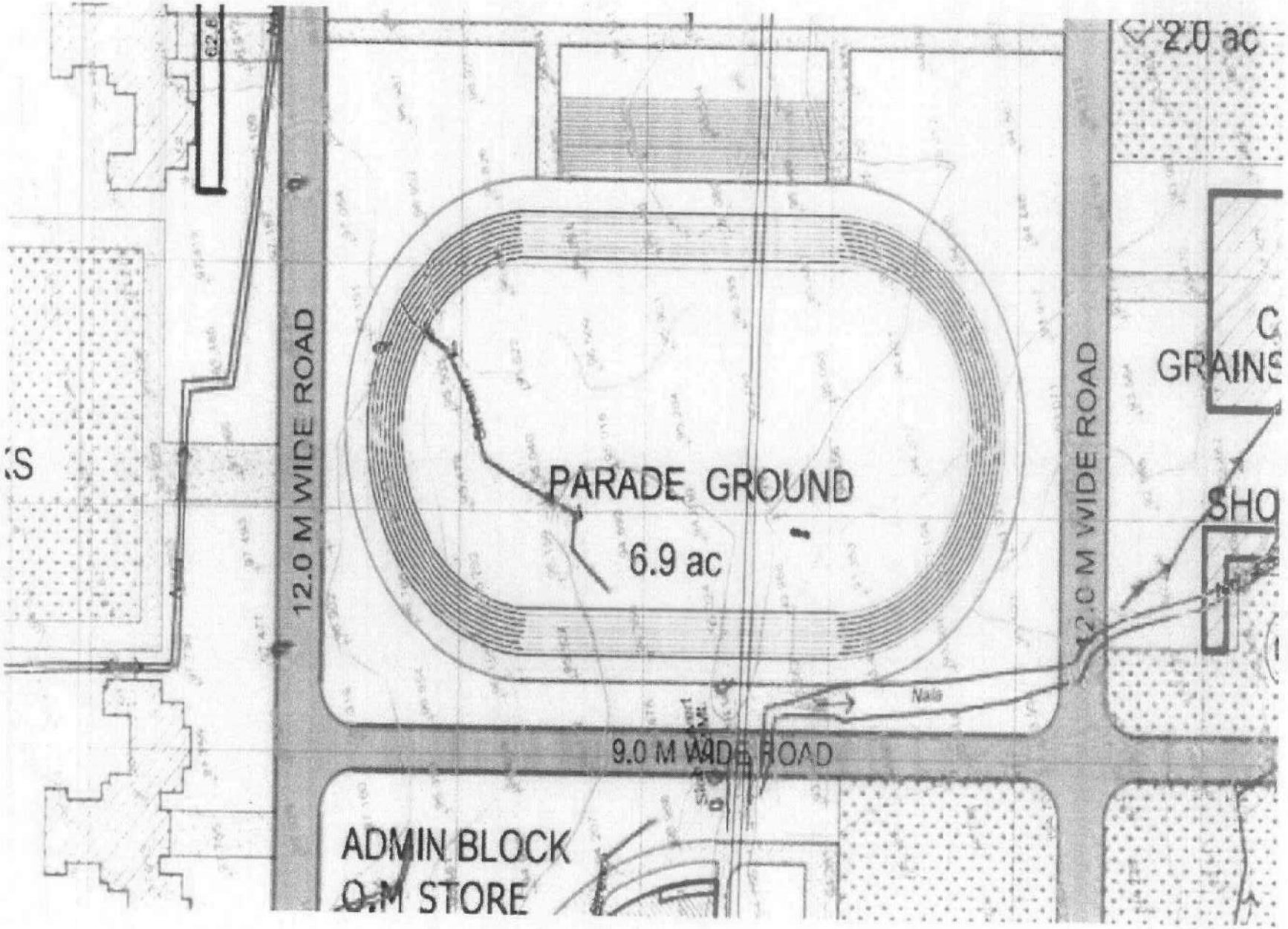
d) West by- Plot No.8/462 Nainjori meant for proposed road extension .

ROUTE MAP FROM THE TPP TO CRPF, Goshala





Marked area is of CRPF - Proposed area for Ash Filling


12.0 M WIDE ROAD
PARADE GROUND
6.9 ac
12.0 M WIDE ROAD
2.0 ac
GRAINS
SHO
Nala
9.0 M WIDE ROAD
ADMIN BLOCK
O.M STORE

SGS

Test Report

Preliminary Report

Print Date : 13/10/2017

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Report No : JE17-000928.001

JOE No : JE17-000928

Report Control No : JER0000003676

Sample Described by Customer as : ASH

Client Name	: HINDALCO INDUSTRIES LIMITED
Client Address	: Hirakud Power
Postal Code	: 768016
State	: Orissa
Country	: INDIA
Sample Type	: ASH
Received	: 03/10/2017
Marks on Sample	: Sample of Silo Ash,Dt- 25.09.2017,Time- 09.15 am
Sample Qty. Recd.	: 2.0 kg. app.
Test Start/End Date	: 03/10/2017 - 30/12/1899

Analysis	Method	Result	Unit	Requirement/Limit SCHEDULE II	
				Min	Max
A1-Arsenic	USEPA 1311 & 200.7	<0.05	mg/L	-	5.0
A2-Barium	USEPA 1311 & 200.7	4.86	mg/L	-	100
A3-Cadmium	USEPA 1311 & 200.7	0.07	mg/L	-	1.0
A4-Chromium /Cr(III) Compounds	USEPA 1311 & 200.7	0.61	mg/L	-	5.0
A5-Lead	USEPA 1311 & 200.7	0.23	mg/L	-	5.0
A6-Manganese	USEPA 1311 & 200.7	1.71	mg/L	-	10
A7-Mercury	USEPA 1311 & 200.7	<0.05	mg/L	-	0.20
A8-Selenium	USEPA 1311 & 200.7	<0.05	mg/L	-	1.0
A9-Silver	USEPA 1311 & 200.7	<0.05	mg/L	-	5.0
A10-Ammonia as NH3	USEPA 1311 & APHA 4500 C	<1.00	mg/L	-	50*
A11-Cyanide	USEPA1311 & APHA 4500 F	<0.05	mg/L	-	20*
A12-Nitrate(nitrate-nitrogen)	USEPA1311 & IS 3025 (Part 34) : 1988	9.40	mg/L	-	1000
A13-Sulphide as H2S	USEPA1311 & APHA 4500S F	<2.00	mg/L	-	5.0
A62-Antimony	USEPA 1310 & 200.7	<0.05	mg/L	-	15.0
A63-Beryllium	USEPA 1310 & 200.7	<0.05	mg/L	-	0.75
A64-Chromium(VI)	USEPA 1310 & 200.7		mg/L	-	5.0
A65-Cobalt	USEPA 1310 & 200.7	0.09	mg/L	-	80.0
A66-Copper	USEPA 1310 & 200.7	0.34	mg/L	-	25.0
A67-Molybdenum	USEPA 1310 & 200.7	<0.05	mg/L	-	350.0
A68-Nickel	USEPA 1310 & 200.7	0.28	mg/L	-	20.0

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SGS

Test Report

Preliminary Report

Print Date : 13/10/2017

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Report No : JE17-000928.001

JOE No : JE17-000928

Report Control No : JER0000003676

Analysis	Method	Result	Unit	Requirement/Limit SCHEDULE II	
				Min	Max
A69-Thallium	USEPA 1310 & 200.7	<0.05	mg/L	-	7.0
A70-Vanadium	USEPA 1310 & 200.7	0.67	mg/L	-	24.0
A71-Zinc	USEPA 1310 & 200.7	0.70	mg/L	-	250.0
A72-Fluoride	USEPA1310 & APHA 4500F C	1.65	mg/L	-	180.0

All parameters - Subcon to SGS Kolkata Lab

Per pro SGS India Private Ltd

Manish Kumar
Authorized Signatory

****End of Report****

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For any feedback or complaint please write to us at feedback.mikolkata@sgs.com.

Annexure-1

Application Form

(For Reclamation of Low Lying areas / Abandoned Quarries with Ash)

To be submitted by Thermal Power Plants

1	Name and address of the Thermal Power Plant		HIRAKUD POWER, HINDALCO INDUSTRIES LIMITED, HIRAKUD
2	Name and address of the owner of land to be reclaimed		Central Reserve Police Force, Village: Basantpur, Chipilima Road, Goshala, Dist: Sambalpur
3	Land for reclamation with Ash		
	a) Ownership (substantiate with documents)		Central Reserve Police Force
	b) Area in Ac (with supporting documents)		9.5 Acres
	c) Mutual Agreement for reclamation indicating end use. (If the land is not owned by the TPP)		Attached
4	Site description:		
	a) Plot no and Kissam		Plot No. - 6, Kissam - Patita
	b) Khata No		68
	c) Village / Mouza		Basantpur
	d) Tahasil		Sambalpur (sadar)
	e) District		Sambalpur
	f) Whether falls within eco-sensitive zone		No
5	Results of test carried out (for all sites)		
	a) Leachability of Ash		Attached
	b) Permeability of Site		Attached
	c) Source of water for ash filling and dust suppression (Permission from local authority to be obtained if water to be drawn from public pond / wells)		Own Resource
	d) Transportation route from source to disposal site (Map showing the route)		Provided
6	Vicinity information: (within 0.5 km from boundary of the plot)		

	a) Water body (Pond / Dam / Reservoir / Lake / River etc.)		NIL
	b) Distance from nearest Railway line / NH / SH / Major District Road (MDR)		Nil
	c) Water in-take points / LI points (Public & Private)		Nil
	d) Does the natural topography lead the run off from disposal site to get dischargedan upstream of intake points?		No
	e) Distance from the nearest river / embankment (Whether natural topography permits surface runoff flow in to the river)		Nil
	f) Distance from nearest Archaelogical site if any		No such site exist
	g) Nearest habitation (Village / Basti with population and distance from boundary of site)		0.5 Km
	h) Nearest hospital / Education Institute / Place of worship		Nil
9	Mode of Transportation		By Road (through tarpaulin covered trucks)
10	Source of soil (to be used as soil cover)		Strip-off soil of same site
11	Usage of Reclaimed area		Parade Ground and other constructional activities

Signature of Authorised Representative of TPP

Arun Kumar Poddar
Plant Head
HIRAKUD POWER
JINDAL CO INDUSTRIES LIMITED
HIRAKUD-768016, SAMBALPUR, ORISSA

List of document to be attached

1. Land document in support at title / Ownership, Khata, Plot No., Mouza & Kisam.
2. Mouza map (scale 32": 1 mile) of the area.
3. Analysis report of soil permeability and leachability test of ash.
4. Village map / SOI map / showing transportation route from source to destination.
5. Sectorial contour map of justify estimated quantity of ash disposal.
6. Copy of the Agreement with the land owner to take up the activity (if land is not owned by TPP).
7. Permission from revenue authority for reclamation of abandoned quarry / Govt Land.

केन्द्रीय विद्यालय क्र-1. सम्बलपुर
KENDRIYA VIDYALAYA No. 1, SAMBALPUR
बराइपाली (शिल्पांचल के निकट), संबलपुर (ओड़िशा)
Near Industrial Estate, Baraipali, Sambalpur - 768006 (Odisha)
Ph. No.: 0663-2521029
E-mail: kvsambalpur@yahoo.co.in Web Site: www.kvsambalpur.org.in
CBSE Affiliation No.: 1500004 School No.: 08330 KV Code: 1187 Station Code: 119

F.150112/KV No.1(SBP)/2018-19/ 369 Date: 18.01.2019

To
The Head
Captive Power Plant (CPP)
Hindalco Hirakud Power
Sambalpur. Odisha

Sub: Filling of low lying areas with ash and covering with earth of KV No.1,Sambalpur.

Sir,

In inviting a kind reference to the subject cited above, it is to inform you that, Kendriya Vidyalaya No.1 Sambalpur is having a big and vast sport's ground. Due to construction of another additional building, condition of sports' ground has deteriorated a lot which are presently not suitable for any activity. Parents as well students are requesting for its development. Even a **Vidyalaya Management Committee meeting was held on 14th December 2018**, and in that meeting also parent members had raised the issue of "development of Sports' Ground". Sports Ground is an integral part of School curriculum, seeing the urgency it was proposed and approved by Chairman VMC & Collector cum District magistrate Sambalpur along with other members in the last VMC meeting that **filling of Sports ground 4-5 feet with fly ash/slag and over the fly ash/slag one feet of soil can be filled**, so it will be ready for sports and games purpose for small kids of Vidyalaya.

Therefore, it is requested to fill these low lying area with ash, and cover with earth, so that the sports' ground can be utilized in proper way as required. The Revenue map along with the land schedule is attached herewith for your kind perusal and decision.

Your kind cooperation will be highly appreciated and expecting a line of confirmation.

Thanking you,

Yours faithfully

18/01/19

(Manish Kumar Srivastava)
Principal
प्राचार्य / Principal
केन्द्रीय विद्यालय क्रमांक-1 / Kendriya Vidyalaya No-1
सम्बलपुर -768006 / Sambalpur-768006

Encl:

1. Revenue map & land schedule

Copy to

The Chairman VMC, Kendriya Vidyalaya No.1 Sambalpur
&
Collector cum District Magistrate Sambalpur

-65-

Letter No.....19...../Spl LA Dt...18.01.19.....

To

The Complex Head, Hindalco

Hirakud, Sambalpur

Sub:- Filling of ash in the sports ground of Kendriya Vidyalaya-1, Sambalpur

Sir,

With reference to the subject cited above, I am to inform you that the sports ground of Kendriya Vidyalaya-1, Sambalpur is required to be filled up with ash and slag as the condition of the ground has detoriated a lot due to construction of additional buildings.

It is therefore requested to fill up the sports ground Kendriya Vidyalaya-1, Sambalpur with consultation with the school authority as per norms of State pollution Control Board. The ash should be transported in close container.

This is for your information and necessary action.

Yours faithfully,

Collector, Sambalpur

Memo No.....20...../Spl LA Dt...18.01.19.....

Copy forwarded to the R.O, State Pollution Control Board, Sambalpur for kind information and necessary action.

Collector, Sambalpur

Memo No.....21...../Spl LA Dt...18.01.19.....

Copy to the Principal Kendriya Vidyalaya-1, Sambalpur for information.

Collector, Sambalpur

-66-

ADITYA BIRLA

HINDALCO

23rd January 2019

To:

The Regional Officer
State Pollution Control Board, Odisha
1070, Hospital Road
Modipara,
Sambalpur - 768002

Sub: **Submission of Consent to Establish (CTE) application (submitted online) for filling of ash of our CPP in premise of Kendriya Vidyalaya, Unit - 1, Sambalpur.**

Ref: Online application no. - **2424254**

Dear Sir,

Enclosed, please find herewith the Consent to Establish (CTE) application, submitted online vide reference above, for filling ash of our CPP in plot no. 407 to 415 & 654 of Kendriya Vidyalaya, Unit - 1 premise of Sambalpur. Fee of Rs 7000.00 (rupees seven thousand only) has been deposited through e-wallet. Receipt of online payment along with relevant documents is enclosed herewith for your kind perusal and consideration at the earliest.

Thanking you

Yours very truly
for M/s Hindalco Industries Ltd

Arun Poddar
Head - Hirakud Power

-Encl.: As above

Copy to: The Member Secretary, State Pollution Control Board, Odisha, A/118, Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

Fly Ash Resource Centre (FARC), State Pollution Control Board, Odisha, A/118, Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: ENVLAB/19/R-2112 *Date: 22.01.2019*

PERMEABILITY BY FALLING HEAD METHOD AS PER IS: 2720(P-17)

1. Name of the Industry: M/s Hindalco Industries Ltd., Sambalpur
2. Sample Location : S1- Plot No-407, Kendriya Vidyalay, Unit-1, Sambalpur
3. Depth : 1.0 mtr.
4. Date: 19.01.2019
5. Length of Specimen (L): 12.6
6. Diameter of Specimen (D): 10 cm
7. Area of Specimen (A) : 78.1 cm^2
8. Volume of Specimen [V]=AL:1005.31
9. Area of Stand Pipe [a]: 1.00 cm^2
10. C=2.303 aL/A=0.2266 cm
11. Temperature of Water, T:27 ^{0}C

Sl.no.	Initial Time Ti (Second)	Final Time Tf (Second)	Initial Head h1(cm)	Final Head h2(cm)	h1/h2	Log 10 h1/h2	K_T =C X (log10 h1/h2) (Tf-Ti) cm/sec	Average K_T in cm/sec
1	2	3	4	5	6	7	8	9
1	0	3800	50.6	50.3	1.0059	0.002554808	$1.5x10^7$	
2	3800	7600	50.3	50.1	1.0039	0.001690454	$1.6x10^7$	$1.9x10^7$
3	7600	11400	50.1	49.6	1.01	0.004321374	$2.6x10^7$	

Data of three selective & successive observations
Weight of wet soil specimen after test, Wt=2138.8 gm.
Weight of dry soil specimen ,Ws =1842.0 gm.
Water Content, $W=\frac{Wt - Ws}{Ws} \times 100 = 16.11\%$
Specific gravity of specimen, Gs=2.61
Void Ratio = e $\frac{VGs - Ws}{Ws} = 0.46$
Degree of Saturation, $S=\frac{Gs \cdot W}{e} = 98.90\ \%$
Permeability at 27 ^{0}C , $K_{27} = \frac{K_T \gamma_T}{\gamma_{27}} = 1.9 \times 10^{-7}$ cm/sec

For Visiontek Consultancy services Pvt. Ltd

Odisha State Pollution Control Board

Online Consent Management & Monitoring System

Ministry of Environment, Forest and Climate Change
Government of India

Date : 23-1-2019

On-line Payment Receipt

Receipt No.	854548600
Depositor Name	Arun Poddar
Bank Id.	ICICI
Bank Name.	NA
Application No.	2424254
Name and Address of Industry	HIRAKUD POWER(ASH LAND FILLING), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur), Sambalpur, Sambalpur
Name of Regional Office	SE I
Applied For	CTE - both - new
Payment Date	Wed Jan 23 17:42:24 IST 2019

Payment Details

CTE (Rs.)	7000.0
Total Amount Paid (Rs.)	7000.00
Transaction Status	Successfully Completed

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, NILKANTHA NAGAR,

UNIT - VIII BHUBANESWAR - 751012

Form IV (A)(a)

APPLICATION FOR CONSENT TO ESTABLISH UNDER SECTION OF 25 OF WATER(PREVENTION & CONTROL OF POLLUTION)ACT 1974/SECTION 21 OF AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981

(Special format for small scale industries other then 17 specified highly Polluting Categories)

From:
HIRAKUD POWER(ASH LAND FILLING), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur)
City:Hirakud
Tehsil:Sambalpur
District Sambalpur

To

The Member Secretary,
State Pollution Control Board, ODISHA
Bhubaneswar - 751012

Sir,

I We hereby apply herewith the Consent to Estblish (NOC)for an industry namely **HIRAKUD POWER(ASH LAND FILLING)** for production of Land filling (using ash). The site is located at **Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur) , Sambalpur**

1. The annexure and other particulars and plans etc are attached here with in triplicate.

2. I We further declare that the information furnished in the annexure and plans etc. are correct to the best of my our knowledge.

3. I We hereby undertake to furnish any other information to be called for with in one month.

Yours Faithfully
Name of the applicant: Arun Poddar

Designation: Head Hirakud Power

Accompaniments:-

1 Project Report (Attached)
2 Water Balance Chart (Attached)
3 other documents (Attached)
4 ENVCLEARNACE (Attached)
5 Copy of Approved Mine Lease (Attached)
6 EIA EMP Report (Attached)
7 Layout Map (Attached)
8 Vicinity map (Attached)
9 Land Schedule (Attached)

--- This is computer generated application ---
... this document on ... (OSPCB.

DATA SHEET

(TO BE FILLED IN BY THE INDUSTRY)

A. BASIC INFORMATION :

1.	Name of the Industry	:	HIRAKUD POWER(ASH LAND FILLING)
	a) Occupier Address & Phone,Fax	:	HIRAKUD POWER(ASH LAND FILLING), Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur) City:Hirakud Tehsil:Sambalpur District:Sambalpur
	b) Proposed Factory Address	:	Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur
2.	Name & Address of Occupier with Telephone & Fax No.	:	Arun Poddar Hindalco Industries Ltd. Hirakud Power 0663-2481435 0663-2481324
3.	Project cost	:	Plant & machinaries: 70 (in lakhs), land & Building: 70 (in lakhs), Application Wise investment: 0.0 (in Lakhs), Others: 0.0 (in Lakhs)
4.	Site information		
	Location		
	a) (Village/Panchayat) /NAC/ Municipality/Municipal corporation/Industrial Estate)	:	Village ,Sambalpur (in meters)
	(b) Plot No./Khata No.	:	407 - 415, 654
	(c) District	:	Sambalpur
	(d) Surrounding of the site		
	E	:	Baraipali-Khetrajpur Road
	W	:	Barren Land
	N	:	School Building
	S		Residential Area
	(e) Present use of land	:	Agriculture
	(f)Distance from the nearest human habitation	:	100
5.	Total area of the factory (in acre)		
	(a) Built up area	:	4.68

--This is computer generated application ---
and signature is not required

(b) Vacant area :

6. Existing features within 500 mtrs of the proposed site

Name of Surrounding	Distance(in meters)	Description
Villages	0.0	Within Sambalpur Municipal Corporation
School	0.0	Ash filling will be done inside the applied premise of Kendriya Vidyalay
Human Settlements	100.0	Residential area of SMC
Nalla	50.0	Dhobijor

B. TECHNICAL INFORMATION :

1. Product(S) List:

Name of Products	Quantity	Unit
Land filling (using ash)	190000.0	Sq M

2. Raw - meterials including:

Raw Materials	Raw Materials Name	Raw Materials Quantity
Fly Ash (for land filling)	31000.0	CubicMeter

3. Plant facility:

Plant Name	Quantity	Unit
Ash land filling in the premise of Kendriya Vidyalay, Sambalpur	31000.0	CubicMeter

4. Fuel consumption:

Fuel Name	Daily Comsumption	Unit

5. Brief description of the manufacturing process with flow chart : (as attached)

6. List of reaction vassels/Boilers/Furnance/Heating chambers/Kiln etc.

Type	Number of Stack	Stack Attached to	Height above ground level(in metres)	Capacity	Unit

7. Water Requirment Detail:

Water requirment for	Quantity(KL)	
Others(Dust Suppression)	35.0	

8. Source of water supply

Source Type	Source Name	Quantity(KL/D)
Other	Own source	35.0

--- This is computer generated application ---
(OSPCB)

C. POLLUTION INVENTRY :

1. Source of Air Pollution

Source of Air pollution	Control Measure

2. WATER

a) List of waste water generated:

Source of solid waste	Type/ Nature of Waste	Other Waste type detail	Quntity (Metric Tonnes/Month)	Quantity Reused	Quantity Sold	Quantity Disposed	Method of collection	Method of disposal	Place of disposal	Distance of discharge point from factor (in metres)

b) Proposed treatment of waste water

Uses	Treatment Arrangment Status	Treatment Type	Name of treatment Unit	Capacity(KL)	Treatment Unit

c) Proposal if any for waste water re-circulation/reuse : NO

d) Mode of final discharge

Source of solid waste	Type of Waste	Any other waste type detail	Method of disposal	Place of disposal

(e)Point of final discharge

Source of solid waste	Type of Waste	Any Other waste type detail	Place of disposal	Distance of discharge point from factor(in meters)

3. SOLID WASTE

Source	Nature	Quantity/Day	Mode of Disposal

4. Details of cost of Pollution Control Measures(in rupees) : 7.13 Lakh

5. Any other additional information on the proposed industry N A

Certified that the information furnished above are correct

Signature .

Name of the applicant. Arun Poddar

--- This is computer generated application ---

Designation: Head Hirakud Power

Address of the applicant: Hindalco Industries Ltd, Hirakud Power

Application for Consent to Establish under section 25 of Water (Prevention and Control of Pollution) Act 1974 and section 21 of Air (Prevention and Control of Pollution) Act 1981

[For Industrial Projects]

1. Please read the instructions to fill up the application carefully and make sure that all the relevant information in the application is filled up.
2. Please enclose all the relevant documents and index them appropriately as Annexure - I, II, etc
3. Please make sure that you have paid adequate consent fee along with the consent application
4. If all the field in the application form is not filled up, the application is not accompanied with adequate fee, or necessary documents are not enclosed then the application will be treated as incomplete and not duly made.

Name of the Project	HIRAKUD POWER(ASH LAND FILLING)		
Location	Location name	**Hindalco Industries Ltd, Hirakud Power(Ash land filling in the premise of Kendriya Vidyalay, Unit - 1, Sambalpur), Hirakud**	
	District	**Sambalpur**	
	PIN Code	**768016**	
	General description of the site	**Sambalpur Junction,Mahanadi River,Within Sambalpur Municipal Corporation,Ash filling will be done inside the applied premise of Kendriya Vidyalay,Sambalpur District HQ Hospital,Residential area of SMC,Laxmidunguri RF,NH 06,Dhobijor**	
Name of the applicant	**Arun Poddar**		
Designation	**Head Hirakud Power**		
Address for communication	**Hindalco Industries Ltd, Hirakud Power**		
	Mail id		
Production Details	Products		Annual capacity
	Land filling (using ash)		19000.0

Manufacturing process				
Major plant facility details	Description of facility	Capacity of each unit	Numbers of units proposed	
	Ash land filling in the premise of Kendriya Vidyalay, Sambalpur	31000.0	CubicMeter	
Raw material	Raw material Name		Annual Quantity	
	Fly Ash (for land filling)		31000.0	
Fuel consumption	Fuel		Annual Quantity	
Water Consumption	Area of use	Quantity in m3/d	Source of water	
	Other	35.0	Own source	
Waste water management	Source of wastewater	Quantity in m3/d	Quantity Recycled Reused	Quantity discharged
Wastewater treatment	Wastewater stream	Quantity (m3)	Type of treatment	Discharge point
Please give a brief description of the receiving water body				

Air Pollution Assessment

Emission Assessment	Stack description	Height in m	Emission quantity (Nm3/h)	Gas temp in degree C
Emission control measures	Stack description	Air pollution control equipment		
Fugitive emission assessment	Source of fugitive emission	Proposed method of emission reduction		

Solid waste management

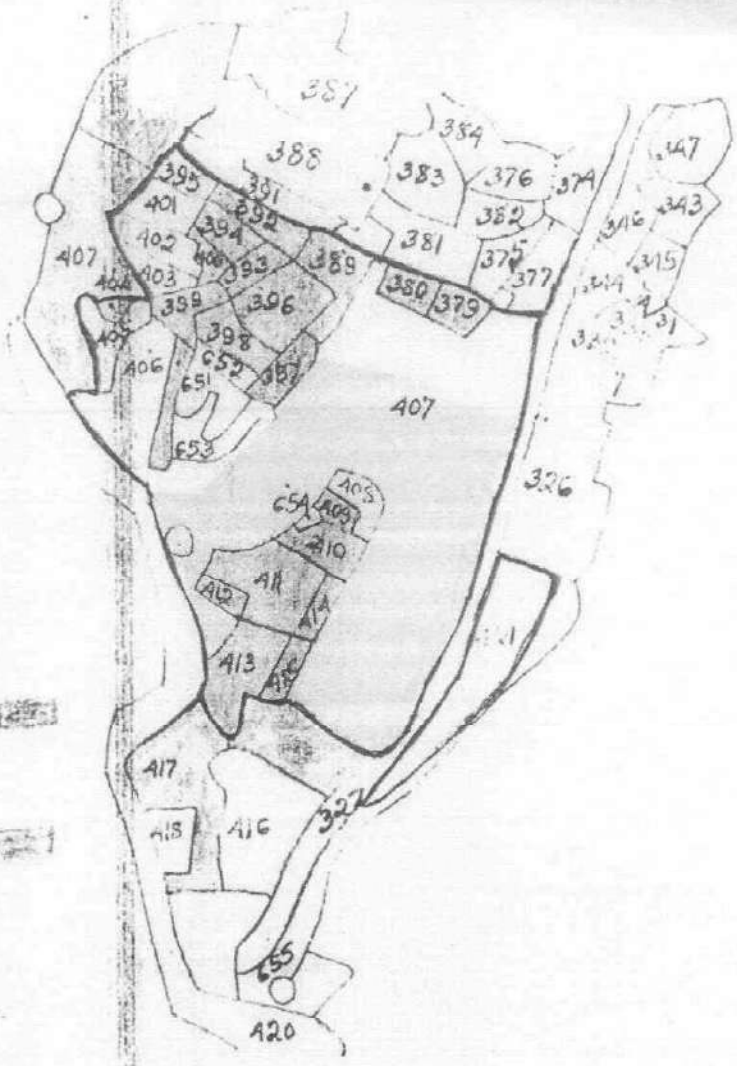
Solid waste generation	Source of generation	Type of waste	Quantity of generation (TPA)
Solid waste management	Type of waste	Quantity reused	Quantity disposed of
Solid waste disposal site description	Type of waste	Area of disposal site	Mode of Disposal
Declaration			

This is computer generated application

1. I am duly authorised by the company to fill up this application for Consent to Establish
2. I have read the instructions carefully and has fully understood it and filled up the details as per the information available with the company.
3. I understand that if any information furnished in this application is found to be falsified at a later date then the company shall be fully responsible for the act.
4. I also understand that such falsification of facts amounts to violation of section of Water (prevention and Control of Pollution) Act, 1974 and Air (prevention and Control of Pollution) Act, 1981.

Signature	
Name	Arun Poddar
Designation	Head Hirakud Power
Date	Place

Village - Jagannathpur
P.S. - Samalpur (No. 2)
Dist. - Samalpur
Scale 16" = 1 Mile



Reference:-
Private Land to be acquired ▨
Govt. Land to be given on exchange or compensation ▨

Land Acquisition Officer
Samalpur

Collector
Samalpur

Prepared by
N. Sinha
Draftsman
30/4/77

Proposed Area for the construction of Additional Building for classroom :- ▨

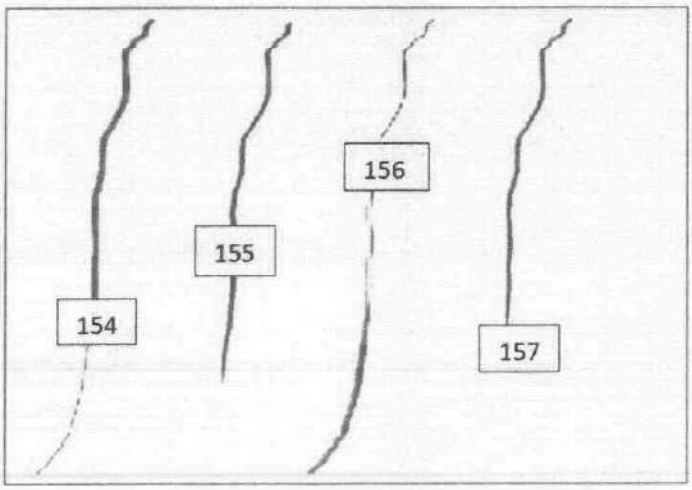
TOTAL LAND DETAILS (KENDRIYA VIDYALAYA, SAMBALPUR)

SL. NO	PLOT NO	AREA	TOTAL AREA	DATE OF AGREEMENT	REMARK
1	407	7.85	7.85	03.04.1970	GOVT.
	407 Part	0.70			
	408	0.15			
	654	0.01			
	417	0.73			
	653	0.24			
	651	0.27			
	652	0.10			
	421	0.83		25.06.1976	GOVT.
2		3.03	3.03		
	389 part	0.27			Govt land exchanged with G. Tripathy.
	393	0.16			
	394	0.15			
	396	0.41			
	409	0.09			
	411	0.58			
	412	0.11			
	414	0.10		20.02.1978	Private(G.Tripathy)
3		1.87	1.87		
	392	0.28			Govt land exchanged with A. Haripal.
	397	0.20			
	398	0.21			
	399	0.20			
	400	0.08			
	406	0.18			
	410	0.26			
	413	0.36			
	415	0.11		20.07.1978	Private(A.Haripal)
4		1.88	1.88		
	TOTAL LAND		14.63		

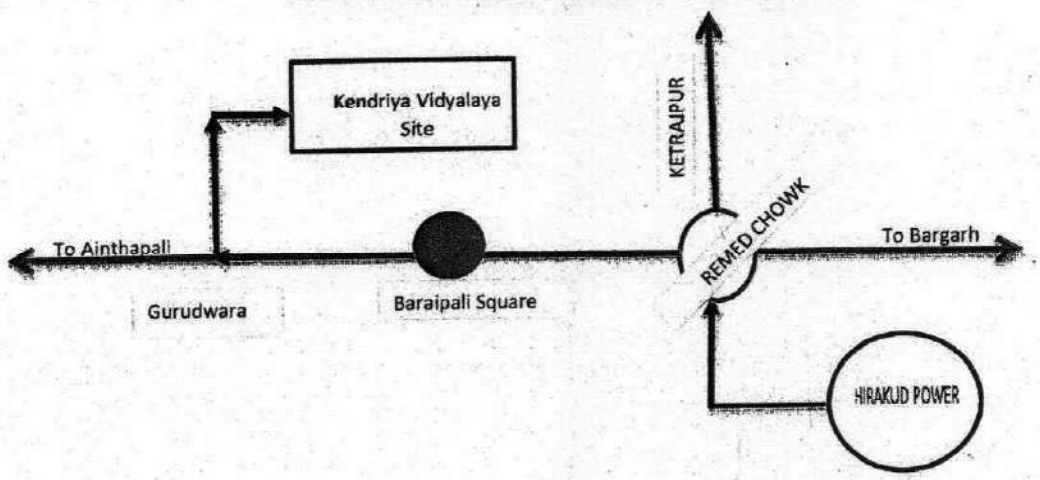
PROPOSED SITE FOR ASH FILLING AT KENDRIYA VIDYALAYA BARIEPALI SAMBALPUR



Contour



ROUTE MAP OF KENDRIYA VIDYALAYA, UNIT - 1, SAMBALPUR



Tel:0663-2522305
Email: rospcb.sambalpur@ospcboard.org
Website: www.ospcboard.org

ODISHA

OFFICE OF THE REGIONAL OFFICE, SAMBALPUR
STATE POLLUTION CONTROL BOARD, ODISHA
[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
1070, Hospital Road, Modipara, Sambalpur-768002

No. 1368 /III CON (NOC)/108/2018-19 Date. 04/04/2019

OFFICE MEMORANDUM

In consideration of the application dt.**23.01.2019** of M/s. Hindalco Industries Limited, Power Plant, the State Pollution Control Board is pleased to convey permission of reclamation (with Fly Ash) of the low lying area at Mouza Danipali (Kendriya Vidyalaya, Unit-1, premises-play ground) over an area of 4.68 Acres in Plot No 407 to 415 & 654, Total Area-Ac.4.68 dec. Kisam *MALA* as mentioned in the application, in the district of Sambalpur with the following conditions :

This permission is an addendum to the consent order granted to the applicant under water (PCP) Act, 1974 & Air Act, 1981 and the conditions stipulated here-in are a part of conditions of the above said consent order for strict compliance.

General Conditions

1. This Permission is valid for 6 months from the date of issue and the quantity as mentioned in the application.
2. Reclamation of low lying area shall be carried out as per the guideline prepared by the State Pollution Control Board for the purpose.
3. The thermal power plant shall dispose only ash for filling the low lying area. Under no circumstances, the industry shall dispose any other industrial solid waste in the low lying area other than ash without prior permission of the Board.
4. The thermal power plants shall provide garland drain around the proposed site if fly ash is filled is above the contour of the surrounding land so that surface run off during rainy season shall not enter to the nearby human habitation and adjacent agricultural land.
5. The ash shall be dumped into low lying area and spread uniformly by engaging earth moving equipment. The spreading of ash shall be done in layers and compacted followed by concurrent top soil capping before rainy season, so that

there shall not be any chance of mixing of the fly ash in nearby water body through rain water.

6. The thermal power plants / Industry shall develop the approach road and shall provide adequate water spraying arrangement on the roads when ash is taken from the silo/plant to suppress any fugitive dust generated during working period.
7. Protective action to be ensured if the ash to be disposed at immediate vicinity of NH/SH.
8. The TPP has to provide dust suppression like water sprinkling in and around the dump site. During summer extra care shall be taken to control fugitive dust.
9. For reclamation of land, irrespective of size located within administrative limit of any Municipal Corporation or if the transportation route passes through its administrative limit, extra care to ensure non spillage of ash and non-congestion of traffic need to be exercised to prevent any pollution during transportation of fly ash.
10. **The following two condition are applicable if the permeability of the site is > 10^{-7}cm/sec :**
11. If the permeability is more than 10^{-7} cm/sec, the TPP shall provide appropriate lining as mentioned in the guideline at the base layer at the low lying area in order to prevent leaching and risk of ground water contamination.
12. Commencement of fly ash filling shall be made after provision of the linings verified by the Pollution Control Board's Official and on obtaining necessary permission in this regard.
13. The environmental quality monitoring of air, surface and ground water shall be carried out every month at the boundary of the disposal area for the following parameters and the monitoring report shall be submitted to the Board every quarter.
    a. Ambient Air- PM_{10} $PM_{2.5}$
    b. Surface runoff - SS, F, Cd, As
14. Water quality monitoring shall be done from start of the work till six months beyond completion of work. Air monitoring shall be done till completion of the reclamation work.
15. The area shall be properly fenced to prevent any entry of cattle / Livestock inside the quarry area.
16. After complete reclaiming the site, signboard shall be put up showing that the land was reclaimed by filling low lying area.

17. Attempt shall be made to avoid any kind of public nuisance due to proposed activities.
18. On completion of the reclamation, the TPP shall submit a certificate to the effect that all the above stipulated conditions have been duly complied.
19. Board reserves the right to revoke this permission if conditions stipulated are not implemented to the satisfaction of the Board.

Additional Conditions

1. The fly ash shall be dumped into low-lying area beyond school time from 3.00 PM to 10.00 PM and spread uniformly with earth cover concurrently.
2. In case of any public complaint due to such filling by fly ash and air pollution thereof, this permission shall be revoked.

Regional Officer
Regional Office
State Pollution Control Board
Regional Office, Sambalpur

To,

Sri Arun Poddar, Head Hirakud Power
M/s Hindalco Industries Limited, Power Plant
At/PO: Hirakud, Dist: Sambalpur

Memo No. _____/ Dt. _____/

Copy forwarded to :

1. The Member Secretary, SPC Board, Odisha
2. The District Magistrate and Collector, Sambalpur.
3. FARC, SPC Board, Bhubaneswar
4. Copy to Guard file

Regional Officer

SGS

Test Report

Preliminary Report

Print Date : 13/10/2017

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Report No : JE17-000928.001 **JOE No** : JE17-000928

Report Control No : JER0000003676

Sample Described by Customer as : ASH

Client Name	: HINDALCO INDUSTRIES LIMITED
Client Address	: Hirakud Power
Postal Code	: 768016
State	: Orissa
Country	: INDIA
Sample Type	: ASH
Received	: 03/10/2017
Marks on Sample	: Sample of Silo Ash,Dt- 25.09.2017,Time- 09.15 am
Sample Qty. Recd.	: 2.0 kg. app.
Test Start/End Date	: 03/10/2017 - 30/12/1899

Analysis	Method	Result	Unit	Requirement/Limit SCHEDULE II	
				Min	Max
A1-Arsenic	USEPA 1311 & 200.7	<0.05	mg/L	-	5.0
A2-Barium	USEPA 1311 & 200.7	4.86	mg/L	-	100
A3-Cadmium	USEPA 1311 & 200.7	0.07	mg/L	-	1.0
A4-Chromium /Cr(III) Compounds	USEPA 1311 & 200.7	0.61	mg/L	-	5.0
A5-Lead	USEPA 1311 & 200.7	0.23	mg/L	-	5.0
A6-Manganese	USEPA 1311 & 200.7	1.71	mg/L	-	10
A7-Mercury	USEPA 1311 & 200.7	<0.05	mg/L	-	0.20
A8-Selenium	USEPA 1311 & 200.7	<0.05	mg/L	-	1.0
A9-Silver	USEPA 1311 & 200.7	<0.05	mg/L	-	5.0
A10-Ammonia as NH3	USEPA 1311 & APHA 4500 C	<1.00	mg/L	-	50*
A11-Cyanide	USEPA1311 & APHA 4500 F	<0.05	mg/L	-	20*
A12-Nitrate(nitrate-nitrogen)	USEPA1311 & IS 3025 (Part 34) : 1988	9.40	mg/L	-	1000
A13-Sulphide as H2S	USEPA1311 & APHA 4500S F	<2.00	mg/L	-	5.0
A62-Antimony	USEPA 1310 & 200.7	<0.05	mg/L	-	15.0
A63-Beryllium	USEPA 1310 & 200.7	<0.05	mg/L	-	0.75
A64-Chromium(VI)	USEPA 1310 & 200.7		mg/L	-	5.0
A65-Cobalt	USEPA 1310 & 200.7	0.09	mg/L	-	80.0
A66-Copper	USEPA 1310 & 200.7	0.34	mg/L	-	25.0
A67-Molybdenum	USEPA 1310 & 200.7	<0.05	mg/L	-	350.0
A68-Nickel	USEPA 1310 & 200.7	0.28	mg/L	-	20.0

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of perishable items) and 30 days for all other samples from the date of issue of report. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written approval of the Company.

For any feedback or complaint please write to us at feedback.mlkolkata@sgs.com.

SGS

Test Report

Preliminary Report

Print Date : 13/10/2017

SAMPLE NOT DRAWN BY SGS INDIA PVT. LTD.

Report No : JE17-000928.001 **JOE No** : JE17-000928

Report Control No : JER0000003676

Analysis	Method	Result	Unit	Requirement/Limit SCHEDULE II	
				Min	Max
A69-Thallium	USEPA 1310 & 200.7	<0.05	mg/L	-	7.0
A70-Vanadium	USEPA 1310 & 200.7	0.67	mg/L	-	24.0
A71-Zinc	USEPA 1310 & 200.7	0.70	mg/L	-	250.0
A72-Fluoride	USEPA1310 & APHA 4500F C	1.65	mg/L	-	180.0

All parameters - Subcon to SGS Kolkata Lab

Per pro SGS India Private Ltd

Manish Kumar
Authorized Signatory

****End of Report****

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For any feedback or complaint please write to us at feedback.mlkolkata@sgs.com.

Annexure-1

Application Form

(For Reclamation of Low Lying areas / Abandoned Quarries with Ash)

To be submitted by Thermal Power Plants

1	Name and address of the Thermal Power Plant	HIRAKUD POWER, HINDALCO INDUSTRIES LIMITED, HIRAKUD
2	Name and address of the owner of land to be reclaimed	Kendriya Vidyalaya, Unit - 1 Vill: Danipali , Baraipali, Sambalpur
3	Land for reclamation with Ash	
	a) Ownership (substantiate with documents)	Kendriya Vidyalaya, Sambalpur
	b) Area in Ac (with supporting documents)	4.68 Acre
	c) Mutual Agreement for reclamation indicating end use. (if the land is not owned by the TPP)	Attached
4	Site description:	
	a) Plot no and Kisam	Plot - 407 to 415 & 654, Kisam - mala
	b) Khata No	
	c) Village / Mouza	Danipali
	d) Tahasil	Sambalpur (sadar)
	e) District	Sambalpur
	f) Whether falls within eco-sensitive zone	No
5	Results of test carried out (for all sites)	
	a) Leachability of Ash	Enclosed
	b) Permeability of Site	Enclosed
	c) Source of water for ash filling and dust suppression (Permission from local authority to be obtained if water to be drawn from public pond / wells)	Own resource
	d) Transportation route from source to disposal site (Map showing the route)	Enclosed
6	Vicinity information: (within 0.5 km from boundary of the plot)	
	a) Water body (Pond / Dam / Reservoir / Lake /	Nil

	a) Water body (Pond / Dam / Reservoir / Lake / River etc.)	Nil
	b) Distance from nearest Railway line / NH / SH / Major District Road (MDR)	1 Km
	c) Water in-take points / LI points (Public & Private)	1Km
	d) Does the natural topography lead the run off from disposal site to get dischargedan upstream of intake points?	No
	e) Distance from the nearest river / embankment (Whether natural topography permits surface runoff flow in to the river)	6 Km (No)
	f) Distance from nearest Archaelogical site if any	No such site nearby
	g) Nearest habitation (Village / Basti with population and distance from boundary of site)	100 mtr
	h) Nearest hospital / Education Institute / Place of worship	0 KM
9	Mode of Transportation	Road, through rope tied tarpaulin covered trucks
10	Source of soil (to be used as soil cover)	Stripped-off soil of the site
11	Usage of Reclaimed area	Development of play ground for children

Signature of Authorised Representative of TPP

Arun Kumar Poddar

List of document to be attached

1. Land document in support at title / Ownership, Khata, Plot No., Mouza & Kisam.
2. Mouza map (scale 32": 1 mile) of the area.
3. Analysis report of soil permeability and leachability test of ash.
4. Village map / SOI map / showing transportation route from source to destination.
5. Sectorial contour map of justify estimated quantity of ash disposal.
6. Copy of the Agreement with the land owner to take up the activity (if land is not owned by TPP).
7. Permission from revenue authority for reclamation of abandoned quarry / Govt Land.

-80-

Mobile : 9437760360
Email@dgcomdtbti.odpol@gov.in

ODISHA POLICE

BASIC TRAINING INSTITUTE, BURLA, SAMBALPUR
C.A. CHIPLIMA, DIST: SAMBALPUR, PIN : 768025

B.K. NANDA (OAPS-I)
PRINCIPAL-CUM-COMMANDANT

D.O. NO 357/BTI
DATE : 12.02.2018

To

The Plant Head,
Hirakud Power Hindalco Industry Ltd,
Hirakud, Dist- Sambalpur.

Sub: **Leveling of low land in premises of BTI, Burla.**

Sir,

In inviting a kind reference to the subject cited above, I am to intimate to you that, Basic Trg. Institute, Burla is functioning in Ac.177.90 dc. of land under Basantpur Mouza since 22.11.2016. This institution is meant to impart quality training to Armed forces of the State.

Out of the said land, about Ac.9.5 dc. of land has low level with ditches for which the construction work of different infrastructures and leveling of Parade Ground of the institution is not feasible and thereby the training is also affected.

Therefore I would like to request you to fill-up the low land with the ash dust of your industry and level the land for the development of the training institution.

Yours faithfully,

Commandant,
Basic Trg. Institute, Burla.

Address: At: Basantpur, C.A. Chipilima, Burla, Sambalpur, Pin-768025
E-Mail-comdtbti.odpol@gov.in

-१८-

ADITYA BIRLA

HINDALCO

10th March 2018

To

The Regional Officer
State Pollution Control Board, Odisha
1070, Hospital Road
Modipara,
Sambalpur - 768002

Sub: **Submission of Consent to Establish (CTE) application (submitted online) for filling of ash of our CPP in the premise of Basic Training Institute, Odisha Police**

Ref: Online application no. - 2047971

Dear Sir,

Enclosed, please find herewith the Consent to Establish (CTE) application, submitted online vide reference above, for filling of ash of our CPP in the premise of Basic Training Institute of Odisha Police under Basantpur Gram Panchayat of Sambalpur District. Fee of Rs 39400.00 (Rupees Thirty-nine Thousand Four Hundred only) has been deposited through e-wallet. Receipt of online payment along with relevant documents is enclosed herewith for your kind perusal and consideration at the earliest.

Thanking you

Yours very truly
for M/s Hindalco Industries Ltd

Arun Poddar
Head - Hirakud Power

Encl.: As above

Copy to: The Member Secretary, State Pollution Control Board, Odisha, A/118 - Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

Fly Ash Resource Centre (FARC), State Pollution Control Board, Odisha, A/118 - Nilakantha Nagar, Nayapalli, Unit - VIII, Bhubaneswar - 12 for kind information.

-82-

ADITYA BIRLA

HINDALCO

29th March 2019

To

The Regional Officer,
State Pollution Control Board, Odisha
1070, Hospital Road
Modipara
Sambalpur - 768002

Sub: **Information regarding completion of activities at ash land filling sites**

Ref: (i) CTE vide Letter no. - 821, dated 23.03.2018 (Basic Training Institute for 9.5 acre land)
(ii) CTE vide Letter no. - 1457, dated 14.05.2018(Basic Training Institute for 7.1 acre land)

Sir,

This is with reference to the above for land filling of our ash at Basic Training Institute of Odisha Police at Basantpur, Sambalpur.

We are to intimate you that the land filling activity has been completed in all respect at the sites under reference. After completion of the filling the sites have been handed over to the land owner (completion certificates of BTI enclosed for kind reference).

Thanking you.

Yours very truly,
for M/s Hindalco Industries Ltd

Arun Poddar 29/3/19
Head - Hirakud Power

Encl: As above

Tel : 0663-2522305
Email :rospcb.sambalpur@ospcboard.org
Website : www.ospcboard.org

OFFICE OF THE REGIONAL OFFICE, SAMBALPUR
STATE POLLUTION CONTROL BOARD, ODISHA
[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
1070,Hospital Road, Modipara, Sambalpur-768002

No.....821...../ III CON (NOC)/198/2017-18 Date 23.03.2018

OFFICE MEMORANDUM

In consideration of the application dt.10.03.2018 of M/s Hindalco Industries Limited, Power Plant, the State Pollution Control Board is pleased to convey permission of reclamation (with Fly Ash) of the low lying area at Mouza Basantpur (B.T.I, Odisha Police, Burla) over an area of 9.50 Acres in Plot No 403 (P), under Khata No : 68 (AJA), Kisam *Patita* as mentioned in the application, in the district of Sambalpur with the following conditions :

This permission is an addendum to the consent order granted to the applicant under water (PCP) Act, 1974 & Air Act, 1981 and the conditions stipulated here-in are a part of conditions of the above said consent order for strict compliance.

General Conditions

1. This Permission is valid for 6 months from the date of issue and the quantity as mentioned in the application.
2. Reclamation of low lying area shall be carried out as per the guideline prepared by the State Pollution Control Board for the purpose.
3. The Thermal Power Plant shall dispose only ash for filling the low lying area. Under no circumstances, the industry shall dispose any other industrial solid waste in the low lying area other than ash without prior permission of the Board.
4. The Thermal Power Plants shall provide garland drain around the proposed site if fly ash is filled is above the contour of the surrounding land so that surface run off during rainy season shall not enter to the nearby human habitation and adjacent agricultural land
5. The ash shall be dumped into low lying area and spread uniformly by engaging earth moving equipment. The spreading of ash shall be done in layers and compacted followed by concurrent top soil capping before rainy season, so that

there shall not be any chance of mixing of the fly ash in nearby water body through rain water.

6. The Thermal Power Plant shall develop the approach road and shall provide adequate water spraying arrangement on the roads when ash is taken from the silo/plant to suppress any fugitive dust generated during working period.

7. Protective action to be ensured if the ash to be disposed at immediate vicinity of NH/SH.

8. The Thermal Power Plant has to provide dust suppression like water sprinkling in and around the dump site. During summer extra care shall be taken to control fugitive dust.

9. For reclamation of land, irrespective of size located within administrative limit of any Municipality / Corporation or if the transportation route passes through its administrative limit, extra care to ensure non spillage of ash and non-congestion of traffic need to be exercised to prevent any pollution during transportation of fly ash.

10. **The following two condition are applicable if the permeability of the site is > 10^{-7}cm/sec :**

11. If the permeability is more than 10^{-7} cm/sec, the TPP shall provide appropriate lining as mentioned in the guideline at the base layer at the low lying area in order to prevent leaching and risk of ground water contamination.

12. Commencement of fly ash filling shall be made after provision of the linings verified by the Pollution Control Board's Official and on obtaining necessary permission in this regard.

13. The environmental quality monitoring of air, surface and ground water shall be carried out every month at the boundary of the disposal area for the following parameters and the monitoring report shall be submitted to the Board every quarter.

    a. Ambient Air- PM_{10} $PM_{2.5}$

    b. Surface runoff - SS, F, Cd, As

14. Water quality monitoring shall be done from start of the work till six months beyond completion of work. Air monitoring shall be done till completion of the reclamation work.
15. The area shall be properly fenced to prevent any entry of cattle / Livestock inside the area.
16. After complete reclaiming the site, signboard shall be put up showing that the land was reclaimed by filling low lying area.
17. Attempt shall be made to avoid any kind of public nuisance due to proposed activities.
18. On completion of the reclamation, the Thermal Power Plant shall submit a certificate to the effect that all the above stipulated conditions have been duly complied.
19. Board reserves the right to revoke this permission if conditions stipulated are not implemented to the satisfaction of the Board.

Regional Officer
Regional Office
State Pollution Control Board
Regional Office, Sambalpur

To,

Sri Arun Poddar, Head Hirakud Power
M/s Hindalco Industries Limited, Power Plant
At/PO: Hirakud, Dist: Sambalpur

Memo No. 822 / Dt. 23.03.2018 /

Copy forwarded to :

1. The Member Secretary, SPC Board, Odisha
2. The District Magistrate and Collector, Sambalpur.
3. Senior Env. Engineer, L-1 (C), State Pollution Control Board, Odisha,
4. FARC, SPC Board, Bhubaneswar
5. Copy to Guard file

Regional Officer
Regional Office
State Pollution Control Board
Regional Office, Sambalpur

-96-

Mobile : 9437760360
Email- comdtbti.odpol@gov.in

ODISHA POLICE

BASIC TRAINING INSTITUTE, BURLA, SAMBALPUR
C.A. CHIPLIMA, DIST. SAMBALPUR, PIN - 768025

B.K. NANDA (OAPS-I)
PRINCIPAL-CUM-COMMANDANT

D.O. NO. 1455(A)/BTI
DATE : 20.06.2018

Date: 20/06/2018

COMPLETION CERTIFICATE

To whom so ever it may concern

This is to certify that M/s Hindalco Industries Limited,Hirakud (P&S), Hirakud, Dist.: Sambalpur has completed the Land Reclamation Works on land measuring an area of 9.5 Acres (approx.) as per the guidelines of SPCB at Basic Training Institute, Basantpur Goshala, Burla, Dist.:Sambalpur.

Commandant
Basic Training Institute
Burla, Sambalpur

Mobile : 9437760360
E mail- comdtbti.odpol@gov.in

ODISHA POLICE

BASIC TRAINING INSTITUTE, BURLA, SAMBALPUR
C.A. CHIPLIMA, DIST. SAMBALPUR, PIN - 768025

P. K. NANDA (OAPS-I)
PRINCIPAL CUM COMMANDANT

D.O. NO. 343/BTI
DATE : 31.01.2019

Date: 31/01/2019

COMPLETION CERTIFICATE

To whom so ever it may concern

This is to certify that M/s Hindalco Industries Limited,Hirakud (P&S), Hirakud, Dist.: Sambalpur has completed the Land Reclamation Works on land measuring an area of 7.1 Acres (approx.) as per the guidelines of SPCB at Basic Training Institute, Basantpur Goshala, Burla, Dist.:Sambalpur.

31/1/19

Commandant
Basic Training Institute
Burla, Sambalpur

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-344 Date: 21-02-2018

PERMEABILITY BY FALLING HEAD METHOD AS PER IS:2720(P-17)

1.Name of the Industry: Hindalco Industries Ltd., Hirakud, Sambalpur
2.Sample Location : Basic Training Institute, odisha police, Basantapur mouza,Sambalpur. Plot No-403
3.Depth : 1.0 mtr.
4. Date of sampling :15.02.2018
5.Length of specimen (L): 12.8
6.Diameter of Specimen (D): 10 cm
7.Area of Specimen (A) : 78.54 cm^2
8. Volume of Specimen [V]=AL:1005.31
9. Area of Stand Pipe [a]: 1.00 cm^2
10. C=2.303 aL/A=0.3753 cm
11.Temperature of Water, T:25 ^0C

Sl. no.	Initial Time Ti (Second)	Final Time Tf (Second)	Initial Head h1(cm)	Final Head h2(cm)	h1/h2	Log_{10} h1/h2	$K_T = C \times \frac{(\log_{10} h1/h2)}{(Tf-Ti)}$ cm/sec	Average K_T in cm/sec
1	2	3	4	5	6	7	8	9
1	0	3600	54.1	54	1.002	0.000803505	8.376×10^{-8}	8.392×10^{-8}
2	3600	7200	54.0	53.9	1.002	0.000804995	8.392×10^{-8}	
3	7200	10800	53.9	53.8	1.002	0.00080649	8.408×10^{-8}	

Data of three selective & successive observations
Weight of wet soil specimen after test, Wt=2156.6 gm.
Weight of dry soil specimen ,Ws =1848.4 gm.
Water Content, $W = \frac{Wt - Ws}{Ws} \times 100 = 16.67\%$
Specific gravity of specimen, Gs=2.74
Void Ratio = $e \frac{VGs - Ws}{Ws} = 0.49$
Degree of Saturation, $S = \frac{Gs \cdot W}{e} = 93.19\ \%$
Permeability at 25 ^0C , $K_{27} = \frac{K_T \gamma_T}{\gamma_{27}} = 8.392 \times 10^{-8}$ cm/sec

For Visiontek Consultancy Services Pvt. Ltd

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, NILKANTHA NAGAR,

UNIT - VIII BHUBANESWAR - 751012

Form IV (A)(a)

APPLICATION FOR CONSENT TO ESTABLISH UNDER SECTION OF 25 OF WATER(PREVENTION & CONTROL OF POLLUTION)ACT 1974/SECTION 21 OF AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981

(Special format for small scale industries other then 17 specified highly Polluting Categories)

From:
Hirakud Power(Ash Land filling of Basic Trng Inst), Hindalco Industries Ltd, Hirakud Power,
At/PO- Hirakud
City:Sambalpur
Tehsil:Sambalpur
District:Sambalpur

To

The Member Secretary,
State Pollution Control Board, ODISHA
Bhubaneswar - 751012

Sir,

I/We hereby apply herewith the Consent to Estblish (NOC)for an industry namely **Hirakud Power(Ash Land filling of Basic Trng Inst)** for production of Ash for landfill, The site is located at **Hindalco Industries Ltd, Hirakud Power, At/PO- Hirakud , Sambalpur**

1. The annexure and other particulars and plans etc. are attached here with in triplicate.

2. I/We further declare that the information furnished in the annexure and plans etc. are correct to the best of my / our knowledge.

3. I/We hereby undertake to furnish any other information to be called for with in one month.

Yours Faithfully,
Name of the applicant: Arun Poddar
Designation: Sambalpur Cluster Head

Accompaniments:-

1. Water Balance Chart (Attached)
2. other documents (Attached)
3. ENV CLEARNACE (Attached)
4. Copy of Approved Mine Lease (Attached)
5. EIA EMP Report (Attached)
6. Layout Map (Attached)
7. vicinity map (Attached)
8. Project Report (Attached)
9. Land Schedule (Attached)

DATA SHEET
(TO BE FILLED IN BY THE INDUSTRY)

A. BASIC INFORMATION :

1.	Name of the Industry	:	Hirakud Power(Ash Land filling of Basic Trng Inst)
	a) Occupier Address & Phone,Fax	:	Hirakud Power(Ash Land filling of Basic Trng Inst), Hindalco Industries Ltd, Hirakud Power, At/PO- Hirakud City:Sambalpur Tehsil:Sambalpur District:Sambalpur
	b) Proposed Factory Address	:	Hirakud Power ash land filling in the premise of BTI, Odisha Police, Burla
2.	Name & Address of Occupier with Telephone & Fax No.	:	R K Gupta Hindalco Industries Ltd, At/PO - Hirakud 0663-2481435 0663-2481324
3.	Project cost	:	Plant & machinaries: 394 (in lakhs), land & Building: 394 (in lakhs), Application Wise investment: 0.0 (in Lakhs). Others: 0.0 (in Lakhs)
4.	Site information		
	Location		
	a) (Village/Panchayat) /NAC/ Municipality/Municipal corporation/Industrial Estate)	:	Village ,2000 (in meters)
	(b) Plot No./Khata No.	:	403,598(p)
	(c) District	:	Sambalpur
	(d) Surrounding of the site		
	E	:	Barren land
	W	:	Barren land
	N	:	Barren land
	S	:	Barren Land
	(e) Present use of land	:	Agriculture
	(f)Distance from the nearest human habitation	:	0
5.	Total area of the factory (in acre)		
	(a) Built up area	:	9.5
	(b) Vacant area	:	

6. **Existing features within 500 mtrs of the proposed site**

Name of Surrounding	Distance(in meters)	Description
Human Settlements	0.0	Barracks of BTI

B. TCHNICAL INFORMATION :

1. **Product(S) List:**

Name of Products	Quantity	Unit
Ash for landfill	110000.0	CubicMeter

2. **Raw - meterials including:**

Raw Materials	Raw Materials Name	Raw Materials Quantity
Coal ash for landfill	600.0	CubicMeter

3. **Plant facility:**

Plant Name	Quantity	Unit
Ash land filling in BTI premise, Odisha Police, Basantpur, Burla	110000.0	CubicMeter

4. **Fuel consumption:**

Fuel Name	Daily Comsumption	Unit

5. **Brief description of the manufacturing process with flow chart** : (as attached)

6. **List of reaction vassels/Boilers/Furnance/Heating chambers/Kiln etc.**

Type	Number of Stack	Stack Attached to	Height above ground level(in metres)	Capacity	Unit

7. **Water Requirment Detail:**

Water requirment for	Quantity(KL)
Others(Dust Suppression)	5.0

8. **Source of water supply**

Source Type	Source Name	Quantity(KL/D)
Other	Own source of BTI	5.0

C. POLLUTION INVENTRY :

1. **Source of Air Pollution**

Source of Air pollution	Control Measure

2. **WATER**

a) List of waste water generated:

Source of solid waste	Type/ Nature of Waste	Other Waste type detail	Quntity (Metric Tonnes/Month)	Quantity Reused	Quantity Sold	Quantity Disposed	Method of collection	Method of disposal	Place of disposal	Distance of discharge point from factor (in metres)

b) Proposed treatment of waste water

Uses	Treatment Arrangment Status	Treatment Type	Name of treatment Unit	Capacity(KL)	Treatment Unit

c) Proposal if any for waste water re-circulation/reuse : NO

d) Mode of final discharge

Source of solid waste	Type of Waste	Any other waste type detail	Method of disposal	Place of disposal

(e)Point of final discharge

Source of solid waste	Type of Waste	Any Other waste type detail	Place of disposal	Distance of discharge point from factor(in meters)

3. **SOLID WASTE**

Source	Nature	Quantity/Day	Mode of Disposal

4. **Details of cost of Pollution Control Measures(in rupees)** :

5. **Any other additional information on the proposed industry** N/A

Certified that the information furnished above are correct

Signature :

Name of the applicant: Arun Poddar

Designation: Sambalpur Cluster Head

Address of the applicant: Hindalco Industries Ltd, At/PO - Hirakud

Application for Consent to Establish under section 25 of Water (Prevention and Control of Pollution) Act 1974 and section 21 of Air (Prevention and Control of Pollution) Act 1981

[For Industrial Projects]

1. Please read the instructions to fill up the application carefully and make sure that all the relevant information in the application is filled up.
2. Please enclose all the relevant documents and index them appropriately as Annexure – I, II, ... etc.
3. Please make sure that you have paid adequate consent fee along with the consent application.
4. If all the field in the application form is not filled up, the application is not accompanied with adequate fee, or necessary documents are not enclosed then the application will be treated as incomplete and not duly made.

Name of the Project	Hirakud Power(Ash Land filling of Basic Trng Inst)		
Location	Location name	**Hindalco Industries Ltd, Hirakud Power, At/PO-Hirakud, Sambalpur**	
	District	**Sambalpur**	
	PIN Code	**768016**	
	General description of the site	**Basantpur Village,Sambalpur-Bargarh route,River Mahanadi,Basantpur village school,Burla Medical ,NH 6,Barracks of BTI**	
Name of the applicant	**R K Gupta**		
Designation	**Sambalpur Cluster Head**		
Address for communication	**Hindalco Industries Ltd, At/PO - Hirakud**		
	Mail id		
Production Details	Products		Annual capacity
	Ash for landfill		110000.0
Manufacturing process			

Major plant facility details	Description of facility	Capacity of each unit	Numbers of units proposed	
	Ash land filling in BTI premise, Odisha Police, Basantpur, Burla	110000.0	CubicMeter	
Raw material	Raw material Name		Annual Quantity	
	Coal ash for landfill		600.0	
Fuel consumption	Fuel		Annual Quantity	
Water Consumption	Area of use	Quantity in m3/d	Source of water	
	Other	5.0	Own source of BTI	
Waste water management	Source of wastewater	Quantity in m3/d	Quantity Recycled / Reused	Quantity discharged
Wastewater treatment	Wastewater stream	Quantity (m3)	Type of treatment	Discharge point
Please give a brief description of the receiving water body				
Air Pollution Assessment				
Emission Assessment	Stack description	Height in m	Emission quantity (Nm3/h)	Gas temp in degree C
Emission control measures	Stack description	Air pollution control equipment		
Fugitive emission assessment	Source of fugitive emission	Proposed method of emission reduction		
Solid waste management				
Solid waste generation	Source of generation	Type of waste	Quantity of generation (TPA)	
Solid waste management	Type of waste	Quantity reused	Quantity disposed of	
Solid waste disposal site description	Type of waste	Area of disposal site	Mode of Disposal	
Declaration				

1. I am duly authorised by the company to fill up this application for Consent to Establish
2. I have read the instructions carefully and has fully understood it and filled up the details as per the information available with the company.
3. I understand that if any information furnished in this application is found to be falsified at a later date then the company shall be fully responsible for the act.
4. I also understand that such falsification of facts amounts to violation of section of Water (prevention and Control of Pollution) Act, 1974 and Air (prevention and Control of Pollution) Act, 1981.

Signature	
Name	R K Gupta
Designation	Sambalpur Cluster Head
Date	Place

ADITYA BIRLA

HINDALCO

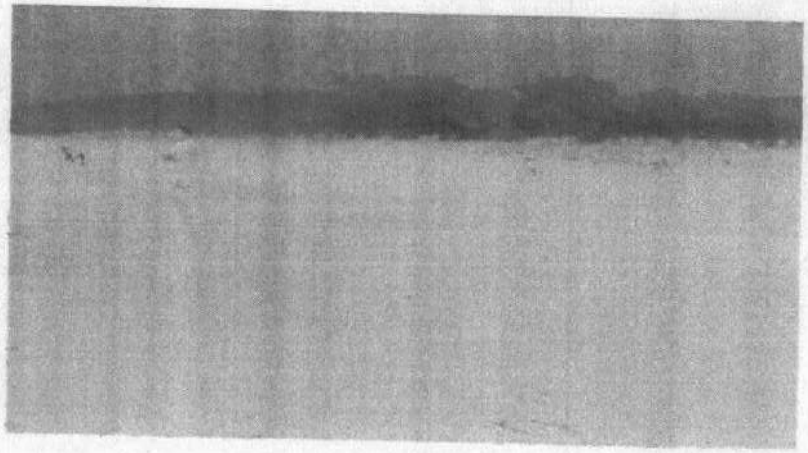
Reclamation of Low-Lying Areas : Hirakud

Ash Utilization under Land Reclamation

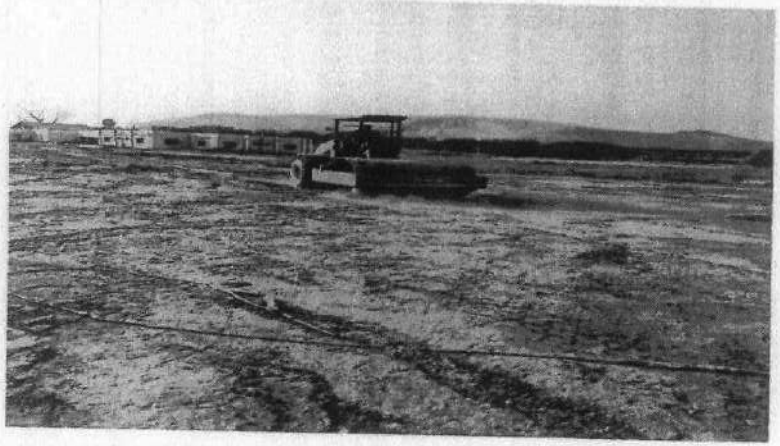
ADITYA BIRLA
HINDALCO



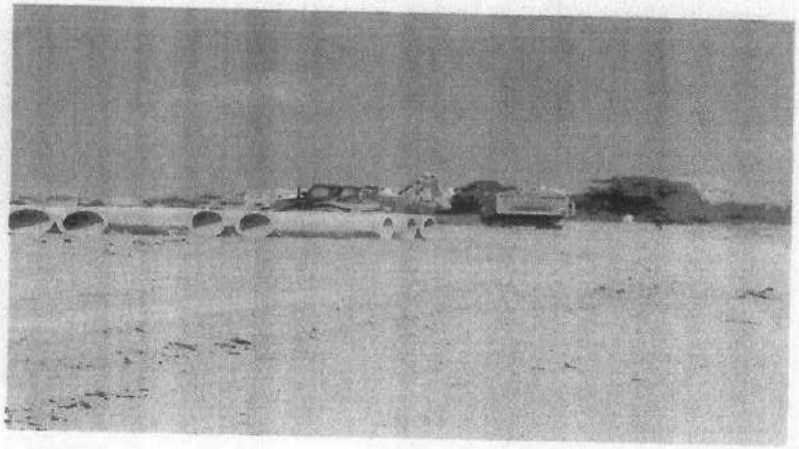
Hirakud ITI site - Completed by utilising Ash 16000 MT



BTI site at Goshala Phase 1- completed by utilising Ash 67000 MT



Old Age Home Durgapalli site completed by utilising Ash 25000 MT



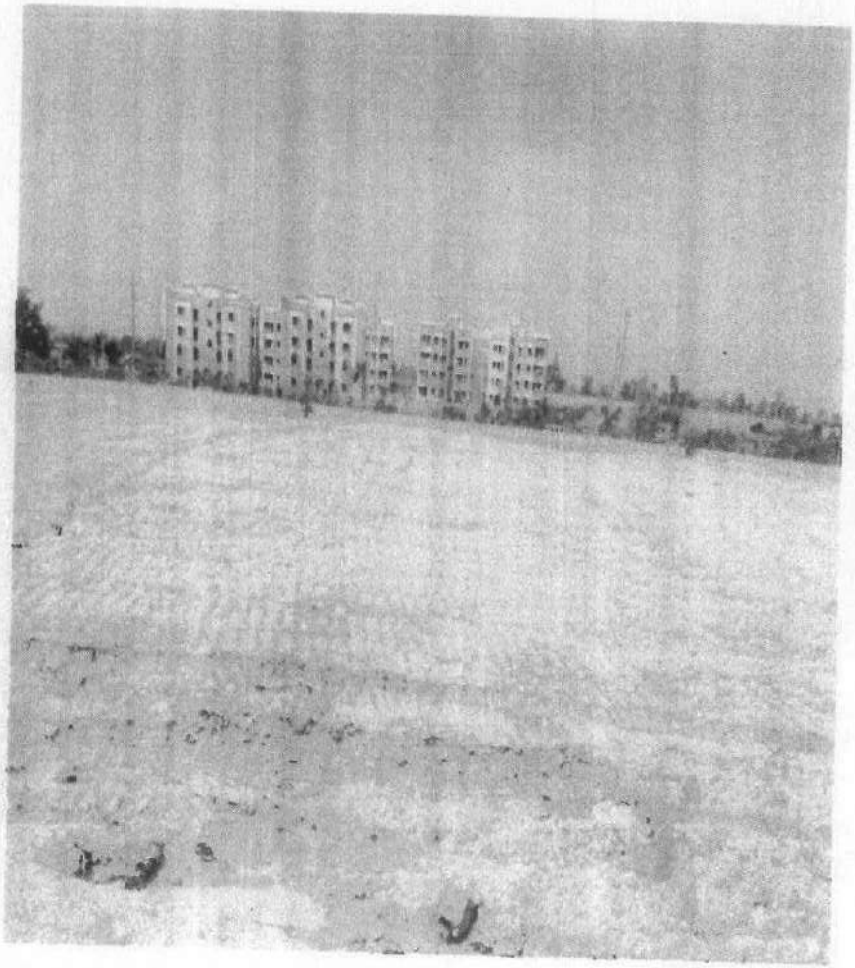
Pramank Site Khetrajpur is about to complete by Utilising Ash 72000 Mt

CRPF Site - Goshala

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HINDALCO



Initial Before start



Final – After Filling

Kendriya Vidyalaya - Sambalpur

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HINDALCO



Kendriya Vidyalaya – start of work



Final – After earth Covering in progress

मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में दिये गये निर्देश के अनुपालन में मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड (एल्युमिनियम डिवीजन), रेनुकूट, सोनभद्र में शून्य उत्प्रवाह निस्तारण सम्बन्धी निरीक्षण आख्या

मा0 ओवर साईट कमेटी की वीडियो कॉन्फ्रेसिंग के माध्यम से दिनांक–25.09.2020 को सम्पन्न बैठक में दिये गये निर्देश के अनुपालन में मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड (एल्युमिनियम डिवीजन), रेनुकूट, सोनभद्र में स्थापित शून्य उत्प्रवाह निस्तारण व्यवस्था का निरीक्षण कर एक सप्ताह के अन्दर आख्या प्रस्तुत करने हेतु निर्देशित किया गया था। उक्त के अनुपालन में उद्योग का निरीक्षण अधोहस्ताक्षरीगण द्वारा दिनांक–29.09.2020 को किया गया। निरीक्षण के समय उद्योग प्रतिनिधि के रूप में श्री मुकेश मित्तल, वाईस प्रेसीडेन्ट (इन्वायरमेन्ट एण्ड सेप्टी) तथा श्री अनिल सिंह, ए0जी0एम0 (पर्या0) उपस्थित थे। विस्तृत निरीक्षण आख्या निम्नवत् है :–

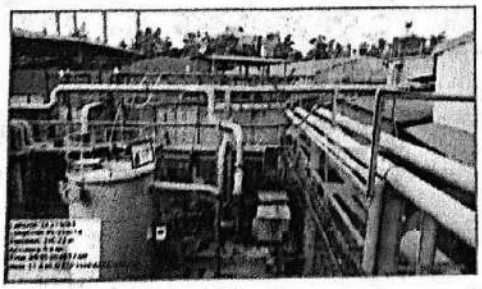
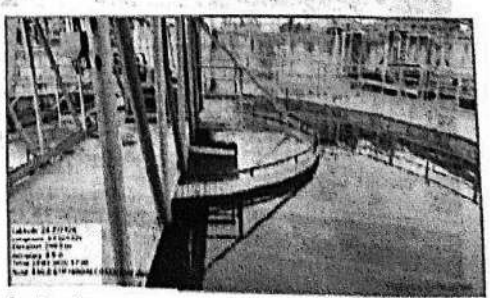
1.	उद्योग का नाम व पूरा पता	:	मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड (एल्युमिनियम डिवीजन), रेनुकूट, सोनभद्र (उ0प्र0)।
2.	स्थापना वर्ष	:	माह मई, 1962
3.	उत्पाद एवं उत्पादन क्षमता	:	(1)–प्राइमरी एल्युमिनियम मेटल–35000 एम0टी0/माह, (2)–एल्युमिना–7,20,000 कि0लो0 टन/वर्ष (3)–कोजेन पॉवर–84 मेगावाट
4.	कच्चे माल का विवरण	:	**1–बाक्साइट, 2–कास्टिक सोडा, 3–कैल्सिनेटेड पेट कोक/इम्पोर्टेड कैल्सिनेटेड पेट कोक, 4–एल्युमिनियम फ्लोराईड**
5.	उद्योग प्रतिनिधि का नाम व पद	:	श्री मुकेश मित्तल, वाईस प्रेसीडेन्ट (इन्वायरमेन्ट एण्ड सेप्टी), अनिल सिंह, ए0जी0एम0 (पर्या0)
6.	जल प्रदूषण के स्रोतों का विवरण	:	एल्युमिना रिडक्शन प्लांट, कार्बन फैब्रिकेशन प्लांट एवं घरेलू प्रयोजन।
7.	जनित उत्प्रवाह की मात्रा	:	घरेलू बहिश्राव–12000 के0एल0/दिन औद्योगिक उत्प्रवाह–7000 के0एल0/दिन
8.	जल प्रदूषण नियंत्रण व्यवस्था का विवरण		

1. <u>औद्योगिक उत्प्रवाह</u> :–

<u>I-ई0टी0पी0</u>

औद्योगिक प्रक्रिया से जनित उत्प्रवाह के शुद्धीकरण हेतु उद्योग परिसर में 11500 कि0ली0/दिन क्षमता का उत्प्रवाह शुद्धीकरण संयंत्र (ई0टी0पी0) स्थापित है। उद्योग परिसर में स्थापित ई0टी0पी0 प्लाण्ट में निम्नवत् इकाईयाँ स्थापित हैं:–

(1)–कलेक्शन टैंक, (2)–पी0एच0 करेक्शन कम ऑयल रिमूवल टैंक, (3)–कॉगूलेशन टैंक (4)–क्लेरीफायर (5)–क्लेरीफाइड वाटर स्टोरेज टैंक (6)– ड्यूअल मीडिया फिल्टर (7)–फ्लोराइड एडजार्बसन कॉलम (8)–ट्रीटेड वाटर स्टोरेज टैंक (9)–सेन्ट्रीफ्यूज।

11.5 एम0एल0डी0 ई0टी0पी0

निरीक्षण के समय ई0टी0पी0 की समस्त इकाईयां संचालित पायी गयी।

क्रमशः 2/–पर.....

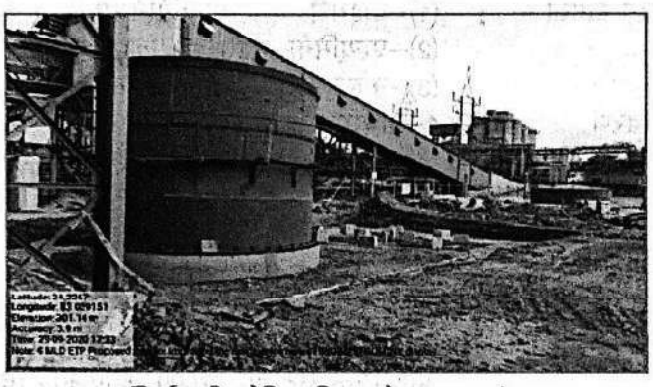
II-पी0डब्ल्यू0आर0पी0

उद्योग में प्रॉसेस वाटर के शुद्धिकरण हेतु 4000 कि0ली0/दिन क्षमता का पी0डब्ल्यू0आर0पी0 (प्रॉसेस वाटर रिसाईक्लिंग प्लाण्ट) स्थापित है। पी0डब्ल्यू0आर0पी0 (प्रॉसेस वाटर रिसाईक्लिंग प्लाण्ट) में निम्नवत इकाईयां स्थापित हैं:-

(1)-इक्वालाईजेशन टैंक (2)-पी0एच0 करेक्शन टैंक, (3)-रिएक्शन टैंक (4)-क्लेरीफायर (5)-मल्टीग्रेड फिल्टर (6)- एक्टिवेटेड कॉर्बन फिल्टर (7)-आर0एस0एफ0 (रेजिन सैण्ड फिल्टर) (8)-ट्रीटेड वाटर स्टोरेज टैंक।

निरीक्षण के समय पी0डब्ल्यू0आर0पी0 की समस्त इकाईयां संचालित पायी गयी।

उद्योग प्रतिनिधि के अनुसार पी0डब्ल्यू0आर0पी0 के रेजिन सैण्ड फिल्टर में तकनीकी खराबी आने के कारण उत्प्रवाह के शोधन में समस्या आ रही है, जिसके कारण आंशिक शोधित उत्प्रवाह को पुनः प्रयोग में नहीं लिया जा रहा है। औसतन माह में 05 दिन रेजिन के क्लिनिंग का कार्य करना पडता है एवं उस अवधि में शोधित उत्प्रवाह नाले के माध्यम से उद्योग परिसर के बाहर निस्तारित करना पड़ता है। शोधन संयंत्र में आ रही उक्त समस्या के निराकरण हेतु मेसर्स आयन एक्सचेन्ज कम्पनी द्वारा रेजिन की रेगुलर क्लिनिंग हेतु रेजिन रिजनरेशन प्लाण्ट की स्थापना की जा रही है, जिसके माह-मार्च, 2021 तक पूर्ण होने की सूचना दी गयी है। उद्योग प्रतिनिधि के अनुसार उक्त इकाई के संचालन होने के उपरान्त सम्पूर्ण शोधित औद्योगिक उत्प्रवाह को पुनः प्रयोग में लाया जा सकेगा तथा शून्य उत्प्रवाह निस्तारण की व्यवस्था सुनिश्चित की जा सकेगी।

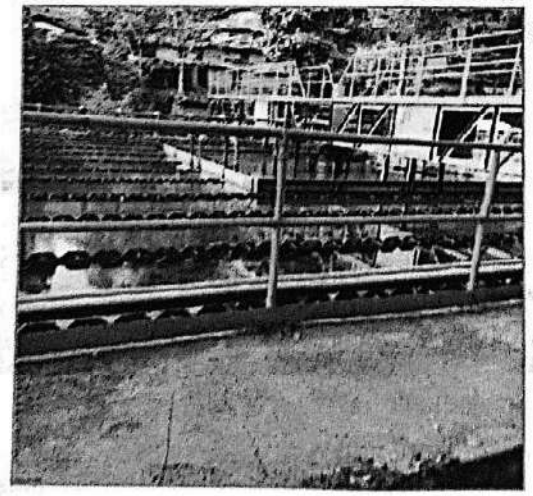


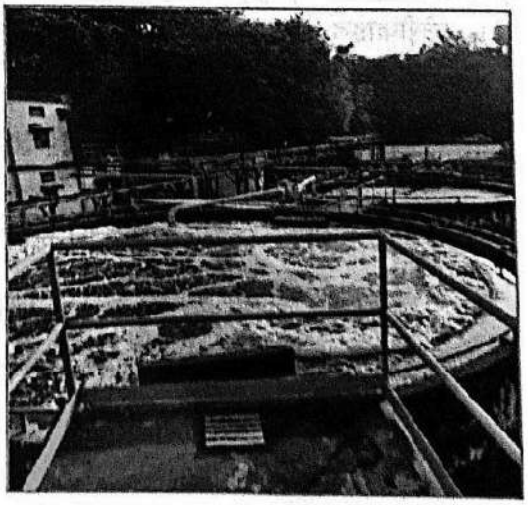
(निर्माणाधीन रेजिन रि-जनरेशन प्लाण्ट)

उद्योग में स्थापित ई0टी0पी0 तथा पी0डब्ल्यू0आर0पी0 में शोधित आंशिक उत्प्रवाह को उद्योग में प्रक्रिया, ऐश स्लरी, पौधों की सिंचाई, डस्ट सप्रेशन इत्यादि प्रक्रियाओं में पुनः प्रयोग में लाया जाता है।

2. घरेलू बहिश्राव :-

उद्योग की आवासीय कॉलोनी में घरेलू प्रयोजन में प्रयुक्त जल के फलस्वरूप जनित वहिश्राव के शुद्धीकरण हेतु 24 एम0एल0डी0 क्षमता का एस0टी0पी0 स्थापित है, जिनकी प्रमुख इकाईयां निम्नवत है- (1)-कलेक्शन टैंक, (2)-बार स्क्रीन/ग्रिट चैम्बर, (3)-एफ0ए0बी0 रियेक्टर I एवं II, (4)-क्लेरी ट्यूब सेटलर (5)-ड्यूल मीडिया फिल्टर, (6)-ट्रीटेड वाटर स्टोरेज टैंक (7)-सेन्ट्रीफ्यूज।





निरीक्षण के समय उद्योग द्वारा स्थापित सीवेज ट्रीटमेंट प्लाण्ट की समस्त इकाईयां संचालित पायी गयी। निरीक्षण के समय एस0टी0पी0 में शोधित उत्प्रवाह को पम्प के माध्यम से उद्योग में पुनः प्रयोग हेतु प्रेषित करते हुए पाया गया। एस0टी0पी0 पर व्यवस्थित लॉगबुक के अनुसार एस0टी0पी0 पर विगत 24 घण्टे में इनलेट तथा आउटलेट उत्प्रवाह की मात्रा क्रमशः 4750 कि0ली0 तथा 4561 कि0ली0 पायी गयी, जिससे स्पष्ट है कि एस0टी0पी0 को पूर्ण क्षमता पर संचालित नहीं किया जा रहा है।

उद्योग प्रतिनिधि के अनुसार एस0टी0पी0 से शोधित आंशिक उत्प्रवाह (लगभग 5000 कि0ली0/दिन) को कूलिंग, गार्डेनिंग फ्लशिंग इत्यादि प्रक्रियाओं में प्रयोग में लाया जाता है तथा अवशेष उत्प्रवाह (लगभग 6000 कि0ली0/दिन) को शोधन के उपरान्त नाले के माध्यम से निस्तारित कर दिया जाता है।

निरीक्षण के समय एस0टी0पी0 के इनलेट तथा आउटलेट बिन्दु पर 02 सेफ्टी वाल्व स्थापित पाये गये। उद्योग प्रतिनिधि द्वारा अवगत कराया गया कि सेफ्टी वाल्व का प्रयोग अपरिहार्य स्थितियों में उत्प्रवाह को नाले के माध्यम से निस्तारित करने हेतु किया जाता है।

उद्योग द्वारा वर्तमान समय में शून्य उत्प्रवाह निस्तारण व्यवस्था का अनुपालन नहीं किया जा रहा है।

सुझाव :–

- उद्योग द्वारा रेजिन रि–जनरेशन प्लाण्ट की स्थापना यथाशीघ्र पूर्ण किया जाये।
- एस0टी0पी0 में शोधित उत्प्रवाह को पूर्ण रूप से पुनः प्रयोग में लाया जाये।
- एस0टी0पी0 के इनलेट तथा आउटलेट बिन्दु पर स्थापित सेफ्टी वाल्ब से उत्प्रवाह के नाले में निस्तारण किये जाने की निगरानी रखने हेतु सी0सी0टी0वी0 कैमरा स्थापित किया जाये।
- एस0टी0पी0 को पूर्ण क्षमता पर संचालित किया जाये।
- उद्योग द्वारा शून्य उत्प्रवाह निस्तारण की व्यवस्था को सुनिश्चित किया जाये।

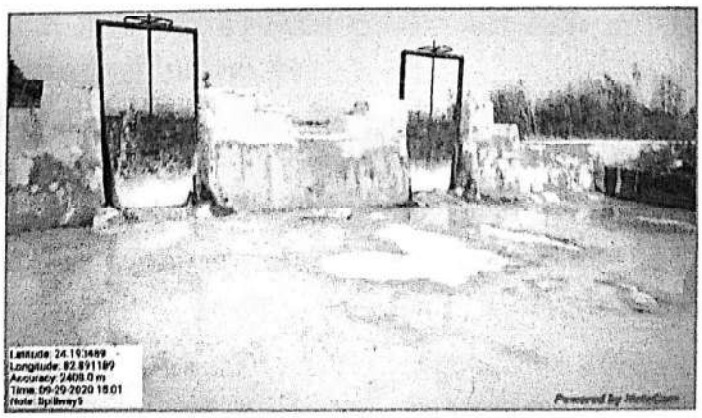
25/10/2022
(शिव बहाल)
अवर अभियन्ता

(राधेश्याम)
क्षेत्रीय अधिकारी
राधेश्याम
क्षेत्रीय अधिकारी
उ० प्र० प्रदूषण नियन्त्रण बोर्ड
सोनभद्र

मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में दिये गये निर्देश के अनुपालन में तापीय परियोजना मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र के ऐश डाईक पाण्ड से फ्लाईऐश के ओवर फ्लो की निरीक्षण आख्या

मा0 ओवर साईट कमेटी की दिनॉक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में दिये गये निर्देश के अनुपालन में मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र के ऐश डाईक पाण्ड से फ्लाईऐश के ओवर फ्लो स्थल का निरीक्षण कर एक सप्ताह के अन्दर आख्या प्रस्तुत करने हेतु निर्देशित किया गया था। उक्त के अनुपालन में अनपरा तापीय परियोजना के बेलवादह स्थित मुख्य राख बाँध का निरीक्षण अधोहस्ताक्षरी द्वारा दिनांक–29.09.2020 को किया गया। निरीक्षण के समय श्री ए0के0 राय, अधिशासी अभियन्ता तथा श्री पी0के0 गुप्ता, अधीक्षण अभियन्ता उपस्थित थे। ऐश डाईक की विस्तृत निरीक्षण आख्या निम्नवत् है :–

1. उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र द्वारा निर्मित ऐश डाईक पाण्ड ग्राम–बेलवादह में स्थित है। तापीय परियोजना से जनित फ्लाईऐश का निस्तारण उक्त ऐश डाईक पाण्ड में किया जाता है। ऐश डाईक पाण्ड के सेकेण्डरी स्पिल–वे से ऐश स्लरी के ओवर फ्लो को रोकने हेतु गेट सहित आर0आर0 वॉल का निर्माण कराया गया है।
2. ऐश डाईक पाण्ड से पानी को पुनः प्रयोग में लाने हेतु इकाई संख्या 'ए' और 'बी' में 750 कि0ली0/घण्टा क्षमता के कुल 09 वाटर पम्प स्थापित किये गये हैं, जिनमें से एक पम्प स्टैण्डबाई के रूप में प्रयोग किया जाता है। इकाई 'डी' में 1350 कि0ली0/घण्टा क्षमता के 02 वाटर पम्प स्थापित हैं, जिनमें से 01 पम्प स्टैण्डबाई के रूप में प्रयोग किया जाता है। उक्त तीनों इकाईयों में स्थापित वाटर पम्प्स की कुल क्षमता 7350 कि0ली0/घण्टा की है।
3. निरीक्षण के समय राख बाँध से स्लरीयुक्त उत्प्रवाह रिहन्द जलाशय में निस्तारित होते नहीं पाया गया। उद्योग प्रतिनिधि द्वारा अवगत कराया गया कि दिनांक–24.09.2020 से 26.09.2020 के बीच इस क्षेत्र में भारी वर्षा हुई थी, जिसके कारण राख बाँध में वर्षा का जल काफी मात्रा में आ जाने के कारण स्लरी युक्त उत्प्रवाह का कुछ भाग रिहन्द जलाशय में ओवर–फ्लो होकर निस्तारित हुआ था। ए0डब्ल्यू0आर0एस0 पम्पों को पूर्ण क्षमता पर संचालित कर स्लरी युक्त उत्प्रवाह ओवर–फ्लो को शीघ्र ही नियंत्रित कर लिया गया था। उद्योग प्रतिनिधि द्वारा यह भी अवगत कराया गया कि ऐश डाईक पाण्ड में 02 प्राकृतिक नाले (मोर्चा नाला एवं मोखा नाला) मिलते हैं। इन दोनों नालों के माध्यम से एक बड़े भू–भाग का वर्षा जल, राख बाँध में गिरता है, जिसके कारण कभी–कभी राख बाँध से जल को रिसर्कुलेट कर पाना असम्भव हो जाता है।



दिनांक–29.09.2020 का दृश्य

क्रमशः 2/–पर.....

4. निरीक्षण के समय उद्योग प्रतिनिधि द्वारा अवगत कराया गया कि रिहन्द जलाशय में स्लरी युक्त उत्प्रवाह को प्रतिबन्धित करने हेतु स्पिल–वे पर नये एवं सुदृढ़ गेट का निर्माण कार्य कराया जा रहा है, जिसके 20 दिनों में पूर्ण होने की सम्भावना है। उद्योग प्रतिनिधि द्वारा यह भी बताया गया कि लैगून–2 में दो नये डिकन्टेशन वेल का निर्माण किया गया है। डिकन्टेशन वेल से सेकेण्डरी पाण्ड तक पाईप लाईन का निर्माण कार्य कराया जा रहा है, जिसे माह–दिसम्बर, 2020 तक पूर्ण कर लिया जायेगा, जिसके उपरान्त रिहन्द जलाशय में किसी भी तरह का उत्प्रवाह रोकना सम्भव हो सकेगा।

5. उद्योग प्रतिनिधि द्वारा अवगत कराया गया कि लैगून–1 के उच्चीकरण का कार्य किया जा रहा है, जिसके माह–मार्च, 2021 तक पूर्ण करने का लक्ष्य निर्धारित किया गया है। निरीक्षण के समय लैगून–1 के उच्चीकरण कार्य प्रगति पर पाया गया।





लैगून–1 के उच्चीकरण का कार्य

6. उद्योग प्रतिनिधि से प्राप्त सूचना के अनुसार प्राकृतिक नाले की दिशा परिवर्तन कराने का अध्ययन भारतीय प्रौद्योगिकी संस्थान, काशी हिन्दू विश्व विद्यालय, वाराणसी से कराया गया है। उक्त संस्था ने नाले की दिशा परिवर्तित करने सम्बन्धी विस्तृत डिजाईन एवं ड्राईंग प्रस्तुत की है, जिसके अनुसार नाले की दिशा परिवर्तित करने सम्बन्धी कार्य की कुल लागत रू0 32.18 करोड़ आँकलित की गयी है। भारतीय प्रौद्योगिकी संस्थान से प्राप्त आंकलन रिपोर्ट निगम मुख्यालय प्रेषित किया गया है। निगम मुख्यालय द्वारा उक्त प्रस्ताव को सिंचाई विभाग से वेट करने की कार्यवाही की जा रही है।
7. निरीक्षण के समय स्पिल–वे गेट के पास सी0सी0 टी0वी0 कैमरा स्थापित पाया गया। उद्योग प्रतिनिधि द्वारा अवगत कराया गया कि इस क्षेत्र में नेटवर्क समस्या होने के कारण सी0सी0 टी0वी0 कैमरे को ऑनलाइन सर्वर से लिंक नहीं किया गया है। सी0सी0 टी0वी0 कैमरे को ऑनलाइन कराये जाने से फ्लाईऐश के रिहन्द जलाशय में ओवर फ्लो होने की प्रभावी निगरानी की जा सकेगी।

क्रमशः 3/–पर.....

सुझाव :–

i. उद्योग द्वारा ऐश डाईक से डिकेन्टेड वाटर को डिकन्टेशन वेल के माध्यम से ऑक्जीलरी पाण्ड में एकत्र किया जाये तथा ऐश वाटर रि–सर्कुलेशन पाईप लाइन पर डिजीटल वाटर फ्लो–मीटर स्थापित किया जाये, जिससे पुनः प्रयुक्त जल की मात्रा का आंकलन किया जा सके।

ii. मोर्चा तथा मोखा प्राकृतिक नालों के डायवर्जन का कार्य यथाशीघ्र पूर्ण किया जाये।

iii. ऐश डाईक पाण्ड के स्पिल–वे गेट पर प्रस्तावित नये सुदृढ़ गेट की स्थापना तत्काल की जाये एवं यथासम्भव गेट के स्थान पर वॉल का निर्माण कराया जाये, जिससे कि गेट के खुलने की सम्भावना समाप्त हो सके।

iv. ऐश डाईक पाण्ड के स्पिल–वे गेट के पास स्थापित सी0सी0टी0वी0 कैमरे को ऑनलाइन कराकर राज्य प्रदूषण नियंत्रण बोर्ड तथा केन्द्रीय प्रदूषण नियंत्रण बोर्ड के सर्वर से लिंक किया जाये, जिससे कि फ्लाईऐश स्लरी के रिहन्द जलाशय में निस्तारित होने की प्रभावी निगरानी की जा सके।

01/10/2020

(शिव बहाल)
अवर अभियन्ता

01/10/2020

(राधेश्याम)
क्षेत्रीय अधिकारी

राधेश्याम
क्षेत्रीय अधिकारी
उ० प्र० प्रदूषण नियन्त्रण बोर्ड
सोनभद्र

Appendix- XXXV

ITEM NO.8+29+32 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No(s). 15397/2020

(Arising out of impugned final judgment and order dated 12-02-2020 in OA No. 102/2014 12-02-2020 in OA No. 117/2014 passed by the National Green Tribunal)

TATA POWER COMPANY LIMITED Petitioner(s)

VERSUS

SANDPLAST (INDIA) LTD. & ORS. Respondent(s)

(IA No.81427/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.81426/2020-EX-PARTE STAY and IA No.81424/2020-PERMISSION TO FILE APPEAL)

WITH
Diary No(s). 14871/2020 (XVII)
(FOR ADMISSION and IA No.86566/2020-STAY APPLICATION and IA No.86567/2020-PERMISSION TO FILE APPEAL)
Diary No(s). 15404/2020 (XVII)
(IA FOR PERMISSION TO FILE APPEAL ON IA 82789/2020 FOR EX-PARTE STAY ON IA 82790/2020 FOR EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT ON IA 82791/2020)
Diary No(s). 16626/2020 (XVII)
(IA FOR PERMISSION TO FILE APPEAL ON IA 83646/2020
FOR GRANT OF INTERIM RELIEF ON IA 83648/2020
FOR EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT ON IA 83649/2020
FOR PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES ON IA 83652/2020)
Diary No(s).10709/2020
(FOR ADMISSION and I.R. and IA No.87581/2020 – Ex-Parte Staty and IA No.87580/2020 – Permission to file Appeal)
Diary No(s). 11421/2020
(FOR ADMISSION and IA No.87550/2020 – Ex-Parte Stay and IA No.87552/2020 – Exemption from fiig affidavit and IA No.87549/2020 – Permission to file appeal)

Date : 11-09-2020 These matters were called on for hearing today.

CORAM : HON'BLE DR. JUSTICE D.Y. CHANDRACHUD
HON'BLE MS. JUSTICE INDU MALHOTRA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Petitioner(s) Mr. Sajan Poovayya, Sr. Adv.
Mr. Shri Venkatesh, Adv.

Ms. Nishtha Kumar, AOR
Mr. vikas Maini, Adv.
Mr. Suhael Buttan, Adv.
Mr. anant Singh, Adv.
Mr. Pratibhanu Singh Kharola, Adv.

Mr. Bharat Sangal, Sr. Adv.
Mr. Nagarkatti Kartik Uday, AOR
Ms. Babita Khushwaha, Adv.

Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Kandpal, Adv.
Mr. Gaurav Srivastava, AOR

Mr. Dhruv Mehta, Sr. adv.
Ms. Ranjana Roy Gawai, Adv.
Ms. Vasudha Sen, Adv.
Ms. Prachi Golechha, Adv.
Ms. Divya Roy, AOR

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Permission to file the appeals is granted.

Issue notice.

Dasti, in addition, is permitted.

Tag with Civil Appeal Nos 1692-1693 of 2020

There shall be an ad – interim stay of recoveries in pursuance of the impugned order of the National Green Tribunal.

(GULSHAN KUMAR ARORA)
AR-CUM-PS

(SAROJ KUMARI GAUR)
COURT MASTER

ADITYA BIRLA
HINDALCO

Appendix- XXXVI

January 21, 2021

To,
The Chairman,
Oversight Committee,

Sub: **Submission of status as on date regarding Reclamation of abandoned mines/ low lying area in District Sonbhadra.**

Respected Sir,

Please find attached herewith our status as on date in continuation to our previous letter dated October 27, 2020 submitted to OSC, NGT vide our mail dated October 28, 2020.

1. **Reclamation of Abandoned stone quarry/mines** –

   As directed in the last e-meeting held on September 25, 2020, District Magistrate, Sonbhadra has convened a meeting on September 30, 2020 with all stakeholders to have a sustainable solution for utilization/disposal of Fly Ash in District Sonbhadra. During the meeting number of void stone queries has been suggested by DMO, Sonbhadra for the purpose of filling of Fly Ash/ Red Mud. Consequently, District Magistrate, Sonbhadra has shown his intention to allot one void stone quarry inter alia to Hindalco Industries Limited for filling of ash/red mud. We have submitted a request letter to DMO, Sonbhadra on November 05, 2020 with a copy to District Magistrate, Sonbhadra to allot us the specific mine. After allotment of specific Mine void, we are ready to do a site suitability study etc. to get requisite approval from the concern regulatory authorities. The copy of letter is attached as **Annexure – I** for your kind reference.

   We are still awaiting positive response from DMO, Sonbhadra.

2. **Reclamation of low lying area by ash –**

   We have applied to UPPCB on April 29, 2020 to develop low-lying area approx. 1.25 hectare of Private Land by filling of ash/pond ash in Village Murdhawa, District Sonbhadra. The UPPCB has raised number of queries specifically to get NOC from Forest Department, Mode of Transportation, Disaster Management Plan, Land used certificate etc. on July 03, 2020, September 29, 2020, November 02, 2020, November 21, 2020 & December 18, 2020. The reply of all queries has been submitted well on time and also uploaded NOC letter issued by DFO, Sonbhadra on December 22, 2020. The copy of NOC letter from Forest Department is attached as **Annexure – II.** The UPPCB has rejected our NOC application on January 06, 2021 with new reasons. The copy of rejected letter is also attached as **Annexure – III** for your kind reference.

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Corporate Identity No. L27020MH1958PLC011238

ADITYA BIRLA

HINDALCO

Under the above facts and circumstances of the matter and in spite of rigorous efforts as stated above, we would like to state that Industry is not able to further dispose of /utilize Fly Ash and /or Red Mud as per the CPCB guidelines.

We remain available to provide any further clarifications / information as may be required.

Thanking you,

Yours faithfully

FOR HINDALCO INDUSTRIES LIMITED

(Mukesh Mittal)
V.P. (Safety & Environment)

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R/C

ADITYA BIRLA
HINDALCO

November 5, 2020

To,
District Mining Officer,
Sonbhadra.

Subject- **Allotment of Mine Void -Stone Quarry in District Sonbhadra for Reclamation by Ash/ Red Mud to Hindalco Industries Limited.**

Dear Sir,

We would like to invite your attention to the meeting convened under Chairmanship of District Magistrate, Sonbhadra on September 30, 2020 to finalize environment friendly measures for disposal of Fly Ash/Red Mud by industries in the District. We had indicated in the meeting that there are stone quarry in the Dalla area which is mined out and can be suitably backfilled with fly ash/red mud. These, we understand, are on non-forest land, which the Ld. DM had indicated would be provided to industries including Hindalco Industries Limited for disposal of Fly Ash/ red Mud.

Sir, as is clear from the Minutes of the Meeting (MoM) circulated, the Ld. DM Sonbhadra had indicated that mine voids available should be considered for allotment to industries.

In this regard, we request you to allot and indicate to us the mine that we can start the process with. We would also like to place for your consideration that once the mine is indicated / identified, we would first need to do a site suitability study and upon receipt of the report thereon, we would take necessary steps to obtain requisite approvals from the concerned authorities.

The copy of MoM issued by DM, Sonbhadra on October 09, 2020 is attached for your ready reference.

Do let us know if you would like to meet and discuss the next steps and way forward.

Thanking You,

Yours faithfully,

For **HINDALCO INDUSTRIES LIMITED**

(Anil Singh)
AGM (Environment)

CC: DM, Sonbhadra

Encl: as above

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मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में तापीय परियोजनाओं से जनित होने वाली फ्लाईऐश निस्तारण एवं सी0एस0आर0 के अन्तर्गत पेयजल आपूर्ति के सम्बन्ध में दिये गये निर्देशों के अनुपालन में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–30.09.2020 को आहुत बैठक की कार्यवृत्त

मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को वीडियो कॉन्फ्रेसिंग के माध्यम से सम्पन्न बैठक में फ्लाईऐश निस्तारण के सम्बन्ध में दिये गये निर्देशों के अनुपालन में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–30.09.2020 को मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड पॉवर प्लाण्ट, रेनुसागर, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा, मेसर्स लैंको अनपरा, सोनभद्र के प्रतिनिधियों के साथ पॉवर प्लाण्ट से निकलने वाली फ्लाइऐश को परितक्य स्टोन क्वैरी में निस्तारण करने हेतु बैठक आहुत की गयी है। बैठक में निम्न अधिकारी व उद्योग प्रतिनिधि उपस्थित थे :–

I. जिलाधिकारी, सोनभद्र।
II. श्री प्रखर मिश्रा, प्रभागीय वनाधिकारी, ओबरा, सोनभद्र।
III. श्री प्रकाश चन्द्र, उप जिलाधिकारी, ओबरा, सोनभद्र।
IV. मो0 महबूब, खान अधिकारी, सोनभद्र।
V. श्री राधेश्याम, क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र
VI. श्री के0एस0 मूर्ति, ए0जी0एम0 (एच0आर0), मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, सोनभद्र।
VII. श्री सुदीप मन्ना, ए0जी0एम0 (पर्या0), मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, सोनभद्र।
VIII. श्री ए0के0 राय, अधिशासी अभियन्ता, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र।
IX. श्री कुमार गौरव, अधिशासी अभियन्ता, मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा, सोनभद्र।
X. श्री अनिल सिंह, ए0जी0एम0 (पर्या0), मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र।
XI. श्री राजेश सैनी, हेड सिविल, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुसागर पॉवर प्लाण्ट, सोनभद्र।
XII. श्री एस0 गोस्वामी, निदेशक, मेसर्स श्री लैंको अनपरा, सोनभद्र।

1. जिलाधिकारी, सोनभद्र द्वारा अगवत कराया गया कि मा0 ओवर साईट कमेटी की दिनांक–25.09.2020 को सम्पन्न वर्चुअल मीटिंग में तापीय विद्युत ग्रहों से जनित होने वाली फ्लाईऐश को जनपद में परितक्य स्टोन क्वैरी में सुरक्षित तरीके से निस्तारण करने हेतु निर्देशित किया गया है। वर्चुअल मीटिंग के दौरान कुछ उद्योगों द्वारा ओवर साईट कमेटी को अवगत कराया

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गया था कि उन्हें परितक्य स्टोन क्वैरी आवंटित नहीं की गयी है तथा कुछ स्थलों पर प्रस्तावित स्वयं की लो–लाईंग भूमि पर फ्लाईऐश निस्तारण करने हेतु वन विभाग द्वारा अनापत्ति प्रमाण–पत्र निर्गत नहीं किया जा रहा है। ओवर साईट कमेटी ने उक्त प्रकरण को जिलाधिकारी स्तर पर सभी स्टैक होल्डर के साथ बैठक आयोजित कर निस्तारण करने हेतु निर्देशित किया गया है।

2. जिलाधिकारी ने बैठक में उपस्थित प्रभागीय वनाधिकारी, ओबरा, सोनभद्र से अनापत्ति प्रमाण–पत्र निर्गत करने सम्बन्धी विषय पर वास्तविक वस्तुस्थिति से अवगत कराने हेतु निर्देशित किया गया। प्रभागीय वनाधिकारी, ओबरा द्वारा अवगत कराया गया कि स्वयं की भूमि पर फ्लाईऐश को केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा प्रस्तावित एस0ओ0पी0 के अनुसार सुरक्षित ढंग से निस्तारण करने हेतु उद्योग को वन विभाग की अनापत्ति प्रमाण–पत्र की आवश्यकता नहीं है।

3. बैठक में उपस्थित तापीय परियोजनाओं के प्रतिनिधियों द्वारा फ्लाईऐश के निस्तारण हेतु जिलाधिकारी, सोनभद्र से परितक्य स्टोन क्वैरीज आवंटित करने का अनुरोध किया गया। मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर एवं मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र द्वारा स्टोन क्वैरी आवंटन करने हेतु लिखित रूप में जिलाधिकारी को प्रत्यावेदन प्रस्तुत किया गया। जिलाधिकारी, सोनभद्र द्वारा अवगत कराया गया कि चार परितक्य स्टोन क्वैरीज में फ्लाइऐश के सुरक्षित निस्तारण हेतु उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा, सोनभद्र को पूर्व में आवंटन किया जा चुका है।

4. श्री अनिल सिंह, ए0जी0एम0 (पर्या0) मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र ने रेडमड के निस्तारण हेतु वन विभाग की सीमा में स्थित स्टोन क्वैरी से अध्ययन कार्य कराने हेतु अनुमति चाही गयी। प्रभागीय वनाधिकारी, ओबरा द्वारा अवगत कराया गया कि वन सम्पदा को बिना किसी प्रकार की क्षति पहुँचाये अध्ययन कार्य कराया जा सकता है, परन्तु वन भूमि की मूल संरचना में किसी प्रकार का परिवर्तन अनुमन्य नहीं होगा।

5. जिलाधिकारी, सोनभद्र ने सुझाव दिया कि सर्वप्रथम वन विभाग की भूमि से बाहर की परितक्य स्टोन क्वैरीज का उपयोग फ्लाईऐश निस्तारण हेतु किया जायेगा। प्रभागीय वनाधिकारी, ओबरा द्वारा सूचित किया गया कि वन विभाग की भूमि पर उपलब्ध स्टोन क्वैरीज में फ्लाईऐश का निस्तारण करने से पूर्व वन (संरक्षण) अधिनियम, 1980 के प्राविधानों के अन्तर्गत अनुमति प्राप्त करना अनिवार्य है। जिलाधिकारी, सोनभद्र द्वारा खान अधिकारी से वर्तमान में वन विभाग की भूमि के बाहर उपलब्ध परितक्य स्टोन क्वैरीज की जानकारी माँगी गयी। जिला खान अधिकारी द्वारा अवगत कराया गया कि लगभग 05 ऐसी खदानें हैं, जो वन विभाग की भूमि से 100 मीटर की दूरी के अन्दर हैं, जिन पर भविष्य में खनन कार्य किया जाना सम्भव नहीं है। इन स्टोन

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क्वैरीज को फ्लाईऐश निस्तारण हेतु प्रयोग किया जा सकता है। जिलाधिकारी, सोनभद्र द्वारा खान अधिकारी को निर्देशित किया गया कि इस प्रकार की सभी स्टोन क्वैरीज का सर्वेक्षण कर सूची एक सप्ताह के अन्दर प्रस्तुत किया जाये, जिससे कि उक्त स्टोन क्वैरीज का आवंटन उद्यमियों को फ्लाईऐश निस्तारण हेतु किया जा सके। जिलाधिकारी, सोनभद्र द्वारा उक्त 05 स्टोन क्वैरी की सूची खनन विभाग से प्राप्त होने के उपरान्त निम्न उद्यमियों को आवंटित करने हेतु मौखिक स्वीकृति प्रदान की गयी :–

क्र0 सं0	उद्योग का नाम	उद्योग को आंवटित स्टोन क्वैरीज की संख्या
1	मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर, सोनभद्र	02
2	मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर, सोनभद्र	01
3	मेसर्स हिण्डाल्को इण्डस्ट्रीज लि0(पॉवर डिवीजन) रेनुसागर, सोनभद्र	01
4	मेसर्स लैंकों अनपरा, अनपरा, सोनभद्र	01

6. जिलाधिकारी, सोनभद्र द्वारा यह भी बताया गया कि अन्य स्टोन क्वैरीज परितक्य होने की दशा में अन्य उद्योगों को भी आवंटित की जायेंगी। जिलाधिकारी, सोनभद्र द्वारा स्टोन क्वैरीज आवंटन हेतु अनापत्ति प्रमाण–पत्र निर्गत करने की प्रक्रिया में वन विभाग व खनन विभाग के प्रतिनिधि तथा उप जिलाधिकारी, ओबरा को संयुक्त रूप से कार्यवाही करने हेतु निर्देशित किया गया, जिससे कि उद्यमियों को उक्त तीनों विभागों से सिंगल विण्डो सिस्टम की तरह आसानी से एक साथ अनापत्ति प्रमाण–पत्र प्राप्त हो सके।

7. प्रभागीय वनाधिकारी, ओबरा द्वारा अवगत कराया गया कि वन विभाग की भूमि पर उपलब्ध परितक्य स्टोन क्वैरीज को वन (संरक्षण) अधिनियम, 1980 के प्राविधानों के अन्तर्गत वन विभाग को स्टोन क्वैरीज के क्षेत्रफल के बराबर भूमि विनियमित कराने के उपरान्त फ्लाईऐश का निस्तारण करने हेतु आवंटित करने का प्राविधान है। उक्त प्रकरण में उद्यमियों द्वारा रूचि नहीं ली गयी।

8. श्री ए0के0 राय, अधिशासी अभियन्ता, उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र द्वारा सूचित किया गया कि रिहन्द डैम के निर्माण के समय किये गये खनन कार्य से निर्मित स्टोन क्वैरी का उपयोग फ्लाइऐश निस्तारण हेतु किया जा सकता है एवं उक्त स्टोन क्वैरी उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र से कम दूरी पर है, जिसे उन्हें आवंटित किया जाये। प्रभागीय वनाधिकारी द्वारा अवगत कराया गया कि उक्त स्टोन क्वैरीज वन विभाग की भूमि पर है। अतः उसका आवंटन वन संरक्षण अधिनियम, 1980 में निर्धारित प्रक्रिया के उपरान्त ही किया जा सकता है।

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9. क्षेत्रीय अधिकारी, उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा, सोनभद्र द्वारा अवगत कराया गया कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड के पत्र दिनांक–12.05.2020 द्वारा रेटोन कवैरी के अनुमति देने हेतु CTO Mechanism प्रख्यापित की गयी है, जिसकी प्रति सभी उद्यमियों को ई–मेल से प्रेषित कर दी जायेगी।

10. जिलाधिकारी, सोनभद्र ने ओवर साईट कमेटी द्वारा पेयजल आपूर्ति के सम्बन्ध में दिये गये निर्देशों के अनुपालन में सभी उद्योगों के प्रतिनिधियों से सी0एस0आर0 के अन्तर्गत क्षेत्र में की जा रही पेयजल आपूर्ति का विस्तृत विवरण प्रस्तुत करने हेतु निर्देशित किया गया। मेसर्स हिण्डाल्को इण्डस्ट्रीज, रेनुकूट के प्रतिनिधि श्री अनिल सिंह द्वारा अगवत कराया गया कि उद्योगों द्वारा पेयजल आपूर्ति हेतु आर0ओ0 प्लाण्ट लगाये गये थे, परन्तु आर0ओ0 प्लाण्ट के रिजेक्ट वाटर के निस्तारण की समस्या को दृष्टिगत रखते हुए पूर्व की बैठको में टैंकर के माध्यम से पेयजल आपूर्ति करने हेतु उद्यमियों को निर्देशित किया गया था, जिसका अनुपालन उद्योगों द्वारा किया जा रहा है। जिलाधिकारी ने पेयजल आपूर्ति सम्बन्धी विस्तृत सूचना एक सप्ताह के अन्दर उपलब्ध कराने हेतु निर्देशित किया गया।

अन्त में सभी को धन्यवाद ज्ञापित करने हुए बैठक की कार्यवाही समाप्त की गयी।

(एस0 राज लिंगम)
जिलाधिकारी,
सोनभद्र।

कार्यालय जिलाधिकारी, सोनभद्र

पत्रांक :Gau/SB/10.../ओवर साईट कमेटी/2020 दिनांक :09/10/2020

प्रतिलिपिः–निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अपर जिलाधिकारी, सोनभद्र।
2. प्रभागीय वनाधिकारी, वन प्रभाग ओवरा, सोनभद्र।
3. उप जिलाधिकारी, ओवरा, सोनभद्र।
4. खान अधिकारी, सोनभद्र।
5. क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र।
6. महाप्रबन्धक, मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर/मेसर्स एन0टी0पी0सी0 लिमिटेड शक्तिनगर/मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, अनपरा/मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओवरा/मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट/मेसर्स श्री लैंको अनपरा/मेसर्स हिण्डाल्को लिमिटेड, रेनुसागर पॉवर प्लाण्ट, सोनभद्र

जिलाधिकारी,
सोनभद्र।

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कार्यालय : प्रभागीय वनाधिकारी,रेनुकूट वन प्रभाग,रेनुकूट(सोनभद्र)।

पत्रांक 1987 /रेनुकूट/15–सा0 रेनकूट,दिनांक,दिसम्बर,22, ,2020

सेवा में,

श्री विवेक कुमार
हेड–लीगल,
मे0 हिण्डालको इण्डस्ट्रीज लि0
रेनुकूट–सोनभद्र ।

विषयः– ग्राम–मुर्धवा, परगना व तहसील–दुद्धी , जिला–सोनभद्र की आराजी संख्या– 445 व 447 रकबा 1.25 हे0 के लो–लाईग एरिया को फ्लाई ऐश/पाण्ड ऐश से भरने के संबंध में ।

संदर्भः– आपका पत्र दिनांक– 09.11.2020 एवं पत्र दिनांक– 21.12.2020

महोदय,

विषयगत प्रकरण में संदर्भित पत्रो का अवलोकन करने का कष्ट करें । उक्त पत्र द्वारा ग्राम–मुर्धवा परगना व तहसील दुद्धी, जिला–सोनभद्र की आराजी संख्या– 445 क रकबा 2.1870 हे0 445 ग रकबा 0.050 हे0 व 447 रकबा 1.8800 हे0 के आंशिक क्षेत्रफल 1.23 हे0 भूमि को लो लाईंग एरिया को फ्लाई ऐश/पाण्ड ऐश से भरने के संबंध में उ0प्र0 प्रदूषण नियंत्रण बोर्ड के पोर्टल पर ऑनलाइन –अपलोड करने हेतु आख्या/अनापत्ति प्रमाण–पत्र उपलब्ध कराने का अनुरोध किया गया है । प्रश्नगत प्रकरण की जॉच उप प्रभागीय वनाधिकारी पिपरी से करायी गयी । उप प्रभागीय वनाधिकारी पिपरी की जॉचआख्या के आधार पर आप द्वारा मॉगी गयी वांछित सूचना निम्नानुसार अग्रेत्तर कार्यवाही हेतु प्रेषित है :–

1–ग्राम–मुर्धवा परगना व तहसील–दुद्धी, जिला–सोनभद्र की आराजी संख्या– 445 क रकबा 2.1870 हे0, 445 ग रकबा 0.050 हे0, व 447 रकबा 1.8800 हे0 के पुराने नम्बर भारतीय वन अधिनियम 1927 की धारा–4 के अन्तर्गत विज्ञापित है । उक्त गाटाओं एवं उससे संबंधित क्षेत्रफल सर्वे प्रक्रिया के दौरान मा0 न्यायालय द्वारा सुरक्षित वन बनाने के प्रस्ताव से पृथक किया गया है जिसके आधार पर राजस्व अभिलेखो में उक्त भूमि वर्तमान में संबंधित व्यक्ति के नाम दर्ज है ।

2– उक्त गाटाओ के आंशिक क्षेत्रफल 1.23 हे0 भूमि पर छिट–फुट रूप से वृक्ष मौजूद है । उक्त क्षेत्रफल के लो–लाईग एरिया को फ्लाई ऐश/पाण्ड ऐश से भरने से छिट–फुट रूप से उपलब्ध वृक्ष एवं आस–पास के वन क्षेत्रो पर पड़ने वाले प्रभाव के संबंध में सी0पी0सी0वी0 गाईड लाइन के अन्तर्गत उ0प्र0 प्रदूषण नियंत्रण बोर्ड के क्षेत्रीय अधिकारी सोनभद्र से निरीक्षण/सर्वेक्षण कराते हुए अग्रेत्तर कार्यवाही किया जाना नियमानुसार होगा ।

भवदीय

(एम0पी0सिंह)
प्रभागीय वनाधिकारी
रेनुकूट वन प्रभाग, रेनुकूट

संख्या– अ/सम दिनांकित ।

प्रतिलिपिः उप प्रभागीय वनाधिकारी पिपरी को उनके पत्र संख्या– 121/रेनुकूट/15 दिनांक– 22.12.2020 के क्रम में सूचनार्थ प्रेषित ।

(एम0पी0सिंह)
प्रभागीय वनाधिकारी
रेनुकूट वन प्रभाग, रेनुकूट

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U.P. POLLUTION CONTROL BOARD

Building.No. TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226 010
Telephone: +91-522-2720831, 2720681, 2720691 (Fax): +91-522-2720764

Ref No. - 94564/UPPCB/Sonebhadra(LAB)/CTE/SONBHADRA/2020 **Dated : 06/01/2021**

To ,

M/S KAILESH NATH BHANDARI
HINDALCO INDUSTRIES LIMITED RENUKOOT
Hindalco Industries Limited,Renukoot,SONBHADRA,231217
SONBHADRA

Sub : Consent To Establish(C.T.E) Application under section 25/26 of Water (Prevention & Pollution ofcontrol) Act, 1974 as amended and section 21/22 of Air (Prevention & Control of Pollution) Act, 1981 as amended

Kindly refer to your application for Consent to Establish (C.T.E) dated 30/04/2020 received on 30/04/2020 for the proposed Project of HINDALCO INDUSTRIES LIMITED RENUKOOT Expansion of Existing Unit/ Modernization/diversification of existing plant at Hindalco Industries Limited,Renukoot,SONBHADRA,231217 under section 25/26 of Water (Prevention & Pollution of Control) Act 1974 as amended and section 2l of Air (Prevention & control of Pollution) Act, 1981 as amended.. Your Consent to Establish application is hereby Refused due to following reasons :

Reason:

After Scrutinizing the application the following shortcomings were found:

1.Industry has not obtain NOC from Forest Department as proposed land is very near to the forest.
2.Proposed land is notified under section 4 of IFA, FC Clearance should be obtained before granting CTE.
3.Land use change certificate from the District Magistrate is not attached.
4.The owner of the proposed land and Sunbeam School is same, therefore his no-objection has got no meaning.The school is very close from the proposed site, only 30 Meters.
5.NOC of SDM or DIOS is required clearly stating that disposal of Dry Ash/ Bottom Ash on the proposed ground will not adversely affect the health of the students, is not attached.

In view of aforesaid facts, the CTE application is hereby refused.

The Consent To Establish (C.T.E) Application under section 25/26 of The Water (Prevention & Control of Pollution) Act, 1974 as amended and section 21/22 of The Air (Prevention & Control of Pollution) Act 1981 as amended, is hereby refused and you are hereby informed to comply the mandatory provisions of aforesaid acts.

Ajay Kumar Sharma

Digitally signed by Ajay Kumar Sharma
Date: 2021.01.06 09:49:24 +05'30'

(Authorized Signatory)

Ajay Kumar Sharma
CEO-2

Copy To -

Regional Officer, UPPCB, Sonbhadra.

Ajay Kumar Sharma

Digitally signed by Ajay Kumar Sharma
Date: 2021.01.06 09:49:41 +05'30'

Ajay Kumar Sharma
CEO-2
(Authorized Signatory)

Appendix- XXXVII

REGIONAL OFFICE
U.P. POLLUTION CONTROL BOARD,
SONBHADRA

SUMMARY CHART OF 384 STONE CRUSHER UNITS ESTABLISHED IN DISTRICT SONBHADRA

Total no. of Stone Crusher units identified	**384**
Total no. of Stone Crusher units have installed proper APCS & have CTO from UPPCB	**236**
Total no. of Stone Crusher units which have not installed proper APCS & are sealed	**76**
Total no. of Stone Crusher units not in working conditions & plant/machinery are damaged	**9**
Total no. of Stone Crusher units dismantled	**19**
Total no. of Stone Crusher units self since long time	**36**
Total no. of Stone Crusher units Applied for CTO	**8**
Total Stone Crusher Units	**384**

STATUS OF 236 OPERATIONAL STONE CRUSHER UNITS

SL. NO.	NAME OF THE INDUSTRY	ADDRESS OF THE INDUSTRY	GLOBAL POSITIONING OF UNIT		STATUS OF AIR POLLUTION CONTROL SYSTEM	OPERATIONAL STATUS
			LATITUDE	LONGITUDE		
1	M/S AADARSH STONE WORKS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.486039	83.014165	INSTALLED	OPERATIONAL
2	M/S AADISHAKTI STONE WORKS	KOTHA TOLA, DALLA, SONBHADRA	24.457200	83.024991	INSTALLED	OPERATIONAL
3	M/S ARTI STONE WORKS	KOTHA TOLA, BARI DALLA, SONBHADRA	24.4583337	83.028959	INSTALLED	OPERATIONAL
4	M/S ADARSH STONE PRODUCT,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.486117	83.005913	INSTALLED	OPERATIONAL
5	M/S ADITYA STONE CRUSHING CO.	KOTHA TOLA, BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.456404	83.023935	INSTALLED	OPERATIONAL
6	M/S AGORI GRAMODYOG VIKAS SANSTHAN,	BARI DALLA, SONEBHADRA	24.468523	83.033606	INSTALLED	OPERATIONAL
7	M/S AGRAHARI STONE PRODUCT, UNIT-1	BARI DALLA, SONBHADRA	24.469691	83.032519	INSTALLED	OPERATIONAL
8	M/S AGRAHARI STONE PRODUCT, UNIT-2	BARI DALLA, SONBHADRA	24.470128	83.029834	INSTALLED	OPERATIONAL

9	M/S AGRAWAL STONE TRADERS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474998	83.013487	INSTALLED	OPERATIONAL
10	M/S AGRAWAL STONE	VILLAGE-BILLI, OBRA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474405	83.012627	INSTALLED	OPERATIONAL
11	M/S AJAY KUMAR FORMLY NAME - UMESH STONE WORKS (VIJAY CONSTRUCTION)	BILLI MARKUNDI, OBRA, SONBHADRA	24.478216	83.018918	INSTALLED	OPERATIONAL
12	M/S AMIT STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474235	83.015313	INSTALLED	OPERATIONAL
13	M/S ARTI STONE PRODUCT (FORMALY NAME M/S SHAKTI STONE WORKS)	BARI DALLA, SONBHADRA	24.472217	83.028722	INSTALLED	OPERATIONAL
14	M/S AWADH STONE CRUSHING SAMITI	LANGADA MOD, BARI DALLA, SONBHADRA	24.462245	83.039697	INSTALLED	OPERATIONAL
15	M/S AVDHESH KUMAR SINGH & COMPANY	BARI DALLA, SONBHADRA	24.472809	83.031231	INSTALLED	OPERATIONAL
16	M/S AWADHESH STONE WORKS	BARI DALLA, SONBHADRA	24.472484	83.029446	INSTALLED	OPERATIONAL
17	M/S AWADHESH STONE WORKS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.472916	83.010590	INSTALLED	OPERATIONAL
18	M/S B. AGRAWAL STONE PRODUCT LTD (U-3)	BILLI MARKUNDI, OBRA, SONBHADRA	24.471973	83.018841	INSTALLED	OPERATIONAL

19	M/S B.AGRAWAL STONE PRODUCT LTD (U-2)	BILLI MARKUNDI, OBRA, SONBHADRA	24.471979	83.018262	INSTALLED	OPERATIONAL
20	M/S BABA BARFANI STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486972	83.017336	INSTALLED	OPERATIONAL
21	M/S BABA STONE	BARI DALLA, SONBHADRA	24.470069	83.028936	INSTALLED	OPERATIONAL
22	M/S BAJRANG STONE CRUSHER COMPANY	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.463347	83.024388	INSTALLED	OPERATIONAL
23	M/S BALAJI ENTERPRISES, EX NAME-MAA VINDHYAVASINI STONE WORKS,	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.455467	83.033407	INSTALLED	OPERATIONAL
24	M/S BALAJI STONE PRODUCTS (FORMERLY NAME SUBHASH STONE WORK)	BILLI OBERA, SONBHADRA	24.481555	83.022208	INSTALLED	OPERATIONAL
25	M/S BALIA INDUSTRIES	BILLI MARKUNDI, OBRA, SONBHADRA	24.470308	83.818869	INSTALLED	OPERATIONAL
26	M/S BALIA INDUSTRIES, U-1	BILLI MARKUNDI, OBRA, SONBHADRA	24.470096	83.018514	INSTALLED	OPERATIONAL
27	M/S BALIA STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.470253	83.02000	INSTALLED	OPERATIONAL
28	M/S BALIA ENTERPRISES	KOTHA TOLA, BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.455833	83.023615	INSTALLED	OPERATIONAL

29	M/S BANSAL ENTERPRISES	BARI DALLA, SONBHADRA	24.473605	83.0303	INSTALLED	OPERATIONAL
30	M/S BANSAL STONE	BARI DALLA, SONBHADRA	24.470217	83.031018	INSTALLED	OPERATIONAL
31	M/S BANSHIDHAR STONE WORKS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484335	83.010504	INSTALLED	OPERATIONAL
32	M/S BANTI STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.473080	83.0309	INSTALLED	OPERATIONAL
33	M/S BHAGYA LAKSHMI STONE WORKS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481004	83.006909	INSTALLED	OPERATIONAL
34	M/S BHARAT STONE CRUSING CO.(EX NAME BALIA STONE CRUSHING CO.)	BILLI MARKUNDI, OBRA, SONBHADRA	24.470197	83.019613	INSTALLED	OPERATIONAL
35	M/S BHARDWAJ GRAMODDYOG VIKASH SANSTHAN	BARI DALLA, SONBHADRA	24.471444	83.027760	INSTALLED	OPERATIONAL
36	M/S BRIJWASI STONE	BARI DALLA, SONBHADRA	24.470725	83.030122	INSTALLED	OPERATIONAL
37	M/S C.S. INFRASTRUCTURE LTD.,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.483370	83.011068	INSTALLED	OPERATIONAL
38	M/S CHOPAN STONE PRODUCT	BARI DALLA, SONBHADRA	24.469438	83.030785	INSTALLED	OPERATIONAL

39	M/S DIAMOND STONE WORKS	BARI DALLA, SONBHADRA	24.471622	83.028924	INSTALLED	OPERATIONAL
40	M/S DURGA INDUSTRIES(EX NAME BALIA STONE CRUSHING CO.)	BILLI MARKUNDI, OBRA, SONBHADRA	24.470021	83.019895	INSTALLED	OPERATIONAL
41	M/S AKATA VIKAS SANSTHAN	BARI DALLA, SONBHADRA	24.47079	83.029452	INSTALLED	OPERATIONAL
42	M/S FAUJDAR SINGH STONE WORKS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485800	83.017070	INSTALLED	OPERATIONAL
43	M/S GANESH INDUSTRIES	BILLI MARKUNDI, OBRA, SONBHADRA	24.469719	83.018146	INSTALLED	OPERATIONAL
44	M/S GANESH SINGH STONE CRUSING COMPANY (FORMELY NAME M/S APNA STONE WORKS AND MIRZAPUR STONE PRODUCT)	VILLAGE-BARI DALLA, NEAR-BAGHHA NALA, DALLA MANDIR KE PICHHE, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481279	83.035359	INSTALLED	OPERATIONAL
45	M/S GANPATI ASSOCIATE	BILLI MARKUNDI, OBRA, SONBHADRA	24.470469	83.016772	INSTALLED	OPERATIONAL
46	M/S GIRDHAR CEMENT LTD. (STONE CRUSHER DIVISION),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.482937	83.019697	INSTALLED	OPERATIONAL
47	M/S GRITSCO	BILLI MARKUNDI, OBRA, SONBHADRA	24.46205	83.0206	INSTALLED	OPERATIONAL
48	M/S GUPTA STONE WORKS	BILLI MARKUNDI, OBRA, SONBHADRA	24.468624	83.016008	INSTALLED	OPERATIONAL

49	M/S H.E.S. INFRA PVT. LTD.	VILLAGE- KUDARI, DUDDHI, SONBHADRA	24.121504	83.303145	INSTALLED	OPERATIONAL
50	M/S HARIYANA STONE CRUSHING COMPANY	LANGADA MOD, BARI DALLA, SONBHADRA	24.459099	83.039483	INSTALLED	OPERATIONAL
51	M/S J.K. STONE WORKS	BARI DALLA, SONBHADRA	24.464954	83.024627	INSTALLED	OPERATIONAL
52	M/S J.S. MINING & CONSTRUCTION (UNIT-1) (FORMALY NAME-M/S B. AGRAWAL STONE PRODUCTS (UNITE 1),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477632	83.015987	INSTALLED	OPERATIONAL
53	M/S J.S. MINING & CONSTRUCTION (UNIT-2) (FORMALY NAME-M/S B. AGRAWAL STONE PRODUCTS (UNITE 4),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.472970	83.014991	INSTALLED	OPERATIONAL
54	M/S JAGDAMBA ENTERPRISES	BARI DALLA, SONBHADRA	24.472417	83.030657	INSTALLED	OPERATIONAL
55	M/S JAI NIRMAL BABA INDUSTRIES,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.473986	83.014500	INSTALLED	OPERATIONAL
56	M/S JAI HANUMAN STONE PRODUCT,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.482447	83.008203	INSTALLED	OPERATIONAL
57	M/S JAI MAA AMBEY ENTERPRISES, NEAR BILLI RAILWAY STATION	BILLI MARKUNDI, OBRA, SONBHADRA	24.464387	83.019943	INSTALLED	OPERATIONAL
58	M/S JAI MAA CHINTPURNI STONE WORKS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474715	83.014752	INSTALLED	OPERATIONAL

59	M/S JAI MAA PANCHRUKHA DEVI INDUSTRIES (UNIT-1),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.473189	83.015690	INSTALLED	OPERATIONAL
60	M/S JAI MAA PANCHRUKHA DEVI INDUSTRIES (UNIT-2),	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484925	83.005733	INSTALLED	OPERATIONAL
61	M/S JAI MAA SHEETLA DEVI INDUSTRIES,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.485088	83.005798	INSTALLED	OPERATIONAL
62	M/S JAI MATA DI ENTERPRISES (UNIT-1),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476030	83.010183	INSTALLED	OPERATIONAL
63	M/S JAI SHAKTI STONE,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.480527	83.007152	INSTALLED	OPERATIONAL
64	M/S JAI SHREE KRISHNA STONE, (EX NAME MAA VINDHYAVASINI SEWA SAMITI)	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.472478	83.010977	INSTALLED	OPERATIONAL
65	M/S JAI BHAWANI ENTERPRISES	BARI DALLA, SONBHADRA	24.472147	83.030469	INSTALLED	OPERATIONAL
66	M/S JAY DURGA STONE WORKS (JAI MAA DURGA STONE WORKS)	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.461742	83.022724	INSTALLED	OPERATIONAL
67	M/S JAI ENTERPRISES	BARI DALLA, SONBHADRA	24.472568	83.030539	INSTALLED	OPERATIONAL
68	M/S JAI SIYARAM ENTERPRISES	LANGADA MOD, KOTHA TOLA, DALLA, SONBHADRA	24.455413	83.035069	INSTALLED	OPERATIONAL

69	M/S K.P STONE WORKS	BARI DALLA, SONBHADRA	24.470954	83.028462	INSTALLED	OPERATIONAL
70	M/S KAIMOOR STONE WORKS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.487583	83.015989	INSTALLED	OPERATIONAL
71	M/S KALSHI STONE SUPLYERS,	BARI DALLA, SONEBHADRA	24.468709	83.029664	INSTALLED	OPERATIONAL
72	M/S KAMAKHYA ENTERPRISES,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.487229	83.012373	INSTALLED	OPERATIONAL
73	M/S KAMDHENU ENTERPRISES	BARI DALLA, SONBHADRA	24.471370	83.025909	INSTALLED	OPERATIONAL
74	M/S KAPOOR CHAND STONE PRODUCT (UNIT-1), (FORMERLY NAME M/S RAMESH STONE PRODUCT) M/S KAMLA STONE	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474733	83.016628	INSTALLED	OPERATIONAL
75	M/S KASHI GRAMODYOG SEVA SANSTHAN,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.472561	83.010535	INSTALLED	OPERATIONAL
76	M/S KASHI VISHWANATH STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485391	83.021541	INSTALLED	OPERATIONAL
77	M/S KESHWA ENTERPRISES(EX NAME SIHORI GRAMODDYOG SANSTHAN)	BARI DALLA, SONBHADRA	24.470371	83.028255	INSTALLED	OPERATIONAL
78	M/S KRISHNA INDUSTRIES	PATEL NAGAR, KOTHA TOLA, BARI DALLA	24.457114	83.029098	INSTALLED	OPERATIONAL

79	M/S KRISHNA STONE PRODUCT (EX. NAME RAM ACHAL STONE CRUSHING CO.)	BILLI MARKUNDI, OBRA, SONBHADRA	24.471346	83.019624	INSTALLED	OPERATIONAL
80	M/S KRISHNA STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.477689	83.019494	INSTALLED	OPERATIONAL
81	M/S KRISHNA STONE WORKS, (DARA GRAMODYOG SEVA SAMITI AND OBARA VIKASH SAMITI)	BILLI-MARKUNDI, OBRA, SONBHADRA	24.472601	83.009298	INSTALLED	OPERATIONAL
82	M/S LAKSHMI DEVI STONE CRUSHER COMPANY,	BARI DALLA, SONEBHADRA	24.466827	83.034540	INSTALLED	OPERATIONAL
83	M/S LAKSHMI STONE PRODUCT	BARI DALLA, SONBHADRA	24.471207	83.031530	INSTALLED	OPERATIONAL
84	M/S MAA BHAGWATI DEVI INDUSTRIES,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.487843	83.013785	INSTALLED	OPERATIONAL
85	M/S MAA DURGA INDUSTRIES UNIT-1	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458238	83.038336	INSTALLED	OPERATIONAL
86	M/S MAA DURGA INDUSTRIES UNIT-2	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458249	83.039320	INSTALLED	OPERATIONAL
87	M/S MAA GAYATRI STONE WORKS PVT. LTD. (UNIT-1),	VILLAGE-BILLI, PO-OBRA,TEHSIL-ROBERTSGANJ, SONEBHADRA	24.479722	83.017239	INSTALLED	OPERATIONAL
88	M/S MAA GAYATRI STONE WORKS PVT. LTD. (UNIT-2),	VILLAGE-BILLI, PO-OBRA,TEHSIL-ROBERTSGANJ, SONEBHADRA	24.479912	83.016842	INSTALLED	OPERATIONAL

89	M/S MAA JWALA STONE	BARI DALLA, SONBHADRA	24.470801	83.032272	INSTALLED	OPERATIONAL
90	M/S MAA MAIHAR DEVI INDUSTRIES (UNIT-2),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474806	83.014549	INSTALLED	OPERATIONAL
91	M/S MAA SARASWATI STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.485053	83.007417	INSTALLED	OPERATIONAL
92	M/S MAA SHERAWALI STONE,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484424	83.014322	INSTALLED	OPERATIONAL
93	M/S MAA SHARADA INDUSTRIES,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476484	83.012100	INSTALLED	OPERATIONAL
94	M/S MAA SHARDA SEVA SAMITI	KOTHA TOLA, DALLA, SONBHADRA	24.451347	83.026924	INSTALLED	OPERATIONAL
95	M/S MAA SHARDA SEVA SAMITI,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484454	83.013949	INSTALLED	OPERATIONAL
96	M/S MAA SHITLA INDUSTRIES,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476801	83.009705	INSTALLED	OPERATIONAL
97	M/S MAA SIDDHESHWARI STONE WORKS	BILLI MARKUNDI, OBRA, SONBHADRA	24.481920	83.021575	INSTALLED	OPERATIONAL
98	M/S MAA STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476732	83.009176	INSTALLED	OPERATIONAL

99	M/S MAA THAVE DEVI STONE PRODUCT,	VILLAGE-BILLI, OBRA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477109	83.007751	INSTALLED	OPERATIONAL
100	M/S MAA VAISHNO ENTERPRISES	BARI DALLA, SONBHADRA	24.465504	83.020121	INSTALLED	OPERATIONAL
101	M/S MAA VAISHNO INDUSTRIES,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484900	83.013915	INSTALLED	OPERATIONAL
102	M/S JAI MAA VAISHNO STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.485233	83.006361	INSTALLED	OPERATIONAL
103	M/S MAA VAISHNO STONE WORKS,	VILLAGE-BILLI, OBRA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477126	83.008560	INSTALLED	OPERATIONAL
104	M/S MAA VAISNO STONE CRUSHING CO. (EX NAME COMMERCIAL STONE WORKS)	BARI DALLA, SONBHADRA	24.470554	83.028532	INSTALLED	OPERATIONAL
105	M/S MAHAMAYA STONE CRUSING COMPANY,	VILLAGE-BARI DALLA, NEAR-BAGHHA NALA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481292	83.036728	INSTALLED	OPERATIONAL
106	M/S MAHAMAYA STONE,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.483489	83.013798	INSTALLED	OPERATIONAL
107	M/S MAHAVEER STONE CRUSHING COMPANY	BILLI MARKUNDI, OBRA, SONBHADRA	24.469265	83.029087	INSTALLED	OPERATIONAL
108	M/S MAIHAR LAKSHMI STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.485512	83.013978	INSTALLED	OPERATIONAL

109	M/S MAKKHAN STONE WORKS PVT.LTD, U-1	BILLI MARKUNDI, OBRA, SONBHADRA	24.470652	83.01900	INSTALLED	OPERATIONAL
110	M/S MANISH STONE WORKS,	BARI DALLA, SONEBHADRA	24.468672	83.028531	INSTALLED	OPERATIONAL
111	M/S MATA STONE	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484659	83.013302	INSTALLED	OPERATIONAL
112	M/S MAURYA STONE WORKS,	VILLAGE-BILLI MARKUNDI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481733	83.009107	INSTALLED	OPERATIONAL
113	M/S MISHRA STONE CRUSHING COMPANY	BILLI MARKUNDI, OBRA, SONBHADRA	24.469492	83.019278	INSTALLED	OPERATIONAL
114	M/S MODERN STONE CRUSING COMPANY,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.475647	83.013933	INSTALLED	OPERATIONAL
115	M/S MAA VINDHYAVASINI ENTERPRISES (UNIT 1),	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485570	83.019870	INSTALLED	OPERATIONAL
116	M/S MUNNILAL & COMPANY,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.866163	83.006525	INSTALLED	OPERATIONAL
117	M/S N.R.B. COMPANY	KOTHA TOLA, BARI DALLA, SONBHADRA	24.457348	83.027530	INSTALLED	OPERATIONAL
118	M/S NANDI STONE PRODUCT	LANGADA MOD, BARI DALLA, SONBHADRA	24.463012	83.038483	INSTALLED	OPERATIONAL

119	M/S NANDLAL STONE CRUSHING COMPANY	LANGADA MOD, BARI DALLA, SONBHADRA	24.459103	83.039292	INSTALLED	OPERATIONAL
120	M/S NARAYAN ENTERPRISES,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.482510	83.013846	INSTALLED	OPERATIONAL
121	M/S NARMADA STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.471768	83.030601	INSTALLED	OPERATIONAL
122	M/S NEW MAHAVEER STONE CRUSHING CUMPANY	BILLI MARKUNDI, SONBHADRA	24.469091	83.028881	INSTALLED	OPERATIONAL
123	M/S NEW PRAKASH STONE PRODUCT	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.456734	83.035512	INSTALLED	OPERATIONAL
124	M/S NEW SARVODAYA ENTERPRISES, EX NAME R.K ENTERPRISES	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486958	83.015147	INSTALLED	OPERATIONAL
125	M/S NILKANTH STONE CRUSHING CO.	BARI DALLA, SONBHADRA	24.771438	83.026276	INSTALLED	OPERATIONAL
126	M/S NISHAD STONE CRUSING COMPANY, (EX NAME SHAMBHUNATH STONE WORKS)	BARI DALLA, SONEBHADRA	24.467470	83.030001	INSTALLED	OPERATIONAL
127	M/S OM INDUSTRIES,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476936	83.008791	INSTALLED	OPERATIONAL
128	M/S OM SAI STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485896	83.016221	INSTALLED	OPERATIONAL

129	M/S OM SHIV ENTERPRISES (SHOBHA IND. AND BABA HANUMAN STONE CRUSHING CO.)	BILLI MARKUNDI, OBRA, SONBHADRA	24.482292	83.022302	INSTALLED	OPERATIONAL
130	M/S OM STONE CRUSING COMPANY,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.842808	83.006140	INSTALLED	OPERATIONAL
131	M/S OM STONE CRUSING COMPANY,	VILLAGE-BILLI, MARKUNDI TEHSIL-ROBERTSGANJ, SONEBHADRA	24.478357	83.015087	INSTALLED	OPERATIONAL
132	M/S P.N. ENTERPRISES,	VILLAGE-SINDURIYA, CHOPAN, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.515759	82.994782	INSTALLED	OPERATIONAL
133	M/S PANCHRATNA STONE PRODUCT,	VILLAGE-BILLI MARKUNDI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477446	83.007136	INSTALLED	OPERATIONAL
134	M/S PANDEY ENTERPRISES,	VILLAGE-SINDURIYA, CHOPAN, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.515482	82.993285	INSTALLED	OPERATIONAL
135	M/S PANKAJ STONE PRODUCT (EX NAME-SAURABH GRAMODYOG VIKAS SANSTHAN)	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458278	83.038048	INSTALLED	OPERATIONAL
136	M/S PANKAJ STONE WORKS	BARI DALLA, SONBHADRA	24.468966	83.030201	INSTALLED	OPERATIONAL
137	M/S PRAVEEN STONE CO.	BARI DALLA, SONBHADRA	24.473893	83.030756	INSTALLED	OPERATIONAL
138	M/S PITAMBARA SEVA SANSHTAN	KOTHA TOLA, BARI DALLA, SONBHADRA	24.458073	83.025657	INSTALLED	OPERATIONAL

139	M/S PRAKASH STONE CRUSHING CO.	BARI DALLA, SONBHADRA	24.471920	83.027346	INSTALLED	OPERATIONAL
140	M/S PRAKASH STONE WORKS (UNIT-1),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476697	83.011432	INSTALLED	OPERATIONAL
141	M/S PRAKASH STONE WORKS (UNIT-2),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.476166	83.011177	INSTALLED	OPERATIONAL
142	M/S PRASAD INDUSTRIES (UNIT-2),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.475319	83.011261	INSTALLED	OPERATIONAL
143	M/S PRASAD INDUSTRIES (UNITE-1),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24-475364	83.010921	INSTALLED	OPERATIONAL
144	M/S PRASHANT STONE CRUSHING COMPANY	KOTHA TOLA, BARI DALLA, SONBHADRA	24.457589	83.027970	INSTALLED	OPERATIONAL
145	M/S PRATAP STONE WORKS	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.465431	83.025582	INSTALLED	OPERATIONAL
146	M/S PRAVESH STONE CRUSING COMPANY,	VILLAGE-BARI DALLA, NEAR-BAGHHA NALA, DALLA MANDIR KE PICHHE, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481676	83.035619	INSTALLED	OPERATIONAL
147	M/S PRAVEEN STONE WORKS	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.466567	83.026064	INSTALLED	OPERATIONAL
148	M/S PRIYA VIKASH STONE WORKS EX NAME-PRIYA VIKAS SAMITI	BILLI MARKUNDI, AGORI, ROBERTSGAJN, SONBHADRA	24.467912	83.024883	INSTALLED	OPERATIONAL

149	M/S R.C.M. STONE WORKS,	VILLAGE-BILLI, OBRA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477257	83.007950	INSTALLED	OPERATIONAL
150	M/S R.K. STONE PRODUCT	BARI DALLA, SONBHADRA	24.471605	83.029427	INSTALLED	OPERATIONAL
151	M/S R.S. ENTERPRISES-1	KOTHA TOLA,DALLA, SONBHADRA	24.456895	83.024062	INSTALLED	OPERATIONAL
152	M/S R.S. ENTERPRISES-2	KOTHA TOLA, DALLA, SONBHADRA	24.456909	83.024758	INSTALLED	OPERATIONAL
153	M/S RADHESHYAM ENTERPRISES	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.455270	83.034302	INSTALLED	OPERATIONAL
154	M/S RAGHUBAR STONE WORKS (FORMALY NAME M/S CHINTAMANI SINGH STONE WORKS)	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.484960	83.021800	INSTALLED	OPERATIONAL
155	M/S RAJ LAKSHMI STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477053	83.010428	INSTALLED	OPERATIONAL
156	M/S RAJ STONE TRADERS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485099	83.020213	INSTALLED	OPERATIONAL
157	M/S RAJA STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.477377	83.009130	INSTALLED	OPERATIONAL
158	M/S RAJKUMAR STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.471679	83.019490	INSTALLED	OPERATIONAL

159	M/S RAMESH SINGH STONE WORKS	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.463319	83.023411	INSTALLED	OPERATIONAL
160	M/S RAMESH STONE CRUSHING COMPANY ,	BARI DALLA, SONEBHADRA	24.467095	83.034300	INSTALLED	OPERATIONAL
161	M/S RASPAHADI STONE CRUSHER,	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.482864	83.006921	INSTALLED	OPERATIONAL
162	M/S RAZA SEVA SAMITI	LANGADA MOD, BILLI-MARKUNDI, BARI DALLA, SONBHADRA	24.463003	83.039123	INSTALLED	OPERATIONAL
163	M/S RIDDHI SIDDHI STONE WORKS (FORMERLY NAME-AARADHANA STONE CRUSING CO. STONE),	GRAM-VARDIYA, CHOPAN, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.509596	82.997710	INSTALLED	OPERATIONAL
164	M/S RUDRAKSHA STONE PRODUCTS,(EX. NAME NARAYAN STONE SUPPLYER)	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486772	83.015668	INSTALLED	OPERATIONAL
165	M/S SAKSHI GRAMODYOG VIKAS SANSTHAN	LANGADA MOD, BARI DALLA, SONBHADRA	24.458825	83.039041	INSTALLED	OPERATIONAL
166	M/S SANDEEP STONE PRODUCT	BARI DALLA, SONBHADRA	24.470588	83.030556	INSTALLED	OPERATIONAL
167	M/S SUNNY STONE CRUSHING CO.	BARI DALLA, SONBHADRA	24.473339	83.031223	INSTALLED	OPERATIONAL
168	M/S SANI VIKASH SAMITI (SUNNY)	BARI DALLA, SONBHADRA	24.473094	83.031404	INSTALLED	OPERATIONAL

169	M/S SANTOSH STONE CRUSING WORKS,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.478804	83.015435	INSTALLED	OPERATIONAL
170	M/S SAROJ STONE PRODUCT	BARI DALLA, SONBHADRA	24.471858	83.031910	INSTALLED	OPERATIONAL
171	M/S SARVHIT SEWA SANSTHAN	BILLI MARKUNDI, OBRA, SONBHADRA	24.471142	83.017278	INSTALLED	OPERATIONAL
172	M/S SATYAM STONE WORKS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484122	83.013786	INSTALLED	OPERATIONAL
173	M/S SAURABH CRUSHER (PNSS)	KOTHA TOLA, BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.456986	83.023054	INSTALLED	OPERATIONAL
174	M/S SHAKTI STONE, EX NAME SHAKTI STONE WORKS/ KANSHAL ENTERPRISES	BARI DALLA, SONBHADRA	24.472473	83.028066	INSTALLED	OPERATIONAL
175	M/S SHAKTI STONE WORKS	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.479165	83.012534	INSTALLED	OPERATIONAL
176	M/S SHAMBHAVI STONE WORKS (FORMALY NAME M/S GARG STONE WORKS)	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.457781	83.036492	INSTALLED	OPERATIONAL
177	M/S SHANKAR STONE WORKS	KOTHA TOLA, DALLA, SONBHADRA	24.456606	83.025672	INSTALLED	OPERATIONAL
178	M/S SHANKAR STONE CRUSING CUMPANY	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.467669	83.024193	INSTALLED	OPERATIONAL

179	M/S SHANKAR STONE PRODUCT (FORMALY NAME TIWARI STONE WORKS)	KOTHA TOLA, BARI DALLA, SONBHADRA	24.460279	83.025128	INSTALLED	OPERATIONAL
180	M/S SHARDA LAKSHMI STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486980	83.017969	INSTALLED	OPERATIONAL
181	M/S SHASHANK STONE WORKS,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.485810	83.018610	INSTALLED	OPERATIONAL
182	M/S SHEELA ENTERPRISES,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486129	83.018070	INSTALLED	OPERATIONAL
183	M/S SHIV SHAKTI STONE PRODUCT	LANGADA MOD, BARI DALLA, SONBHADRA	24.461745	83.038845	INSTALLED	OPERATIONAL
184	M/S SHIV STONE SUPPLYERS	BARI DALLA, SONBHADRA	24.469665	83.029479	INSTALLED	OPERATIONAL
185	M/S SHIVAM STONE SEVA SAMITI	LANGADA MOD, BARI DALLA, SONBHADRA	24.462028	83.040095	INSTALLED	OPERATIONAL
186	M/S SHIVAM STONE CRUSING CO.	BILLI MARKUNDI OBRA, SONBHADRA	24.469035	83.016750	INSTALLED	OPERATIONAL
187	M/S SHRI BALAJI STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.478932	83.016610	INSTALLED	OPERATIONAL
188	M/S SHRI SAI STONE PRODUCT	KOTHA TOLA, DALLA, SONBHADRA	24.457940	83.024515	INSTALLED	OPERATIONAL

189	M/S SATYAM STONE GRAMODYOG SEVA SAMITI	BARI DALLA, SONBHADRA	24.471301	83.032521	INSTALLED	OPERATIONAL
190	M/S SHUBHAM INDUSTRIES,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.485045	83.005126	INSTALLED	OPERATIONAL
191	M/S SHYAM STONE COMPANY	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.466076	83.026076	INSTALLED	OPERATIONAL
192	M/S SIDDHI VINAYAK STONE WORKS	BILLI MARKUNDI, AGORI, ROBERTSGAJN, SONBHADRA	24.467449	83.025063	INSTALLED	OPERATIONAL
193	M/S SINGH STONE CRUSING COMPANY,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.473613	83.010772	INSTALLED	OPERATIONAL
194	M/S SINGH STONE INDUSTRIES	BARI DALLA, SONBHADRA	24.471269	83.026335	INSTALLED	OPERATIONAL
195	M/S SONANCHAL STONE CRUSING COMPANY,	BARI DALLA, SONEBHADRA	24.468411	83.028976	INSTALLED	OPERATIONAL
196	M/S STONE GRIT GRAMOUDYOG SANSTHAN	BARI DALLA, SONBHADRA	24.470094	83.028020	INSTALLED	OPERATIONAL
197	M/S SUNIL KUMAR SINGH	BILLI MARKUNDI, AGORI, ROBERTSGAJN, SONBHADRA	24.468554	83.024653	INSTALLED	OPERATIONAL
198	M/S SUNIL STONE INDUSTRIES	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.463979	83.024103	INSTALLED	OPERATIONAL

199	M/S SUPER STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.467963	83.029260	INSTALLED	OPERATIONAL
200	M/S SURENDRA NATH MISHRA STONE	BILLI MARKUNDI, OBRA, SONBHADRA	24.469314	83.019252	INSTALLED	OPERATIONAL
201	M/S SURYA CRUSHER, (EX NAME M/S KRISHNA STONE CRUSHING COMPANY)	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.472809	83.015557	INSTALLED	OPERATIONAL
202	M/S SURYA STONE WORKS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484286	83.013385	INSTALLED	OPERATIONAL
203	M/S SUSHIL GRITS CORPORATION	BARI DALLA, SONBHADRA	24.467847	83.034612	INSTALLED	OPERATIONAL
204	M/S SWAMIJI MAHARAJ STONE PRODUCT,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484335	83.008703	INSTALLED	OPERATIONAL
205	M/S TEJ INDUSTRY STONE PRODUCT (FORMERLY NAME M/S TEJ GRAMOODHYOG SEVA SAMITI)	BARI DALLA, SONBHADRA	24.471887	83.031056	INSTALLED	OPERATIONAL
206	M/S TEJ STONE WORKS (UNIT-2),	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.475805	83.009715	INSTALLED	OPERATIONAL
207	M/S TEJ STONE WORKS (GANESH ENTERPRISES)	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.475589	83.010084	INSTALLED	OPERATIONAL
208	M/S TIRUPATI BALA JI STONE PRODUCT	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.480999	83.007346	INSTALLED	OPERATIONAL

209	M/S TRIVENI STONE (OLD NAME SRI RAM ENTERPRISES)	BARI DALLA, SONBHADRA	24.471492	83.031244	INSTALLED	OPERATIONAL
210	M/S UNITED CRUSHER	LANGADA MOD, PATEL NAGAR, BARI DALLA, SONBHADRA	24.462337	83.038022	INSTALLED	OPERATIONAL
211	M/S UNITED STONE CRUSHER	BARI DALLA, SONBHADRA	24.470190	83.031948	INSTALLED	OPERATIONAL
212	M/S UNIVERSE STONES	SUKRUT, SONBHADRA	24.914209	83.047037	INSTALLED	OPERATIONAL
213	M/S UNIVERSAL STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.469847	83.030218	INSTALLED	OPERATIONAL
214	M/S VAIBHAV ENTERPRISES	BILLI MARKUNDI, OBRA, SONBHADRA	24.471319	83.016957	INSTALLED	OPERATIONAL
215	M/S VAIBHAV GROUP,	VILLAGE-BILLI MARKUNDI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484981	83.009726	INSTALLED	OPERATIONAL
216	M/S VAIBHAV STONE TRADERS ,	BARI DALLA, SONEBHADRA	24.467760	83.029956	INSTALLED	OPERATIONAL
217	M/S VAISHNO ASSOCIATE	BILLI MARKUNDI, OBRA, SONBHADRA	24.470562	83.016809	INSTALLED	OPERATIONAL
218	M/S VANDANA STONE,	VILLAGE-BILLI, BARI, PO-DALLA, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.475245	83.008076	INSTALLED	OPERATIONAL

219	M/S SHRI VARANASI STONE WORKS	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.464501	83.023672	INSTALLED	OPERATIONAL
220	M/S VIJAY STONE PRODUCT (FORMERLY NAME M/S SUBHASH STONE SEVA SAMITI) (K.K. INDUSTRY)	VILLAGE-BARI DALLA, NEAR-BAGHHA NALA, DALLA MANDIR KE PICHHE, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.482144	83.035700	INSTALLED	OPERATIONAL
221	M/S VIKRAM SEWA SAMITI,	BILLI RAILWAY LINE ,BILLI MARKUNDI, OBRA, SONBHADRA	24.464813	83.020433	INSTALLED	OPERATIONAL
222	M/S VIKRAM STONE WORKS	KOTHA TOLA, BARI DALLA, SONBHADRA	24.457505	83.026434	INSTALLED	OPERATIONAL
223	M/S VINDHYA STONE CRUSHING COMPANY,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.486719	83.018529	INSTALLED	OPERATIONAL
224	M/S VINDHYA STONE PRODUCTS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.474097	83.016622	INSTALLED	OPERATIONAL
225	M/S VINDHYA STONE,	VILLAGE-BILLI, RASPHADHI, ROBERTSGANJ, SONEBHADRA	24.487766	83.015555	INSTALLED	OPERATIONAL
226	M/S VINDHYAVASINI GRAMODYOG SEWA SAMITI,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.473848	83.015097	INSTALLED	OPERATIONAL
227	M/S VISHAL GRAMODYOG SEVA SAMITI,	VILLAGE-SINDURIYA, CHOPAN, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.515467	82.994155	INSTALLED	OPERATIONAL
228	M/S VISHNU STONE,	VILLAGE-BILLI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.488607	83.012946	INSTALLED	OPERATIONAL

229	M/S YASHVANT STONE WORKS	BARI DALLA, SONBHADRA	24.0472126	83.027268	INSTALLED	OPERATIONAL
230	M/S M/S SHRIDHARA SONE ENTERPRISES FORMERLY NAME YOGI BABA STONE PRODUCT	VILLAGE-BILLI, RASPAHADI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.484606	83.010735	INSTALLED	OPERATIONAL
231	M/S SHAKTIDHAM STONE WORKS,	VILLAGE-BILLI, RASPHADHI, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.488500	83.013625	INSTALLED	OPERATIONAL
232	M/S SHRI BALAJI STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.471376	83.029863	INSTALLED	OPERATIONAL
233	M/S SHRI SHIV STONE CRUSHING COMPANY	BARI DALLA, SONBHADRA	24.471143	83.031876	INSTALLED	OPERATIONAL
234	M/S DINESH STONE CRUSHING COMPANY (NEW NAME M/S MAA DURGA MINING & CONSTRUCTIONS)	MITAPUR, KARGARA, CHOPAN, ROBERTSGANJ, SONBHADRA	24.556974	82.977667	INSTALLED	OPERATIONAL
235	M/S SHRI AVDHESH KUMAR SINGH & COMPANY	BARI DALLA, SONBHADRA	24.556820	82.917602	INSTALLED	OPERATIONAL
236	M/S KAMLA STONE WORKS	BILLI MARKUNDI SONBHADRA	24.476730	83.010262	INSTALLED	OPERATIONAL

STATUS OF 76 SEALED STONE CRUSHER UNITS

Sl. No.	NAME OF THE INDUSTRY	ADDRESS OF THE INDUSTRY	GLOBAL POSITIONING OF UNIT		STATUS OF AIR POLLUTION CONTROL SYSTEM	OPERATIONAL /SEALED
			LATITUDE	LONGITUDE		
1	M/s A.K. ENERPRISES	SUKRIT, SONBHADRA	24.915221	83.041678	PARTIALLY INSTALLED	Sealed
2	M/s A.K. Enterprises,	Village-Billi, Raspahadhi, Tehsil-Robertsganj, SONEBHADRA	24.487260	83.014457	PARTIALLY INSTALLED	Sealed
3	M/S A.K. STONE PRODUCT	SUKRIT, SONBHADRA	24.916189	83.045910	PARTIALLY INSTALLED	Sealed
4	M/s Ankita Enterprises,	Village- Rasphadhi, Billi, Robertsganj, SONEBHADRA	24.485523	83.018738	PARTIALLY INSTALLED	Sealed
5	M/s Anurag Stone Works,	Village-Salkhan, Tehsil-Robertsganj, SONEBHADRA	24.574433	83.060155	PARTIALLY INSTALLED	Sealed
6	M/S ASHOKA MINING WORKS	BILLI MARKUNDI, OBRA, SONBHADRA	24.469141	83.020019	PARTIALLY INSTALLED	Sealed
7	M/S BABA VISHWANATH STONE	SUKRIT, SONBHADRA	24.916608	83.042698	PARTIALLY INSTALLED	Sealed
8	M/S BALIA SITA STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.469594	83.017177	PARTIALLY INSTALLED	Sealed

9	M/S C.L. STONE. EX NAME UNIVESRE STONE UNIT-2	SUKRIT, SONBHADRA	24.913523	83.046688	PARTIALLY INSTALLED	Sealed
10	M/S C.S. INFRA CONSTRUCTION LTD.	SUKRIT, SONBHADRA	24.918190	83.043726	PARTIALLY INSTALLED	Sealed
11	M/s Devi Stone Products,	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507001	82.998607	PARTIALLY INSTALLED	Sealed
12	M/S DIVYANSH ENTERPRISES/R.D.STONE/ADAM AND EV STONE CRUSHER(PARADHAM)	SUKRIT, SONBHADRA	24.910742	83.053800	PARTIALLY INSTALLED	Sealed
13	M/S DIVYANSH STONE New Name Astbhuja Stone	SUKRIT, SONBHADRA	24.916067	83.042255	PARTIALLY INSTALLED	Sealed
14	M/S GANESH STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.470933	83.019657	PARTIALLY INSTALLED	Sealed
15	M/S GANGA SAGAR SINGH STONE CRUSHER	SUKRIT, SONBHADRA	24.915644	83.0574760	PARTIALLY INSTALLED	Sealed
16	M/S GAREEB NAWAJ STONE WORKS EX- Name M/S ANKIT ENTERPRISES	SUKRIT, SONBHADRA	24.912221	83.055234	PARTIALLY INSTALLED	Sealed
17	M/S GAUTAM ASSOCIATE	SUKRIT, SONBHADRA	24.916905	83.058036	PARTIALLY INSTALLED	Sealed
18	M/S GURUKRIPA ASSOCIATE	SUKRIT, SONBHADRA	24.910994	83.054086	PARTIALLY INSTALLED	Sealed

19	M/s Haridarshan Stone,	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507288	82.999140	PARTIALLY INSTALLED	Sealed
20	M/s J.M.V. Enterprises,	Village- Bghmanwa, Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.485016	83.017795	PARTIALLY INSTALLED	Sealed
21	M/S JAI MAA BHANDARI STONE WORKS(MAHABALI STONE)	SUKRIT, SONBHADRA	24.9123410	83.0451396	PARTIALLY INSTALLED	Sealed
22	M/s Jai Mata Di Enterprises (Unit-2),	Village-Billi, Tehsil-Robertsganj, SONEBHADRA	24.476709	83.010358	PARTIALLY INSTALLED	Sealed
23	M/S JAY HANUMAN STONE WORKS (PATEL STONE WORKS)	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.455705	83.032041	PARTIALLY INSTALLED	Sealed
24	M/S JYOTI STONE	SUKRIT, SONBHADRA	24.917316	83.043400	PARTIALLY INSTALLED	Sealed
25	M/S KALAWATI CONSTRUCTION, EX NAME RAM NARAYAN SINGH	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.468376	83.033762	PARTIALLY INSTALLED	Sealed
26	M/s Kapur Chandra Stone Product Pvt. Ltd. Unit-2) (EX Name-M/s Subhash Stone Product Unit-2),	Bari Dalla, SONEBHADRA	24.465772	83.031345	PARTIALLY INSTALLED	Sealed
27	M/S KIRTI GRAMODYOG VIKAS SANSTHAN	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458647	83.038068	PARTIALLY INSTALLED	Sealed
28	M/S M.K. STONE Ex Name.M.K SUPPLIER AND CONSTRUCTION CO.	SUKRIT, SONBHADRA	24.916639	83.042756	PARTIALLY INSTALLED	Sealed

29	M/S MAA SHARDA CRUSHER STONE WORK Ex Name JAI MAA SHARDA STONE WORKS)	SUKRIT, SONBHADRA	24.911980	83.053525	PARTIALLY INSTALLED	Sealed
30	M/s VARDIYA STONE PRODUCT (Maa Vindhyavasini Stone Works,)	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507516	83.000077	PARTIALLY INSTALLED	Sealed
31	M/S MAHALAKSHMI STONE PRODUCT	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.463107	83.023182	PARTIALLY INSTALLED	Sealed
32	M/S MAHALAKSHMI STONE WORKS (Ex name Krishna Stone Co.)	BARI DALLA, SONBHADRA	24.471630	83.028228	PARTIALLY INSTALLED	Sealed
33	M/S SATYAM ASSOCIATES	BILLI, OBRA, SONBHADRA	24.485224	83.012056	PARTIALLY INSTALLED	Sealed
34	M/S MAIHAR STONE Unit-1	SUKRIT, SONBHADRA	24.913045	83.044060	PARTIALLY INSTALLED	Sealed
35	M/S MAIHAR STONE Unit-2	SUKRIT, SONBHADRA	24.912449	83.043599	PARTIALLY INSTALLED	Sealed
36	M/s Maa Vindhyavasini Enterprises (Unit 2),	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.485890	83.019700	PARTIALLY INSTALLED	Sealed
37	M/s Narayan Stone Works,	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507764	82.996813	PARTIALLY INSTALLED	Sealed
38	M/s Navya Construction,	Village-Billi, Tehsil-Robertsganj, SONEBHADRA	24.471168	83.015133	PARTIALLY INSTALLED	Sealed

39	M/S NIRMAL SINGH/ MAURYA STONE	SUKRIT, SONBHADRA	24.919917	83.051318	PARTIALLY INSTALLED	Sealed
40	M/S PARASNATH	SUKRIT, SONBHADRA	24.915260	83.041435	PARTIALLY INSTALLED	Sealed
41	M/S PRATAP ASSOCIATE (R.K.STONE)	SUKRIT, SONBHADRA	24.915878	83.043753	PARTIALLY INSTALLED	Sealed
42	M/S PRATYASA ENTERPRISES	BILLI MARKUNDI, OBRA, SONBHADRA	24.465793	83.021146	PARTIALLY INSTALLED	Sealed
43	M/s Prince Stone	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.505168	82.998828	PARTIALLY INSTALLED	Sealed
44	M/S PRIYA VIKAS STONE PRODUCT,	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.455382	83.032420	PARTIALLY INSTALLED	Sealed
45	M/S R.B. CONSTRUCTION	SUKRUT, SONBHADRA	24.912451	83.043718	PARTIALLY INSTALLED	Sealed
46	M/s R.K. Industries,	Village-Billi, Raspahadi, Tehsil-Robertsganj, SONEBHADRA	24.482858	83.014013	PARTIALLY INSTALLED	Sealed
47	M/S R.K. STONE	BILLI MARKUNDI, OBRA, SONBHADRA	24.479269	83.018931	PARTIALLY INSTALLED	Sealed
48	M/s R.K. Stone Works (formerly-M/s Mahavir Enterprises)	VILL-VARDIYA, CHOPAN, SONBHADRA	24.505978	82.998793	PARTIALLY INSTALLED	Sealed

49	M/S RAGHUVANSHI STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.465708	83.021465	PARTIALLY INSTALLED	Sealed
50	M/S RAJESHWARI STONE	SUKRIT, SONBHADRA	24.91306	83.041619	PARTIALLY INSTALLED	Sealed
51	M/s RamPal Stone Works,	Village-Bari Dalla, Near-Baghha Nala, Dalla Mandir ke Pichhe, Tehsil-Robertsganj, SONEBHADRA	24.481149	83.035109	PARTIALLY INSTALLED	Sealed
52	M/S RDS STONE CRUSHER	SUKRUT, SONBHADRA	24.920719	83.052848	PARTIALLY INSTALLED	Sealed
53	M/S RNS CONSTRUCTION, PVT. LTD.(Ex name Rakesh Garg Nikhil Garg)	SUKRUT, SONBHADRA	24.912196	83.053187	PARTIALLY INSTALLED	Sealed
54	M/s S.S. Construction Works,	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.508558	82.997418	PARTIALLY INSTALLED	Sealed
55	M/S S.S.POOJAN STONE WORKS	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.466114	83.024982	PARTIALLY INSTALLED	Sealed
56	M/S SAHIL STONE	LANGADA MOD, BARI DALLA, SONBHADRA	24.458104	83.039415	PARTIALLY INSTALLED	Sealed
57	M/S SAI STONE PRODUCT	SUKRUT, SONBHADRA	24.912715	83.0326560	PARTIALLY INSTALLED	Sealed
58	M/S SANKAT MOCHAN MINERALS	SUKRIT, SONBHADRA	24.916431	83.041561	PARTIALLY INSTALLED	Sealed

59	M/S SAROJ VIKAS SAMITI	BARI DALLA, SONBHADRA	24.471388	83.022308	PARTIALLY INSTALLED	Sealed
60	M/s Sharadah Stone Works (Unit-1),	Village-Billi, Rasphadhi, Tehsil-Robertsganj, SONEBHADRA	24.488542	83.014552	PARTIALLY INSTALLED	Sealed
61	M/s Sharadah Stone Works (Unit-2),	Village-Billi, Rasphadhi, Tehsil-Robertsganj, SONEBHADRA	24.488677	83.014201	PARTIALLY INSTALLED	Sealed
62	M/S SHASHI STRUCHRAL ENGINEERING PVT. LTD.(SSEPL)	SUKRIT, SONBHADRA	24.924385	83.055814	PARTIALLY INSTALLED	Sealed
63	M/s Shiv Shakti Stone,	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.506312	83.006095	PARTIALLY INSTALLED	Sealed
64	M/S SHIVA ENTERPRISES	SUKRUT, SONBHADRA	24.914582	83.038638	PARTIALLY INSTALLED	Sealed
65	M/s Shiva Construction,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.485855	83.018117	PARTIALLY INSTALLED	Sealed
66	M/s Shri Bajrang Stone	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.505197	82.998433	PARTIALLY INSTALLED	Sealed
67	M/s Shubham Stone Company,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.487434	83.016636	PARTIALLY INSTALLED	Sealed
68	M/S SIDDHARTH STONE (EX NAME JAI SHRI KRISHNA ENTERPRISES/ SAJJAN GARG STONE)	SUKRIT, SONBHADRA	24.914897	83.046693	PARTIALLY INSTALLED	Sealed

69	M/S SOBRAN ENTERPRISES	BILLI MARKUNDI, OBRA, SONBHADRA	24.467183	83.020971	PARTIALLY INSTALLED	Sealed
70	M/S STAR STONE CRUSHER(BABLU YADAV)	SUKRUT, SONBHADRA	24.915454	83.042782	PARTIALLY INSTALLED	Sealed
71	M/S SUMAN MINES AND MINERALS(SUMAN ENGG.WORKS	SUKRIT, SONBHADRA	24.915426	83.045141	PARTIALLY INSTALLED	Sealed
72	M/S UPADHYAY CONSTRUCTION PVT Ltd (Ex-Name Shubham Stone)	SUKRUT, SONBHADRA	24.915260	83.041435	PARTIALLY INSTALLED	Sealed
73	M/S VAISHNO STONE PRODUCT	SUKRIT, SONBHADRA	24.918122	83.050719	PARTIALLY INSTALLED	Sealed
74	M/s Vindhyavasini Stone Product (Works)	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507921	83.000799	PARTIALLY INSTALLED	Sealed
75	M/S VIVEK STONE CHIPS CORPORATION	BILLI MARKUNDI, OBRA, SONBHADRA	24.478465	83.019314	PARTIALLY INSTALLED	Sealed
76	M/s AJAY STONE WORKS (FORMELY NAME- RAJ STONE)	BILLI MARKUNDI, OBRA, SONBHADRA	24.468692	83.016922	PARTIALLY INSTALLED	Sealed

STATUS OF 28 NOT WORKING/DISMANTLED STONE CRUSHER UNITS

SL. NO.	NAME OF THE INDUSTRY	ADDRESS OF THE INDUSTRY	GLOBAL POSITIONING OF UNIT		STATUS OF AIR POLLUTION CONTROL SYSTEM	OPERATIONAL STATUS
			LATITUDE	LONGITUDE		
1	M/S AWADH STONE,	VILLAGE-BARI DALLA, NEAR-BAGHHA NALA, DALLA MANDIR KE PICHHE, TEHSIL-ROBERTSGANJ, SONEBHADRA	24.481079	83.036533	NOT INSTALLED	NOT OPERATIONAL (PLANT IS NOT IN WORKING CONDITION)
2	M/S K P SEWA SAMITI	BARI DALLA, SONBHADRA	24.471146	83.028764	NOT INSTALLED	PLANT IS NOT WORKING CONDITION
3	M/S R.K SOTNE PRODUCT	LANGADA MOD, BARI DALLA, SONBHADRA	24.463586	83.037585	NOT INSTALLED	PLANT IS NOT WORKING CONDITION
4	M/S SAROJ STONE CRUSHING CO.	BARI DALLA, SONBHADRA	24.471102	83.026673	NOT INSTALLED	PLANT IS NOT WORKING CONDITION
5	M/S VINDHYA GRAMODYOG VIKAS SANSTHAN	VILL-BILLI-OBRA, SONBHADRA	24.471031	83.015101	NOT INSTALLED	NOT OPERATIONAL (PLANT IS NOT IN WORKING CONDITION)
6	M/S DEVI STONE WORKS	BILLI, RASPAHARI, ROBERTSGANJ. SONBHADRRA	24.486255	83.008345	NOT INSTALLED	NOT OPERATIONAL (PLANT IS NOT IN WORKING CONDITION)
7	M/S PASHUPATI SEWA SANSTHAN	LANGADA MOD, BARI DALLA, SONBHADRA	24.459041	83.036952	NOT INSTALLED	NOT OPERATIONAL (PLANT IS NOT IN WORKING CONDITION)
8	M/S ANSH CORPORATION	BILLI, OBRA, SONBHADRA	24.473219	83.027474	NOT INSTALLED	PLANT IS NOT WORKING CONDITION

9	M/S VIRENDRA BAHADUR SINGH	PATEL NAGAR, DALA SONBHADRA	24.457193	83.028736	NOT INSTALLED	NOT OPERATIONAL (PLANT IS NOT IN WORKING CONDITION)
10	M/S NAGARJUN CONSTRUCTION	SINDURIYA CHOPAN, SONBHADRA	24.516302	82.994696	NOT INSTALLED	DISMENTALLED
11	M/S VIJAY EXPRESSWAY	BARI DALLA, SONBHADRA	24.4695855	83.023754	NOT INSTALLED	DISMENTALLED
12	M/S GAMON INDIALTD,	SINDURIYA CHOPAN, SONBHADRA	24.527912	82.009642	NOT INSTALLED	DISMENTALLED
13	M/S VIJAY EXPRESSWAY	SUKRIT, SONBHADRA	24.915821	83.048844	NOT INSTALLED	DISMENTALLED
14	M/S HINDUSTAN CONSTRUCTION CO	BILLI, MARKUNDI, RASPAHADI AREA, SONBHADRA	24.48913	83.000707	NOT INSTALLED	DISMENTALLED
15	M/S BABA SEWA SAMITI	SUKRIT, SONBHADRA	….	….	….	DISMENTALLED
16	M/S SHYAM ENTERPRISES	BARI DALA, SONBHADRA	….	….	….	Could Not be Traced
17	M/S MAKKHAN STONE WORKS (UNIT-2)	BILLI, OBRA, SONBHADRA	….	….	….	DISMENTALLED
18	HANUMANT STONE CRUSHING CO.	BILLI, OBRA, SONBHADRA	….	….	….	DISMENTALLED

19	M/S GRAMIN AADIWASHI SEWA SANSTHAN	BARI DALA, SONBHADRA	….	….	….	DISMENTALLED
20	M/S ATUL STONE PRODUCT	BARI, DALA, SONBHADRA	….	….	….	DISMENTALLED
21	M/S JAI MAA JAYANTI (GAYATRI) CONCRETE UDDYOG	BARI, DALA, SONBHADRA	….	….	….	Could Not Traced
22	M/S SARVHIT STONE WORKS	BILLI, OBARA, SONBHADRA	….	….	….	DISMENTALLED
23	M/S BAJAJ STONE CRUSHER	SUKRIT, SONBHADRA	….	….	….	DISMENTALLED
24	M/S ALKA GRAMODDYOG SAMITI	BILLI, OBARA, SONBHADRA	….	….	….	DISMENTALLED
25	M/S KESARI STONE WORKS	MARKUNDI, GURMA, SONBHADRA	….	….	….	DISMENTALLED
26	M/S SIMPLEX INFRA STRUCTURE LTD.	BILLI, OBARA, SONBHADRA	….	….	….	DISMENTALLED
27	M/S BOL BAM STONE CRUSHING COMPANY	BARI, DALA, SONBHADRA	….	….	….	DISMENTALLED
28	M/S SATGURU STONE PRODUCT	BILLI MARKUNDI, SONBHADRA	….	….	….	DISMENTALLED

STATUS OF 36 SELF CLOSED STONE CRUSHER UNITS

SL. NO.	NAME OF THE INDUSTRY	ADDRESS OF THE INDUSTRY	GLOBAL POSITIONING OF UNIT		STATUS OF AIR POLLUTION CONTROL SYSTEM	OPERATIONAL STATUS
			LATITUDE	LONGITUDE		
1	M/s Amrendar Bahadur Singh, (A,B.S)	Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507130	82.998780	PARTIALLY INSTALLED	SELF CLOSED
2	M/S AWADH ENGINEERING WORKS ASSOCIATION	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.463634	83.025485	PARTIALLY INSTALLED	SELF CLOSED
3	M/S Shri BALESHWARJI STONE PRODUCT	BILLI MARKUNDI, OBRA, SONBHADRA	24.468367	83.016784	PARTIALLY INSTALLED	SELF CLOSED
4	M/s Dalla Grits Producers,	Bari Dalla, SONEBHADRA	24.468142	83.030942	PARTIALLY INSTALLED	SELF CLOSED
5	M/S GOPAL STONE CRUSHING COMPANY	PATEL NAGAR, BARI DALLA, SONBHADRA	24.457182	83.030323	PARTIALLY INSTALLED	SELF CLOSED
6	M/S MAA JAGDAMBA INDSTRIES	BARI DALLA, SONBHADRA	24.464789	83.027876	PARTIALLY INSTALLED	SELF CLOSED
7	M/S JAY DURGA SEVA SAMITI	BARI DALLA, SONBHADRA	24.471828	83.32358	PARTIALLY INSTALLED	SELF CLOSED
8	M/s Kapur Chandra Stone Product Pvt. Ltd. (Unit-1) (EX Name-M/s Subhash Stone Product) (Unit-1),	Bari Dalla, SONEBHADRA	24.465735	83.031470	PARTIALLY INSTALLED	SELF CLOSED
9	M/S KAUSHAL STONE SEVA SANSTHAN	PATEL NAGAR, KOTHA TOLA, BARI DALLA	24.457456	83.030467	PARTIALLY INSTALLED	SELF CLOSED

10	M/S KUMAR STONE WORKS	PATEL NAGAR, KOTHA TOLA, BARI DALLA	24.458976	83.029373	PARTIALLY INSTALLED	SELF CLOSED
11	M/S MAA LAKSHMI STONE PRODUCT (FORMALY NAME M/S LAKSHMI TRADING CO.)	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458638	83.037046	PARTIALLY INSTALLED	SELF CLOSED
12	M/s Maa Gayatri Stone Product (FORMERLY NAME M/S PRAKASH STONE PRODUCT)	Bari Dalla, SONEBHADRA	24.468000	83.028995	PARTIALLY INSTALLED	SELF CLOSED
13	M/s Maa Maihar Devi Industries (Unit-1),	Village-Billi, Tehsil-Robertsganj, SONEBHADRA	24.474707	83.014733	PARTIALLY INSTALLED	SELF CLOSED
14	M/s Maa Tarkula Devi Stone Works (Formaly Name-M/s Prem Stone Works),	Village-Billi, Tehsil-Robertsganj, SONEBHADRA	24.472054	83.015539	PARTIALLY INSTALLED	SELF CLOSED
15	M/s Maa Vaishno Stone Products (formerly-M/s Vijay Stone Products),	Gram-Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507333	82.998437	PARTIALLY INSTALLED	SELF CLOSED
16	M/s Maa Vindhya Stone Crusing Company (FORMALY NAME VINDHYA GRAMODYOG SEVA SANSTHAN)	Village-Bari Dalla, Near-Baghha Nala, Dalla Mandir ke Pichhe, Tehsil-Robertsganj, SONEBHADRA	24.481235	83.036799	PARTIALLY INSTALLED	SELF CLOSED
17	M/S MAKKHAN STONE WORKS PVT.LTD, U-3	BILLI MARKUNDI, OBRA, SONBHADRA	24.471185	83.018530	PARTIALLY INSTALLED	SELF CLOSED
18	M/S MANOJ STONE CRUSHING COMPANY	LANGADA MOD, BARI DALLA, SONBHADRA	24.458994	83.038210	PARTIALLY INSTALLED	SELF CLOSED
19	M/s Maa Sharda Stone Products,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.486993	83.017061	PARTIALLY INSTALLED	SELF CLOSED
20	M/S OM STONE CRUSHING COMPANY UNIT-1	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.458037	83.031709	PARTIALLY INSTALLED	SELF CLOSED

21	M/s R.B. Stone Products Pvt. Ltd.	Salkhan, Robertsganj, SONEBHADRA	24.556180	83.047415	PARTIALLY INSTALLED	SELF CLOSED
22	M/S RADHA SWAMI SEWA SAMITI	BARI DALLA, SONBHADRA	24.4702460	83.032566	PARTIALLY INSTALLED	SELF CLOSED
23	M/S RAJ HANS ENTERPRISES	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.456242	83.033511	PARTIALLY INSTALLED	SELF CLOSED
24	M/s RAJIV GRAMODYOG VIKASH SANSTHA	Village- Sinduria, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.525291	83.015460	PARTIALLY INSTALLED	SELF CLOSED
25	M/s Shubham Stone Products,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.487519	83.016694	PARTIALLY INSTALLED	SELF CLOSED
26	M/S SINGH STONE PRODUCT	LANGADA MOD, BARI DALLA, SONBHADRA	24.457709	83.038390	PARTIALLY INSTALLED	SELF CLOSED
27	M/S UMA STONE CRUSING CO.	BILLI MARKUNDI, BARI DALLA, SONBHADRA	24.465190	83.027483	PARTIALLY INSTALLED	SELF CLOSED
28	M/S VINDHYACHAL STONE CRUSHING CO. (Vaishnavi Enterprises Dala)	BARI DALLA, SONBHADRA	24.473166	83.028816	PARTIALLY INSTALLED	SELF CLOSED
29	M/s Vinod Sindhi Stone Products,	Village-Billi, Rasphadhi, Tehsil-Robertsganj, SONEBHADRA	24.488197	83.014937	PARTIALLY INSTALLED	SELF CLOSED
30	M/S VINOD STONE PRODUCT	BARI DALLA, SONBHADRA	24.469126	83.031795	PARTIALLY INSTALLED	SELF CLOSED
31	M/s Vardia Gramodyog Seva Sansthan (FORMALY NAME SINGH STONE WORKS)	Arazi No. 910Ka, Village- Vardiya, Chopan, Tehsil-Robertsganj, SONEBHADRA	24.507942	82.993220	PARTIALLY INSTALLED	SELF CLOSED

32	M/s Maa Vindhyavashini Stone Crusher As per owner OF M/S CHOPAN STONE PRODUCT (Both units are of the same owner)	Bari Dalla, SONEBHADRA	24.469880	83.031302	PARTIALLY INSTALLED	SELF CLOSED
33	M/S ASTHA ENTERPRISES (FORMALY NAME M/S TUSSAR STONE PRODUCT)	LANGADA MOD, PATEL NAGAR, DALLA, SONBHADRA	24.455439	83.035667	PARTIALLY INSTALLED	SELF CLOSED
34	M/S SHANKAR STONE SEVA SAMITI	BARI DALLA, SONBHADRA	24.473884	83.031041	PARTIALLY INSTALLED	SELF CLOSED
35	M/s Ashish Enterprises	BILLI, Markundi, Raspahadi area, SONBHADRA	24.486494	83.018995	PARTIALLY INSTALLED	SELF CLOSED
36	M/s Maa Vindhya Stone Crusing Company (FORMALY NAME VINDHYA GRAMODYOG SEVA SAMITI)	BARI DALLA, SONBHADRA	24.469607	83.033151	PARTIALLY INSTALLED	SELF CLOSED

STATUS OF 08 STONE CRUSHER UNITS HAVE APPLIED FOR CTO

SL. NO.	NAME OF THE INDUSTRY	ADDRESS OF THE INDUSTRY	GLOBAL POSITIONING OF UNIT		STATUS OF AIR POLLUTION CONTROL SYSTEM	OPERATIONAL STATUS
			LATITUDE	LONGITUDE		
1	M/s Agrawal Stone Works,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.485352	83.019663	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
2	M/s Vaibhav Stone Products,	Village-Billi, Rasphadhi, Robertsganj, SONEBHADRA	24.485567	83.020901	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
3	M/S LAKSHMI STONE WORKS	LANGADA MOD, BARI DALLA, SONBHADRA	24.459036	83.036646	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
4	M/S OM STONE CRUSHING COMPANY UNIT-2	,PATEL NAGAR, ,KOTHA TOLA, DALLA, SONBHADRA	24.456896	83.031934	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
5	M/S POOJA STONE CRUSHING SEVA SAMITI	PATEL NAGAR, KOTHA TOLA, BARI DALLA	24.457411	83.029240	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
6	M/s S.S. RAJAN STONE	Bari Dalla, SONEBHADRA	24.466114	83.024982	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
7	M/s Suresh Stone Crushing Company	Billi Markundi, Obara, Sonbhadra	24.485867	83.015692	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**
8	M/s Krishna Stone Crushing Company	Billi Markundi, Obara, Sonbhadra	24.488113	83.012705	HAVE TO VERIFY	NOT OPERATIONAL & **APPLIED FOR CTO**

Quarterly Status Report: August 2020 – October 2020

Report of Committee constituted by Hon'ble NGT in The Matter of No. 164 Of 2018 in Case of Ashwani Kumar Dubey Vs. Union of India and Others

INTRODUCTION

The original application was filed before Hon'ble National Green Tribunal (NGT) with the grievance against pollution caused in District Singrauli in the State of Madhya Pradesh and District Sonbhadra in the State of Uttar Pradesh. Hon'ble NGT vide its order dated 25.08.2014 constituted a Core Committee and four Sub-Committees to plan strategy for abatement of pollution in the area. The Committees submitted its reports which was accepted by the Hon'ble Tribunal vide order dated 06.12.2017 and the Core Committee was directed to conduct a fresh inspection. Two Supervisory Committees were also constituted for implementation of recommendations of the Core Committee Report.

The Supervisory Committees were required to submit monthly reports to the Core Committee and Core Committee was to submit reports to this Tribunal every three months. Accordingly, a core committee has filed report of February 2018 before Hon'ble Tribunal on 03.04.2018.All the recommendations as quoted in the report of core committee was accepted by Hon'ble NGT and directed the following,

"If any of the industries fails to comply with the recommendations, the same may have to be shut down. The application is accordingly disposed of."

To comply with the above directions, Hon'ble NGT constituted an oversight Committee headed by Justice Rajesh Kumar and having members from CPCB, concerned SPCBs and concerned District Magistrates. The said oversight committee was asked to take stock of all actions taken so far and to prepare time bound action plan to deal with the problem and ensure its implementation. The committee submitted its report to Hon'ble NGT on 20.12.2019.

SDM | UPPCB | CPCB

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Hon'ble NGT vide its order dated 14.07.2020, directed the following regarding the Oversight Committee,

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

Accordingly, the following members are nominated by the concerned departments for the said committee,

- Shri Rajendra D.Patil, Scientist D, CPCB Regional Directorate, Lucknow
- Shri RadheyShyam, Regional Officer, UPPCB, Sonbhadra
- Shri Ramesh Kumar, SDM-Duddhi, Sonbhadra

Quarterly Status (August 2020 – October 2020)

The Committee carried out field visits during November 02-05, 2020 to verify the status of compliance of various directions issued by Hon'ble NGT in its judgment of August 28, 2018 and additional action points identified (if any) by earlier oversight committee. The interaction during field visit with different stake holders was focused on compliance status as on October 31, 2020 and further identification of targets to be achieved during upcoming quarter i.e. November 2020 – January 2021.

The compliance status of each stakeholders with reference to identified targets is following given :

SDM UPPCB CPCB

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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 / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS is installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 15 days during which 466 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	• The unit has installed three CAAQMS for ambient air quality monitoring. • One of the CAAQMS was visited during the visit. It was found that the CAAQMS site was not open from all the directions and large trees located very close to CAAQMS are the barriers for horizontal air movement. And thus, the ambient air quality monitored at that station is not representative.
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.	• As per the information the unit has achieved 25.47 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has installed flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water recycled from the ash pond. • As per the records the unit has discharged

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
		6190530 KL ash slurry and recycled 5571477 KL water during the quarter ending 31.10.2020.
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	• During the visit, the team observed some underwater flow of ash slurry discharge into the Rihand reservoir near ash dyke of the unit. Probably it must be either underground pipeline from the ash dyke discharging ash slurry into the reservoir. • The damage caused to the environment due to such unidentified discharge is not measurable and irreversible. • The committee also refers Google Earth satellite image dated 20.03.2019 and 10.12.2016wherein the discharge of ash slurry from ash dyke in to the Rihand reservoir is clearly visible.
f)	Control of pollution during coal storage, transportation and handling	• The unit mostly receive coal through rail and covered shed is provided for unloading. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points. • As per the unit the fugitive emission in coal handling area is around 1000 $\mu g/Nm^3$. Though it is in the range of prescribed Norms, the unit is in process of further improvement.

1.1.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2020)
a)	Achieving ZLD in ETP & STP	• The unit is recycling the treated wastewater from ETP and also installed flow meter to measure amount of wastewater received treated through ETP. • The unit is asked to provide water balance chart of ETP & STP along with details of ZLD adopted for STP.
b)	Installation of FGD for	• The unit is in process to install FGD system

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S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2020)
	control of gaseous emissions	for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so that its progress could be verified during next quarter.

1.1.3. Recommendations of the Committee

- The unit should immediately trap the discharge of ash slurry into the Rihand reservoir. The unit can be asked to submit explanation in the matter along with the compliance report to Hon'ble NGT.
- The unit can also be asked to submit its explanation regarding ash slurry discharge into the Rihand reservoir as visible in the Google Earth satellite image dated 20.03.2019 and 10.12.2016.
- The unit can be asked to submit the explanation regarding 466SMS generated through OCEMS during last three months.
- The unit can be asked to submit time bound action plan to relocate the CAAQMS installed for ensuring representative ambient air quality monitoringas per the guideline.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS is installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 19 days during which 104 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server.	• The unit has installed three CAAQMS for ambient air quality monitoring. • One of the CAAQMS into Temple premises was visited during the visit. It was found that the CAAQMS site was not open from all the directions and large trees located very close to CAAQMS are the barriers for horizontal air movement. And thus, the ambient air quality monitored at that station is not representative.
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.	• As per the information the unit has achieved 51.45 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has installed flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water recycled from the ash pond. • As per the records the unit has discharged 1122526 MT ash in the form

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
		of slurry and recycled 9052800 KL water during the quarter ending 31.10.2020.
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.	• It is informed that all the precautions are taken to ensure safety of ash dykes. • The third party evaluation was also carried out regarding stability and safety of the ash dyke.
f)	Control of pollution during coal storage, transportation and handling.	• The unit receives coal through rail transportation only and covered shed is provided for unloading. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points.

1.2.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2020)
g)	Achieving ZLD in ETP & STP	• The unit is recycling the treated wastewater from ETP and also installed flow meter to measure amount of wastewater treated through ETP.
h)	Installation of FGD for control of gaseous emissions.	• The unit is in process to install FGD system for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so that its progress could be verified during next quarter.

1.2.3. Recommendations of the Committee

- The unit can be asked to submit the explanation regarding 104 SMS generated through OCEMS during last three months.

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- The unit can be asked to submit time bound action plan to relocate the CAAQMS installed for ensuring representative ambient air quality monitoringas per the guideline.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS are installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 86 days during which 24371 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	• The unit has installed three CAAQMS for ambient air quality monitoring. • The sites of this CAAQMS will be visited during next quarter to verify the suitability.
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.	• As per the information the unit has achieved 22.6 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has yet to install flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water recycled from the ash pond.
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	• The ash dyke raising work was in progress at the time of visit. • During the visit as such discharge from ash dyke into the Rihand reservoir was not observed. The Camera is also installed to monitor the discharge. • The committee also refers Google Earth satellite image dated 13.06.2018 and

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status/ Remark (As on 31.10.2020)
		27.05.2016wherein the discharge of ash slurry from ash dyke in to the Rihand reservoir is clearly visible. • The unit was asked submit CCTV footage of said camera since April 2020 to UPPCB in order to verify the claim of the unit.
f)	Control of pollution during coal storage, transportation and handling	• The unit receives coal through rail and road. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points. • Substantial fugitive emissions were observed in the coal handling areas. The unit was asked to submit the time bound action plan to control and reduce the fugitive emissions during the coal handling and storage.

1.3.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2020)
g)	Achieving ZLD in ETP & STP	• The unit is recycling the treated wastewater from ETP installed in the new units, whereas the wastewater from neutralization pit from old units are discharged outside the plant premises. • Similarly, the treated wastewater from the STP is also discharged in to the drain.
h)	Installation of FGD for control of gaseous emissions	• The unit is in process to install FGD system for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so that its progress could be verified during next quarter.

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1.3.3. Recommendations of the Committee

- The unit can be asked to submit the explanation regarding 24371 SMS generated through OCEMS during last three months.
- The unit can be asked to immediately install flow meters to measure amount of ash slurry discharged into the ash pond and amount of water recovered and recycled from it.
- The unit can be asked explanation regarding not achieving ZLD in ETP & STP.
- The unit can be asked to prepare and implement action plan for effective control of fugitive emission from coal handling & storage areas.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status/ Remarks (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS is installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 15 days during which 466 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	• The unit has installed only 02 CAAQMS for ambient air quality monitoring out of which 01 is jointly installed and operated along with M/s Renusagar Thermal Power Plant. • Both the CAAQMS were visited. It was found that the CAAQMS at one of the site was not open from the all the directions and large trees are located very close to CAAQMS which are the barriers for horizontal air movement. Similarly, the other CAAQMS is installed on top of the adjacent hill which is at 80 m elevation w.r.t. the plant area and the impact of the TPP cannot be assessed through said CAAQMS. • And thus, the ambient air quality monitored at that station is not representative.
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.	• As per the information the unit has achieved 21.44 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status/ Remarks (As on 31.10.2020)
		recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has yet not installed flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water recycled from the ash pond.
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 andRihand Reservoir	• The unit is discharging ash slurry into the ash pond operated by M/s Anpara Thermal Power Station.
f)	Control of pollution during coal storage, transportation and handling	• The unit mostly receive coal through rail and covered shed is provided for unloading. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points.

1.4.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/ Remarks (As on 31.10.2020)
a)	Achieving ZLD in ETP & STP	• The unit is recycling the treated wastewater from ETP and also installed flow meter to measure amount of wastewater received treated through ETP.
b)	Installation of FGD for control of gaseous emissions	• The unit is in process to install FGD system for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so that its progress could be verified during next quarter.

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1.4.3. Recommendations of the Committee

- The unit can be asked to submit the explanation regarding 466 SMS generated through OCEMS during last three months.
- The unit can be asked to immediately install flow meters to measure amount of ash slurry discharged into the ash pond and amount of water recovered and recycled from it.
- The unit can be asked to submit time bound action plan to relocate the CAAQMS installed for ensuring representative ambient air quality monitoring as per the guideline.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status/ Remarks (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS is installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 86 days during which 18483 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server	• The unit has installed only 01 CAAQMS for ambient air quality monitoring which is jointly installed and operated along with M/s Lanco Thermal Power Plant. • Said CAAQMS is installed on top of the adjacent hill which is at 80 m elevation from the plant area and the impact of the TPP cannot be assessed through said CAAQMS. • And thus, the ambient air quality monitored at that station is not seems to be representative.
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.	• As per the information the unit has achieved 65.61 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke and filling of low lying area. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has installed flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status/ Remarks (As on 31.10.2020)
		recycled from the ash pond. • As per the records the unit has discharged 1024519 KL ash slurry and recycled 780420 KL water during the quarter ending 31.10.2020.
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	• It is informed that all the precautions are taken to ensure safety of ash dykes. • The third party evaluation was also carried out regarding stability and safety of the ash dyke.
f)	Control of pollution during coal storage, transportation and handling	• The unit receives coal through rail and road. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points. • Substantial fugitive emissions were observed in the coal crusher area, coal handling areas and internal roads used for coal transportation. The unit was asked to submit the time bound action plan to control and reduce the fugitive emissions during the coal handling and storage.

1.5.2. Status of other identified issues

S. No.	Issues identified	Compliance Status/Remarks (As on 31.10.2020)
a)	Achieving ZLD in ETP & STP	• The unit has installed ETP for recycling the treated wastewater. However, proper sludge drying beds are not provided in the ETP. • Flow meters are installed to measure amount of wastewater received treated through ETP.
b)	Installation of FGD for control of gaseous emissions	• The unit is in process to install FGD system for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so

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S. No.	Issues identified	Compliance Status/Remarks (As on 31.10.2020)
		that its progress could be verified during next quarter.

1.5.3. Recommendations of the Committee

- The unit can be asked to submit the explanation regarding 466 SMS generated through OCEMS during last three months.
- The unit can be asked to prepare and implement action plan for effective control of fugitive emission from coal handling & storage areas.
- The unit can be asked to submit the explanation regarding operating the ETP without proper sludge drying beds.
- The unit can 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 proposal for installation of 02 CAAQMS.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• It is informed that the effective operations of ESPs are ensured. • OCEMS is installed in all the operational stacks and connected with CPCB server. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 85 days during which 20548 SMS alerts are generated through OCEMS. (Details attached)
b)	Installation of 03 CAAQMS for ambient air monitoring by each TPP and linking it with CPCB/SPCB server.	• The unit has installed three CAAQMS for ambient air quality monitoring.
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.	• As per the information the unit has achieved 6.89 % fly ash utilization during 2020-21. The remaining ash was disposed in to the ash dyke. • CPCB has submitted affidavit to Hon'ble NGT, wherein the amount of environmental compensation to be recovered for non-compliance of Hon'ble NGT directives is submitted.
d)	To ensure continuous operations of AWRS	• The unit has installed flow meters to measure quantity of ash slurry disposed in the ash dyke and amount of water recycled from the ash pond. • As per the records the unit has discharged 2569483 KL ash slurry and recycled 1457280 KL water during the quarter ending 31.10.2020.
e)	Necessary renovation of the ash dykes needs to be carried out in order to prevent breaching of ash pond and spreading of slurry	• The committee refers to Google Earth satellite image dated 26.05.2020 and 25.11.2018 wherein the discharge of ash pond overflow is clearly visible.

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
f)	Control of pollution during coal storage, transportation and handling	• The unit mostly receive coal through rail and covered shed is provided for unloading. • The unit has also installed water sprinklers in coal storage area and dust suppression system at loading unloading points.

1.6.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Achieving ZLD in ETP & STP	• The unit is yet to achieve ZLD for ETP & STP.
b)	Installation of FGD for control of gaseous emissions	• The unit is in process to install FGD system for achieving standards Notified for gaseous emissions. • The unit is asked to provide copy of time bound action plan submitted to CPCB so that its progress could be verified during next quarter.

1.6.3. Recommendations of the Committee

- The unit can also be asked to submit its explanation regarding discharge of ash pond overflow as visible in the Google Earth satellite image dated 26.05.2020 and 25.11.2018.
- The unit can be asked to submit the explanation regarding 20548 SMS generated through OCEMS during last three months.
- The unit can be asked to submit explanation regarding not achieving prescribed ZLD condition.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• The unit is yet to comply with the provision of the said Notification. • The committee is in view that the unit can be asked to submit the time bound action plan for compliance of the same.
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.	• Committee referred MoEF&CC Notification dated 21st May 2020 regarding use of coal by Thermal Power Plants, without stipulations as regards ash content or distance. • The committee will review the notification and will take-up the matter accordingly.
c)	Control of air pollution during coal storage, handling and transportation.	• It is informed that around 96.64 % coal is transported through rail and remaining 3.36 % coal is transported through road. • The proponent has installed silo system for loading of coal into the rail that caters 72 % of coal transported through rail and for the remaining coal, Warf wall system in open is provided. Substantial fugitive emission was observed in the Warf wall loading area. • Committee observed Huge fugitive emission was observed in the coal crusher area, coal loading and unloading area and connecting roads. The provisions taken by the proponent for control of fugitive emission are not effective.

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2.1.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Installation of camera at the exit of coal mines	• It is informed that 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 and achieving ZLD.	• The proponent has installed ETP of 30 MLD Capacity to treat the wastewater from generated from different sources. But the operation and maintenance of the said ETP is not up to the mark. The flow meters are also not installed to measure the amount of wastewater received and treated. The treated effluent from the ETP is used for spraying along the transport roads through tankers. • The effluent from CHP and workshop is taken into the collection tank and then directly discharged into the Balia Nallah which finally meets Rihand reservoir. • Thus the proponent is yet to achieve ZLD.

2.1.3. Recommendations of the Committee

- The coal mine can be asked to prepare and implement action plan for effective control of fugitive emissions during Coal handling, storage and transportation within the mine premises.
- The explanation can be called from the proponent for discharging effluent from CHP & workshop into the Balia Nallah.
- The unit can be asked to submit the time bound action plan for compliance of 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 is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter's Pay Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• The unit is yet to comply with the provision of the said Notification. • The committee is in view that the unit can be asked to submit the time bound action plan for compliance of the same.
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.	• Committee referred MoEF&CC Notification dated 21st May 2020 regarding Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance. • The committee will review the notification and will take-up the matter accordingly.
c)	Control of air pollution during coal storage, handling and transportation.	• It is informed that around 85.22 % coal is transported through rail and remaining 14.78 % coal is transported through road. • The proponent has installed silo system for loading of coal into the rail that caters 48.25 % of coal transported through rail and for the remaining coal, Warf wall system in open is provided. Substantial fugitive emission was observed in the Warf wall loading area. • Dust suppressing system is installed in the coal loading silo area. The spraying through fixed pipeline is installed along the most of the transport roads and remaining area is covered through tankers.

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2.2.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Installation of camera at the exit of coal mines	• It is informed that 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	• The proponent has installed ETP having 31.2 MLD Capacity to treat the wastewater generated from different sources. The treated effluent from the ETP is used for spraying along the transport roads through tankers.
c)	Fire in the coal reject	• The committee observed fire in the coal reject storage generated from the deshaling plant. Such a fire incident is hazardous as well as one of the source for air pollution. • The unit is asked to submit time bound action plan for controlling the fire in the stored coal reject.

2.2.3. Recommendations of the Committee

- The coal mine can be asked to prepare and implement action plan for more effectively control of fugitive emissions during Coal handling, storage and transportation within the mine premises.
- The coal mine can be to submit the time bound action plan for controlling the fire in the coal reject.
- The unit can be asked to submit the time bound action plan for compliance of 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 is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter's Pay Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• The unit is yet to comply with the provision of the said Notification. • The committee is in view that the unit can be asked to submit the time bound action plan for compliance of the same.
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.	• Committee referred MoEF&CC Notification dated 21st May 2020 regarding Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance. • The committee will review the notification and will take-up the matter accordingly.
c)	Control of air pollution during coal storage, handling and transportation.	• It is informed that around 36 % coal is transported through rail, 48.56%coal is transported through Belt Piped Conveyor (BPC) and remaining 15.44 % coal is transported through road. • The proponent has not installed silo system for loading of coal into the rail. Warf wall system in open is provided. Substantial fugitive emission was observed in the Warf wall loading area. • Dust suppressing system is installed in the coal loading silo area. The spraying through fixed pipeline is installed along the most of the transport roads and remaining area is covered through tankers.

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2.3.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Installation of camera at the exit of coal mines	• It is informed that 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	• It was informed that new ETP is recently constructed. And on the day of visit, ETP of the coal mine was under trial. • Thus the unit effectively in operation without any operational ETP system.
c)	Fire in the coal over burden	• The committee observed fire in the coal overburden stored in the mine area. Such a fire incident is hazardous as well as one of the source for air pollution. • The unit is asked to submit time bound action plan for controlling the fire in the stored coal reject.

2.3.3. Recommendations of the Committee

- The coal mine can be asked to prepare and implement action plan for more effectively control of fugitive emissions during Coal handling, storage and transportation within the mine premises.
- The coal mine can be to submit the time bound action plan for controlling the fire in the coal overburden.
- The coal mine can be asked to submit explanation regarding operating the mine without operational ETP.
- The unit can be asked to submit the time bound action plan for compliance of 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 is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter's Pay Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• The unit is yet to comply with the provision of the said Notification. • The committee is in view that the unit can be asked to submit the time bound action plan for compliance of the same.
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.	• Committee referred MoEF&CC Notification dated 21st May 2020 regarding Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance. • The committee will review the notification and will take-up the matter accordingly.
c)	Control of air pollution during coal storage, handling and transportation.	• It is informed that around 73.17 % coal is transported through rail and remaining 26.83 % coal is transported through road. • The proponent has installed silo system for loading of coal into the rail that caters 73.17 % of coal transported through rail and for the remaining coal, Warfwall system in open is provided. Substantial fugitive emission was observed in the Warf wall loading area. • Dust suppressing system is installed in the coal loading silo area. The spraying through fixed pipeline is installed along the most of the transport roads and remaining area is covered through tankers.

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2.4.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Installation of camera at the exit of coal mines	• It is informed that 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	• The proponent has installed ETP having 27.6 MLD Capacity to treat the wastewater generated from different sources. The treated effluent from the ETP is used for spraying along the transport roads through tankers.

2.4.3. Recommendations of the Committee

- The coal mine can be asked to prepare and implement action plan for more effectively control of fugitive emissions during Coal handling, storage and transportation within the mine premises.
- The unit can be asked to submit the time bound action plan for compliance of 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 is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter's Pay Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• The unit is yet to comply with the provision of the said Notification. • The committee is in view that the unit can be asked to submit the time bound action plan for compliance of the same.
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.	• Committee referred MoEF&CC Notification dated 21st May 2020 regarding Use of coal by Thermal Power Plants, without stipulations as regards ash content or distance. • The committee will review the notification and will take-up the matter accordingly.
c)	Control of air pollution during coal storage, handling and transportation.	• It is informed that around 71.09 % coal is transported through rail and remaining 28.91 % coal is transported through road. • The proponent has installed silo system for loading of coal into the rail that caters 71.09 % of coal transported through rail and for the remaining coal, Warf wall system in open is provided. Substantial fugitive emission was observed in the Warf wall loading area. • Dust suppressing system is installed in the coal loading silo area. The spraying through fixed pipeline is installed along the most of the transport roads and remaining area is covered through tankers.

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2.5.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Installation of camera at the exit of coal mines	• It is informed that 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	• The proponent has installed ETP having 27.6 MLD Capacity to treat the wastewater generated from different sources. The treated effluent from the ETP is used for spraying along the transport roads through tankers.

2.5.3. Recommendations of the Committee

- The coal mine can be asked to prepare and implement action plan for more effectively control of fugitive emissions during Coal handling, storage and transportation within the mine premises.
- The unit can be asked to submit the time bound action plan for compliance of 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 is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter's Pay Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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 exiting 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.	• It is informed that the unit has made provisions for achieving the Notified Norms in the emissions through Baking Furnaces. Whereas the unit approached Hon'ble Supreme Court regarding emission Norms imposed on industrial boiler and the said application is pending with Hon'ble Court. • The unit has installed OCEMS and connected it with CPCB boiler. • As per the OCEMS data on CPCB server, during the period August 01, 2020 – October 31, 2020; the unit is found non-complying for 55 days during which 718 SMS alerts are generated through OCEMS. (Details attached)
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	• Red mud is listed as Hazardous Waste under Hazardous Waste (MH&TM) Rules, 2008 and Hazardous and Other Wastes (M & TM) Rules, 2016 and it is categorized as high volume low effect wastes. Being hazardous in nature its safe disposal is need to be assured without any compromise. And as per the Rule CPCB was to issue separate guideline management of such a waste. • As per the unit representative, they contacted Head Office, CPCB, Delhi for providing guideline for management of Red Mud, but they have yet to receive any such guideline. And hence they adopted their own mechanism for management of Red Mud. • The unit has developed several dumpsites/ landfills for storage and disposal of the red mud generated. The

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
	titanium and other heavy metals from the red mud.	unit is asked to provide the design details of each dumpsite and year wise amount of quantity disposed in it. • The committee referred Google Earth satellite images of the said dumpsite areas. As per these images thick plantation/forestation is observed in some of the areas during 2009 on which red mud disposal sites is developed. Similarly, one of the water body is located in close proximity of the site. • In absence of any camera on these sites the monitoring w.r.t. status of fugitive dust emission and spillages during rainy season is not possible. • It was informed that around 67.92 % (426550 MT) red mud is utilized since April 2020 and remaining 32.08% (201477 MT) red mud is disposed in those dumpsites/landfills.
c)	To achieve ZLD	• As per the condition of consent 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. • On the day of visit, the treated industrial was partially utilized and remaining is discharged outside the plant premises. It is also informed that the domestic treated effluent is also discharge outside plant premises. • Thus the unit is violating the condition of ZLD imposed on them.

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3.1.1. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Control of air pollution during coal storage, handling and transportation.	• It is informed that transportation of coal is mainly done through road and necessary precautions are taken to control emissions during coal transportation, storage and handling.
b)	Fly ash and bottom ash management	• It is informed that around 85834 MT fly ash is generated since April 2020 and 69411 MT fly ash was utilized. The remaining fly ash is stored in unit premises. • A very big heap of bottom ash was found inside the plant premises. The said bottom ash was stored on land in haphazard manner since several years. The unit was asked to provide details regarding year wise generation of bottom as and its storage on the open land.

3.1.2. Recommendations of the Committee

- The unit can be asked to submit the explanation regarding 718 SMS generated through OCEMS during last three months.
- The unit can be asked to submit the explanation regarding discharge of treated industrial & domestic effluent outside the plant premises irrespective of ZLD condition imposed on them.
- The unit can be asked to submit the explanation regarding huge quantity of bottom ash stored on open land in the plant premises.
- The unit can be asked to submit any kind of permission (if any) obtained for deforestation of the area presently used for red mud disposal.

Further, the committee is in view that appropriate environmental compensation (EC) can be imposed based on 'Polluter Pays Principle'. If Hon'ble NGT agrees for the same then the EC will be calculated separately after reviewing the explanation submitted by the unit.

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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 Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
a)	To achieve ZLD for ETP & STP.	• The unit has achieved ZLD through reuse and recycling for both industrial and domestic effluent
b)	There is also an urgent need for the preparation of an 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.	• The unit has not taken any action to comply with the Directions of Hon'ble NGT regarding shifting of mercury bearing brine sludge and the muck contaminated with chlorinated chemicals from the factory premises to the TSDF. • As directed by Hon'ble NGT, a three member committee calculated Environmental Compensation of Rs. 155,42,85,300/- i.e. One Hundred Fifty-Five Crore Forty-Two Lac Eighty-Five Thousand Three Hundred for the non-compliance in the matter. • It is informed that the unit approached Hon'ble Supreme Court for the relief and the matter is under consideration.

4.2. Status of other identified issues

S. No.	Issues identified	Compliance Status (As on 31.10.2020)
a)	Control of air pollution during coal storage, handling and transportation.	• It is informed that transportation of coal is mainly done through road and necessary precautions are taken to control emissions during coal transportation, storage and handling. • Fugitive emissions are observed in the coal handling areas

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S. No.	Issues identified	Compliance Status (As on 31.10.2020)
b)	Fly ash and bottom ash management	• It is informed that around 64257 MT fly ash is generated since April 2020 and all the fly ash generated was utilized.

4.2.1. Recommendations of the Committee

- The unit can be asked to take corrective measures to further reduce the level of fugitive emissions from coal handling area.

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5. Stone Crusher

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 / Oversight committee	Compliance Status (As on 31.10.2020)
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 causes a health hazards. 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.	As per the information provided by the UPPCB, • There is a cluster of 350 stone crusher units in area about 12 square kilometers in Tehsil Obra Distt-Sonbhadra, in which 71 stone crusher units are sealed/dismantled by UPPCB and District Administration. • In operational stone crushers, closed metal sheet enclosures are installed at all dust emitting points and Water sprinkling system are also installed for dust suppression. • However, the committee observed very dusty and hazy environment 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.

5.2. Recommendations of the Committee

- Committee recommends for frequent drone camera for survey monitoring and PTZ camera for individual unit monitoring for identification of defaulter stone crushers. UPPCB can take stringent action against the defaulters following 'Polluter Pays Principle'.

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6. Pollution Control Board and MoEF&CC

<table>
<tr><th>S. No.</th><th>Issues identified in Hon'ble NGT order / Oversight committee</th><th>Compliance Status (As on 31.10.2020)</th></tr>
<tr><td>a)</td><td>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.</td><td>• No new expansion of any project/industries are being allowed in Singrauli (U.P.) region.
• Assessment of regional carrying capacity of the Singrauli (UP) region is yet to be started.</td></tr>
<tr><td>b)</td><td>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.</td><td>• 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.</td></tr>
<tr><td>c)</td><td>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.</td><td>• Status of CAAQMS installed by industries in Singrauli (U.P.) are as follows: -
<table>
<tr><th>Sl. No.</th><th>Name of Industry</th><th>No. of CAAQM Installe</th></tr>
<tr><td>1.</td><td>M/s UPRVUNL, Anpara</td><td>03</td></tr>
<tr><td>2.</td><td>M/s UPRVUNL Obra</td><td>03</td></tr>
<tr><td>3.</td><td>M/s N.T.P.C. Ltd., Rihand Nagar,</td><td>03</td></tr>
<tr><td>4.</td><td>M/s N.T.P.C. Ltd., Shakti nagar,</td><td>03</td></tr>
<tr><td>5.</td><td>M/s NCL Khadia</td><td>01</td></tr>
<tr><td>6.</td><td>M/s NCL Bina and M/s NCL Krishnshilahave installed Jointly</td><td>01</td></tr>
<tr><td>7.</td><td>M/s NCL Kakari</td><td>01</td></tr>
<tr><td>8.</td><td>M/s NCL Dudhdhichua</td><td>01</td></tr>
<tr><td>9.</td><td>M/s Hindalco Industries Ltd. Renukoot and M/s Grasim Industries Ltd (Chemical division) Renukoothave Installed Jointly</td><td>01</td></tr>
<tr><td>10.</td><td>M/s LancoAnpara Power Ltd. Anpara and M/s Hindalco Industries Ltd., (Power Division) have installed Jointly</td><td>03</td></tr>
</table>
• Irrespective of Hon'ble NGT directives vide its order dated 28.08.2018, some of the stakeholders are yet to install</td></tr>
</table>

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
		required three continuous ambient air quality stations forthwith on "Polluter Pays Principle".
d)	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 stations. Besides mercury in surface and ground water should also be monitored manually once in a three months.	• Mercury in surface and ground water is being manually monitored by UPPCB/third party once in a three months. • M/s Hindalco Industries Ltd. Renukoot have Up graded CAAQMS for monitoring Mercury (Hg), whereas M/s Lanco Anpara Power Ltd. Anpara and M/s Hindalco industries Ltd., (Power Division) have proposed to Upgrade CAAQMS by 31.12.2020.

6.1. Recommendations of the Committee

- UPPCB can asked to initiate the stringent action including recovery of 'Environmental Compensation' on Polluter Pays Principle against defaulter stakeholders based on OCEMS data and discharge from the ash dykes.
- UPPCB can be asked to call explanation from those the stakeholders who has yet to install atleast three continuous ambient air quality stations (CAAQMS) forthwith on "Polluter Pays Principle".
- UPPCB further can be asked to identify strategic locations where the CAAQMS are required. And direct those stakeholders to install the CAAQMS in time bound manner.
- UPPCB can be asked to submit compiled status on Mercury in surface and ground water and ambient air based on the monitoring reports alongwith findings and required action to be taken.

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7. District Administration of Respective States

S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
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.	• It was informed that NCL mines are transporting the coal through covered trucks and stringent action will be taken against the defaulters. • CCTV cameras are installed by all Coal mines at all exit points to record the violation. • However, committee observed some of the truck transporting the coal without proper covering.
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.	• Widening and strengthening of Aurimore to Shakti Nagar four lane road is on progress and the work is awarded to M/s Jawar Construction Ltd., Haryana. • Though the maintenance of potholes free roads for free-flow of traffic is being considered by the company, the pavements with inter locking bricks of suitable quality to arrest air entrainment of dust is not proposed by the construction company. • The committee observed that the condition of the said road is terrible and requires immediate attention.
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	• Due to the disposal problem of RO reject, further installation of any RO plants in affected villages is strictly prohibited. • Water supply in affected villages is being done using the Water Tankers. • It is informed that the potable water supply project Pandit Deendayal Upadhyay Aashram Paddhati Urmaura, Sonbhadra is completed. In addition, two

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S. No.	Issues identified in Hon'ble NGT order / Oversight committee	Compliance Status (As on 31.10.2020)
	water supply from Rihand reservoir will be a long term solution for drinking water supply to fluoride and mercury affected villages.	projects namely Kuldomari, Anpara are under progress in district Sonbhadra. These projects are proposed to be completed in Dec-2020 & Jan 2021 respectively.
d)	In the past Rihand reservoir was polluted by the major industries in the area such as thermal power plants, coal mines, M/s 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.	• As per information provided by Executive Engineer Rihand Dam, Civil Division, Pipari, payment of Rs. 69,09,000 have been done to Central Water and Power Research Station(CWPRS) Khadakwasla Pune Maharashtra for the study. • However, the said study work have been postponed due to COVID19 and study work is expected to be started by January 2021.

7.1. Recommendations of the Committee

- District administration can be asked to stringent action against the defaulters w.r.t. directives regarding coal transportation.
- District administration can be asked to take inter departmental action against the officers responsible for the poor condition of the road and delay in maintenance. District administration is at liberty to submit the details of erring officers (if any) to Hon'ble NGT.

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- District administration can be asked to submit time bound action plan for conducting the comprehensive study regarding assessment of the Rihand reservoir's water and sediment quality and to delineate water and sediment remediation and restoration measures. Considering the said study is yet to be initiated even after two years of Hon'ble NGT directives, the district administration can be further asked to take-up the matter on priority with concerned departments for ensuring the compliance.

Name of the Committee member	Signature
Shri Ramesh Kumar SDM, Duddhi, Sonbhadra	18.11.2020
Shri Rajendra D. Patil, Sci – D CPCB Regional Directorate, Lucknow	18.11.2020
Shri Radhey Shyam, Regional Officer UPPCB, Sonbhadra	18.11.2020
Date: 18.11.2020	

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Appendix- XXXIX

REGARDING O.A. NO. 164 OF 2018 (EARLIER OA NO. 276/2013) IN RE: ASHWANI KUMAR DUBEY VS. UNION OF INDIA & ORS.

NTPC – Northern Region Project/ Stations situated in UP under administrative control of Northern region Head Quarter (NRHQ) are:

1. NTPC Singrauli
2. NTPC Rihand
3. NTPC Tanda
4. NTPC Unchahar (Feroze Gandhi Unchahar Thermal Power Plant)
5. MUNPL* (Meja Urja Nigam Private Limited)

   *A Joint venture company of NTPC Ltd; and Utter Pradesh Rajya Vidyut Utpadan Nigam Ltd; (UPRVUNL)

   Details information as sought by Hon'ble Oversight Committee, NGT, UP Lucknow are as below:

1. *Provide the details of the existing plants under your organization in the State of Uttar Pradesh.*

Name & Location of the Thermal Power Plant	**Commissioning Date**	**Capacity (Approved and Installed**	**Coal Consumption (MT)**	**Oil Consumption (MT)**	**Power Generation (MU)**	**Plant Load Factor (PLF) (%)**
NTPC Singrauli Super Thermal Power Station	Unit # 1: 13.02.82 Unit # 2: 25.11.82 Unit # 3: 28.03.83 Unit # 4: 02.11.83 Unit # 5: 26.02.84 Unit # 6: 23.12.86 Unit # 7: 24.11.87	Approved: 2000 MW (5X200 MW + 2X500 MW) Installed: 2000 MW (5X200 MW + 2X500 MW)	6968472MT	3317 KL	11004.469MUs	83.37%
NTPC Rihand Super Thermal Power Station	Unit # 1: 31.03.88 Unit # 2: 05.07.89 Unit # 3: 31.01.05 Unit # 4: 24.09.05 Unit # 5: 19.05.12 Unit # 6: 30.09.13	Approved: 3000 MW (6X500 MW) Installed: 3000 MW (6X500 MW)	10791990 MT	3601.60 KL	17786.93 MUs	89.83%
NTPC Tanda Super Thermal Power Station	U#1: 21.03.1988 U#2: 11.03.1989 U#3: 28.03.1990 U#4: 20.02.1998 U#5: 14.09.2019 U#6: under construction	Approved:1760 MW (4X110 MW+ 2X660 MW) Installed: 1100 MW (4X110 MW+ 1X660 MW) *U#6 (660 MW): under construction	2805805 MT	4167 KL	3992.761 MUs	55.00%
NTPC Feroze Gandhi Unchahar Thermal Power Plant	Unit#1: 21.11.1988 Unit#2: 22.03.1989 Unit#3: 27.01.1999 Unit#4: 22.10.1999 Unit#5: 28.09.2006 Unit#6: 31.03.2017	Approved: 1550 MW (5x210 MW +1X500 MW) Installed: 1550 MW (5x210 MW +1X500 MW)	3665212 KL	5118.88 KL	5012.006 MUs	48.99%
*MejaUrja Nigam Pvt. Ltd. (MUNPL) - A JV of NTPC and UPRVNL	Unit # 1: 30.04.2019 Unit # 2: Trail operation completed ,COD Likely in Jan'2021	Approved: 1320 MW (2x660 MW) Installed: 660 MW; U#2 660 MW Under trial	1621724 MT	LDO:5827 KL; LSHS:4260 KL	2422.98 MUs (Commercial plus non-commercial gen.)	53.51%

2. *Provide the list of newly proposed Thermal Power Plants by your organization in the State of Uttar Pradesh.*

Status: EC granted for Expansion of NTPC Singrauli, Shaktinagar, Stage -III (2x800 MW) Distt- Sonebhadra (UP)

3. *What is the unit-wise current status of implementation of joint report of MoEF&CC, CPCB, IIT-Roorkee for enhanced utilization of fly ash in various sectors: mines, roads, cement, industries and bricks etc.*

Status: Following initiatives have been taken for implementation of the report of the Joint Committee of MoEF&CC, CPCB, IIT-Roorkee:

NTPC Singrauli-

i. NTPC Shaktinagar has installed 05 nos. of semi – automatic fly ash brick plants and 02 nos. are in procurement stage. Presently approx. 15,000 fly ash bricks / day are being manufactured. These ash bricks are fully utilized in township, ash dykes, plant and CSR works by NTPC Shaktinagar. Only ash bricks are being used in construction activity at NTPC Shaktinagar.

ii. Supply of pond ash to road construction projects: Following initiatives has been taken for utilization of pond ash of Shaktinagar in road construction works. The entire cost of ash transportation is being borne by NTPC Shaktinagar for these road projects.

iii. MoU has been signed with NHAI for supply of 7.5 LMT of pond ash to NHAI - Varanasi to Hanumana road project NH-7. Supply of fly ash under MoU has been started from 27.06.2020.

iv. Proposal for Additional quantity of 4.5LMT pond ash also to be transported to NHAI – Varanasi to Hanumana road project NH-7 received is under tendering stage.

v. Ash filling in abandoned stone quarries: As per directive of over sight committee and on request,DM Sonbhadra has proposed to allocate 2 stone queries for ash filling during meeting held on 30.09.2020.Details awaited for further necessary clearances.

vi. Providing fly ash to brick manufacturers upto 300 Kms radius: To promote manufacturing and utilization of fly ash bricks in the region, NTPC Shaktinagar has already having contracts for supply of fly ash to brick manufacturer located up to 300 Kms from NTPC Shaktinagar.

NTPC Rihand

I.

a. NTPC Rihand has installed 04 nos. of semi – automatic fly ash brick plants and 02 nos. of fully automatic ash brick plants. Presently approx. 26000 fly ash bricks / day are being manufactured at NTPC Rihand these bricks are fully utilized in plant, townships, ash dykes and CSR works undertaken by NTPC Rihand. All buildings of NTPC Rihand are being constructed using fly ash bricks only.

b. We further propose that manufacturing, transportation and use of clay bricks shall be banned by concerned authorities in the region to promote manufacturing and use of fly ash bricks as per the provisions of Fly Ash Notification.

II. **Procurement of 03 nos. of BTAP rakes:** To promote offtake of dry fly ash NTPC Rihand has procured 03 nos. of BTAP rakes for transportation of fly ash in bulk quantity by cement industries and other potential users in economical and environment friendly manner. **This initiative of NTPC Rihand is first of its kind in the country**. 02 rake comprising of 53 BTAP wagons has been delivered by the manufacturer till December'2020. MoU has been signed with M/s Reliance Cement (RCCPL) on 12.06.2020 for supply of approx 1.2 Lac MT fly ash per annum through BTAP rakes. Supply of fly ash through BTAP started and 01 rake of fly ash loaded BTAP wagons has been dispatched to NTPC Dadri, second BTAP fly ash rake has been dispatched to M/s RCCPL. Delivery of 3rd BTAP rake is expected by 31.03.2021.

III. **Supply of pond ash to road construction projects:** Following initiatives has been taken for utilization of pond ash of Rihand in road construction works. The entire cost of ash transportation shall be borne by NTPC Rihand for these road projects.

a. MoU has been signed with NHAI – Varanasi for supply of 02 Lac CuM of pond ash to NH – 56 bypass road at Varanasi. Supply of fly ash under MoU has been started from 26.06.2020. Till date approx. 1.5 Lac MT of pond ash has been supplied to NHAI – Varanasi under MoU.

b. Approval has been obtained from NHAI - Varanasi for supply of another 15.5 Lac CuM pond ash to NHAI road project at Varanasi in NH – 29 and NH – 56. Contract for supply of 5.5 Lac Cubic Meter of pond ash already awarded and till date approx. 0.60 Lac MT of pond ash has been supplied. Proposals for pond ash transportation of remaining 10 Lac CuM are under tendering and award.

c. Contract awarded for supply of 0.5 Lac CuM of pond ash to PWD Chhattisgarh for its utilization in construction of bypass road near Wadrafnagar and the work is in progress.

IV. **Pilot project for transportation of wet fly ash in BOXN railway wagons*:*** In order to establish a new avenue of ash utilization, NTPC Rihand has given permission to M/s ACC Ltd. and Dalmia Cement for transportation of conditioned fly ash in 10 rakes of tarpaulin covered BOXN wagons. **This initiative of NTPC Rihand is first of its kind** and 07 rakes of conditioned fly ash have been dispatched till date. Approx. 35000 MT of ash utilization is envisaged in above pilot project. Based on the outcome of pilot project regular permission will be given to cement industries for transportation of wet fly ash through BOXN wagons.

V. **Backfilling of abandoned stone quarries:** In compliance of directives of oversight committee, we have submitted our application dtd. 11.09.2019 to Hon'ble District Collector – Sonbhadra for allocation of abandoned stone quarries of Dalla area. Follow up meetings have been held with District collector 20.09.2019, 27.02.2020, 30.09.2020 for allocation of abandoned stone quarry to NTPC Rihand. As directed by Hon'ble

oversight committee we have again submitted our request letter on 30.09.2020 for allocation of abandoned stone quarries for back filling with pond ash. Letter of allocation of abandoned stone quarries for back filling purpose is awaited. It is further requested that NTPC Rihand is the largest power plant of Uttar Pradesh with higher responsibilities towards society, as a central PSU, it requires more avenues of ash utilization in comparison to other power plants of the region to comply with the directions of Hon'ble NGT. Hence we earnestly request to approve allocation of at least 02 abandoned stone quarries to NTPC Rihand for its back filling with pond ash.

VI. Development of Ash Park at Varanasi: To enable clay brick manufacturers of Varanasi region to switch over to ash brick manufacturing NTPC Rihand has developed an Ash Park at Varanasi from where fly ash is supplied in 40 KG bags to Ash Brick manufacturing units of Varanasi region so that use of fly ash bricks can be promoted in Varanasi. First lot of Fly Ash packed in bags has been dispatched to Varanasi on 06.06.2019 and Ash Park Depot – Varanasi has been formally inaugurated and made functional on 13.06.2019. However, no substantial fly ash offtake was evidenced from the ash brick manufacturers of Varanasi region.

VII. Providing fly ash to brick manufacturers upto 300 Kms radius: To promote manufacturing and utilization of fly ash bricks in the region, NTPC Rihand has already moved proposal for supply of fly ash to brick manufacturer located upto 300 Kms from NTPC Rihand. Above proposal is under re - tendering.

NTPC TANDA

To achieve the target of the 100% ash utilization NTPC Tanda is making sincere efforts for ash utilization in following area:

1. Pond ash utilization for construction of road projects being executed by NHAI and UPEIDA.

NTPC Tanda has signed MOU with NHAI and UPEIDA as detailed below:

(i) NHAI Varanasi NH-233 Pkg-II & III: The MOU was signed on 20.03.2018 with NHAI Varanasi for NH-233 Pkg-II &III for transportation of 11.70 Lacs M3 of pond ash for one year which was further extended for one-year upto 19.03.2020. Out of above approx. 6.50 Lacs M3 has been utilized till March 2020. To meet its commitment NTPC-Tanda has awarded the balance work for NH-233 for ash transportation of approx. 5.40 Lacs M3. The work has already been started by the agency since 14.09.2020.

(ii) NHAI Gorakhpur: MOU was signed with NHAI Gorakhpur on 06.04.2018 for transportation of approx. 3.50 Lacs M3. Out of which approx. 3.05 Lacs M3 has been transported upto Jan 2020.

(iii) UPEIDA-PIU-IV to VIII: Five MOUs were signed on 21.06.2019 for transportation of approx. 16.73 Lacs M3 of ash. The ash transportation for all the five packages is in

progress. However for economical utilization of funds NTPC Tanda has adopted competitive bidding and is in the advance stage of finalization of tendering process.

(iv) NHAI Varanasi - Ghazipur Section of NH-29, Package-II, III & IV : Under this initiatives NTPC Tanda is in the process of awarding the contract for 12.09 Lacs M3 of ash for NHAI Varanasi - Ghazipur Section of NH-29. For Pkg-II the work has already been started.

2. Dry Fly Ash utilization in Cement Industry: Auctions for sale of Approx. 4.0 Lacs MT of Fly Ash for utilization in cement industry on annual basis. NTPC Tanda has signed long terms MOU on 18.02.2019 for 15 years for selling 2.40 Lacs MT of fly ash to M/s UltraTech Cement Ltd. and balance of Approx. 1.60 Lacs MT of Fly ash is being issued to other agencies.

3. Ash filling being used as backfill in low lying areas : NTPC Tanda is using ash as back fill material in its low lying plant & township areas and issuing pond ash free of cost to various agencies for using as backfill material in the various residential, commercial and industrial units coming up in the vicinity of NTPC-Tanda. During Financial Year 2019-20 apporx. 1.70 Lacs MT of ash were used in low lying areas.

4. Use of fly ash in brick manufacturing and providing fly ash to brick manufacturers:

NTPC Tanda has installed 02 nos. of fully – automatic fly ash brick plants. Presently approx. 25000 fly ash bricks / day are being manufactured. These bricks are fully utilized in plant, townships, ash dykes and CSR works undertaken at station. All buildings at station are being constructed using fly ash bricks only. Also, to promote manufacturing and utilization of fly ash bricks in the region, NTPC Tanda is issuing fly ash to brick manufacturer free of cost.

NTPC Unchahar

- 100% Fly ah is being utilized in the manufacturing of bricks, tiles, construction of road projects by NHAI/UPEIDA and also supplied to cement industries and brick manufacturers etc.
- Four nos. of brick manufacturing machines are installed in the premises of NTPC Unchahar. About 8 to 10 thousand bricks are manufactured per day which are fully utilized in the construction activities of the Plant/Township premises.
- Pond ash is being utilized in the construction of roads by NHAI/UPEIDA under National Asset Building Program.

4. *What is the unit-wise quantum of generated flyash, disposed flyash, pond ash, bottom ash and ash utilization? How much stock of ash left for disposal in every TPP?*

Status of Fly Ash Disposal and Utilization

Name of the Plant	Year	Composition of Flyash	Generation of Flyash		Bottom & Coarse Ash		Ash Utilization		Category Wise Utilization					
			MT	%	MT	%	MT	%	Brick	Roads	Mine Filling	Cement	Landfill	Others
NTPC Shaktinagar	Apr' 20-Dec' 20	**Annexure-1**	1748808	80 %	437202	20 %	661675	29.98 %	3784	395091	00	00	115800	147000
NTPC Rihand	Apr' 20-Dec' 20	**Annexure-2**	2474780	80 %	618695	20 %	1578763	51.04 %	138404	196914	00	56676	502790	210060
NTPC-Tanda	Apr' 20-Oct' 20	**Annexure-3**	963312	80	240828	20	1416606	117.64%	5273	1010520	0	263026	137787	0
FGUPP UNCHAHAR,	Apr' 20-Dec' 20	**Annexure-4**	1101847	80 %	275462	20 %	1503029	109.13	27070	967734	0 MT	408084	0 MT	100141
MUNPL Meja	Apr' 20-Dec' 20	*Testing shall be done by Jan' 2021*	478043	80 %	158366	20 %	266692	44.6	4632	0	0	208869	0	57823

S.No.	Name of the Plant	Ash Pond is present (Yes=1/ No=2)	Water Overflowing from the pond (Yes=1/No=2)	Primary Reason for Overflow	Any temporary arrangement made? (Yes=1/ No=2)	What temporary action taken to stop the overflow?	Action Plan	Observations
1	NTPC Shaktinagar	1	2	NA	2	NA	NA	--
2	NTPC Rihand	1	2	NA	2	NA	NA	--
3	NTPC-	1	2	NA	2	NA	NA	--

	Tanda							
4	Feroze Gandhi Unchahar Thermal Power Plant	1	2	N/A	2	N/A	NA	--
5	MUNPL Meja	01	02	NA	2	N/A	NA	--

5. *Has Environmental Compensation been levied on any of your units? If yes, then mention status with reference to specific TPPs in the State of U.P.?*

NTPC Singrauli

a. With reference to the NGT order dated 12.02.2020 in OA No. 117/2014 in the matter of Shri Shantanu Sharma Vs. Union of India & Ors, CPCB vide letter dated 02.07.2020 has imposed EC of Rs. 10.76 Crores on NTPC Shaktinagar. In this regard it is submitted that NTPC Ltd. has filed Civil Appeal No. 2713/2020 in Hon'ble Supreme Court for the order dated 12.02.2020 of Hon'ble NGT. Hon'ble Supreme court vide order dated 21.07.2020 has **granted stay** for submission of EC as directed by Hon'ble NGT **(Annexure – 5 stay on EC).**

b. Hon'ble NGT vide order dated 11.10.2019 in O.A. No. 453/2019 in the matter of Shri Anjani Jaiswal vs. Union of India & Ors. has imposed an Environmental Compensation of Rs. 27.00 Lacs on NTPC Shaktinagar . NTPC Shaktinagar has filed Civil Appeal vide Diary No. 1197/2020 and case no. 2983/2020 in Hon'ble Supreme Court for the order dated 11.10.2019 of Hon'ble NGT. Hon'ble Supreme court vide order dated 08.10.2020 has **granted stay** for submission of EC as directed by Hon'ble NGT **(Annexure-6 Singrauli Stay on EC 27 lac)**.

NTPC Rihand

c. With reference to the NGT order dated 12.02.2020 in OA No. 117/2014 in the matter of Shri Shantanu Sharma Vs. Union of India & Ors, CPCB vide letter dated 02.07.2020 has imposed EC of Rs. 15.39 Crores on NTPC Rihand. In this regard it is submitted that NTPC Ltd. has filed Civil Appeal No. 2713/2020 in Hon'ble Supreme Court for the order dated 12.02.2020 of Hon'ble NGT. Hon'ble Supreme court vide order dated 21.07.2020 has granted stay for submission of EC as directed by Hon'ble NGT **(Annexure – 5 Stay on EC).**

d. Hon'ble NGT vide order dated 11.10.2019 in O.A. No. 453/2019 in the matter of Shri Anjani Jaiswal vs. Union of India & Ors. has imposed an Environmental

Compensation of Rs. 45.90 Lacs on NTPC Rihand. NTPC Rihand has filed Civil Appeal vide Diary No. 1197/2020 and case no. 2983/2020 in Hon'ble Supreme Court for the order dated 11.10.2019 of Hon'ble NGT. Hon'ble Supreme court vide order dated 08.10.2020 has granted stay for submission of EC as directed by Hon'ble NGT **(Annexure-7 Rihand Stay on EC)**.

NTPC Tanda

NO Environmental Compensation has been levied on NTPC Tanda Super Thermal Power Station.

Feroze Gandhi Unchahar Thermal Power Plant

With reference to the NGT order dated 12.02.2020 in OA No. 117/2014 regarding, Environmental Compensation of Rs 63.95 Lakh was levied on NTPC Unchahar for non-utilisation of 100% fly ash by Thermal Power Plants by CPCB vide letter Ref No.:B-33014/7/2020/IPC-II/TPP/ dated 02.07.2020.

In this regard it is submitted that NTPC Ltd. has filed Civil Appeal No. 2713/2020 in Hon'ble Supreme Court for the order dated 12.02.2020 of Hon'ble NGT. Hon'ble Supreme court vide order dated 21.07.2020 has granted stay for submission of EC as directed by Hon'ble NGT **(Annexure – 5 Stay on EC).**

MUNPL (Meja)

With reference to the NGT order dated 12.02.2020 in CPCB vide letter dated 02.07.2020 has imposed EC of Rs. 5.65 Crores on MUNPL, Meja. In this regard a letter dated 11.08.2020 is submitted as per NTPC Ltd. filed Civil Appeal No. 2713/2020 in Hon'ble Supreme Court for the order dated 12.02.2020 of Hon'ble NGT. Hon'ble Supreme court vide order dated 21.07.2020 has granted stay for submission of EC as directed by Hon'ble NGT. **(Annexure -8 Meja Stay on EC)**

6. *What is the unit-wise status of implementation of CPCB Guidelines, 2019 for Utilization/Disposal of Fly Ash for Reclamation of Low-Lying Areas and in Stowing/ Back filling of Abandoned Mines/ Quarries?*

Status- Ash Utilization action plan mentioned at Sr. No.3. Regarding reclamation of Low-Lying Areas and in Stowing/ Back filling of Abandoned Mines/ Quarries the pit head stations status is as below:

NTPC Singrauli

Status- NTPC Shaktinagar has been allotted (2nos.) stone queries. Location and area details of stone query awaited for further necessary NOC.

NTPC Rihand

Status: 01 stone quarry has been allotted to Rihand. Location and area details of stone quarry is awaited. It is further requested that NTPC Rihand is the largest power plant of Uttar Pradesh with higher responsibilities towards society, as a central PSU, it requires more avenues of ash utilization in comparison to other power plants of the region to comply with the directions of Hon'ble NGT. Hence we earnestly request to approve allocation of at least 02 abandoned store quarries to NTPC Rihand for its back filling with pond ash.

Stowing/ Back filling of Abandoned Mines/ Quarries are not applicable to NTPC Tanda, **Unchahar (FGUTPP) and Meja (MUNPL)**

7. *Has CPCB's Action Plan been implemented in your units?*

   Status: Ash utilization is being done as per the Guidelines of CPCB.

8. *What steps have been taken for Fly ash disposal? Have you explored its disposal in mounds and/or backfilling of ash in abandoned mines as per the CPCB Guidelines? Please give unit-wise description.*

   Status: Initiatives taken by NTPC stations/projects for utilization of ash is given in the status of point no. 03.

   Further at NTPC Singrauli and Rihand, identification of land for creation of ash mound is to be done. It is submitted that for developing ash mound detailed scientific and engineering studies are required in addition to the additional land requirement and huge capital expenditure. Hence it is requested that development of Ash Mound may also be considered as ash utilization by MoEF&CC and Hon'ble NGT. CPCB may issue guidelines for creation of ash mound.

9. *What is the present status of structural safety of Flyash dykes in your Thermal Power Plants? What measures have been taken to ensure that no breach takes place? Please give unit-wise description.*

   NTPC Singrauli, NTPC Rihand & NTPC Unchahar.

Status: All the Ash dykes in NTPC are constructed with approved Engineering design & drawings. We have also conducted third party assessment of our ash dykes through IIT – Roorkee. As per the report of IIT – Roorkee ash dykes of **NTPC Singrauli, Rihand and Unchahar** ash dykes are 'Technically Sound and Structurally Sustainable Report is attached as **Annexure-9, Annexure-10, Annexure-11**). The Status with respect to ash dykes of Tanda and Meja (MUNPL) are given below:

Tanda- For structural safety of dykes, Dr. N. K. Samadhiya, Expert (Professor of Geotechnical department) from IIT - Roorkee has visited site on 03.10.2020 and submitted report on 12.12.2020.

Meja (MUNPL)- The third-party assessment through IIT – Roorkee schedule in March'2021

Following are the details of ash dyke design, operation and maintenance practices to avoid any type of breaches:

NTPC Singrauli

- Ash dykes of NTPC Shaktinagar are of 'Up Stream Raising' with good foundation base of earth and rocks pitching.
- The dedicated Corporate Engineering team is having technical expertise of designing the ash dykes as per relevant Indian Standard Codes.
- Ash dykes of NTPC Shaktinagar are designed considering factor of safety of more than 1.5. Corporate Engineering team after details site visit and survey provides the detailed engineering design and specifications for each dyke and also for its subsequent raisings.
- Ash dykes are designed by our CC Engg. as pervious entity and for lean ash slurry discharge. The residual water is expected to go to overflow lagoon from ash dyke through decanting wells. Ash slurry is discharge is done through 300/350 mm diameter MS pipes in garlanding fashion from all sides of dyke in such a manner so that the ash slurry is filled near dyke bund first in order support the dyke structure's stability. During this initial phase, the seepage water, which is coming in the toe drain collected in low lying area pit and is pumped to Over Flow lagoon for recycling. is pumped back to dyke/Overflow lagoon. After some time, when all the adjacent area of bund is filled, then negligible water comes out in toe drains and all the water flows directly from dyke to overflow lagoon and subsequently recycled through AWRS pumps.

- Additionally, the ash dyke management team of NTPC Shaktinagar is continuously monitoring and maintaining the ash dyke on regular basis.
- The toe drain & outer slope of dykes are regularly cleaned of ash/bushes to keep watch on ash dykes. An ash dyke committee comprising of senior members visits the dyke on fortnightly basis to assess its condition.
- Necessary stock of sand, sand bags, aggregate, boulder etc. is kept at site to counter any emergency situation. Regular ash utilization is being done to keep our ash dykes in healthy condition.

NTPC Rihand

Following are the details of ash dyke design, operation and maintenance practices to avoid any type of breaches:

- Ash dykes of NTPC Rihand are of 'Central Line Design' with good foundation base of rocks and earth.
- The dedicated Corporate Engineering team is having technical expertise of designing the ash dykes as per relevant Indian Standard Codes.
- Ash dykes of NTPC Rihand are designed considering factor of safety of more than 1.5. Corporate Engineering team after details site visit and survey provides the detailed engineering design and specifications for each dyke and also for its subsequent raisings.
- Ash dykes are designed by CC Engg as pervious entity and for lean ash slurry discharge. The residual water is expected to go to overflow lagoon from ash dyke through decanting wells. Ash slurry is discharge is done through 450/400 mm dia MS pipes & 512 mm dia cast basalt pipes in garlanding fashion from all sides of dyke in such a manner so that the ash slurry is filled near dyke bund first. During this initial phase, the seepage water, which is coming in the toe drain is pumped back to dyke/overflow lagoon. After some time, when all the adjacent area of bund is filled, then negligible water comes out in toe drains and all the water flows directly from dyke to overflow lagoon and subsequently to plant through AWRS pumps.
- Additionally the ash dyke management team of NTPC Rihand is continuously monitoring and maintaining the ash dyke on regular basis.
- The toe drain & outer slope of dykes are regularly cleaned of ash/bushes to keep watch on ash dykes. An ash dyke committee comprising of senior members visits the dyke on monthly basis to assess its condition.
- Necessary stock of sand, sand bags, aggregate, boulder etc. is kept at site to counter any emergency situation. Regular ash utilization is being done to keep our ash dykes in healthy condition.

NTPC Tanda

- The dedicated Corporate Engineering team is having technical expertise of designing the ash dykes as per relevant Indian Standard Codes.
- Monthly visit of Dyke is being done by Ash Dyke Management Committee for ensuring the healthiness of Dyke and records maintained.
- Necessary stock of sand, sand bags, aggregate, boulder etc. is kept at site to counter any emergency situation. Regular ash utilization is being done to keep our ash dykes in healthy condition.
- The toe drain & outer slope of dykes are regularly cleaned of ash/bushes to keep watch on ash dykes. An ash dyke committee comprising of senior members visits the dyke on monthly basis to assess its condition.

NTPC Unchahar (FGUTPP)

- Ash slurry is being discharged in Umaran and Arkha dyke Lagoon-2, the decanted water is recycled to Plant through AWRS system.
- Raising of ash dyke lagoon-1 is being done for increasing the capacity of dyke.
- Monthly visit of Dyke is being done by Ash Dyke Management Committee for ensuring the healthiness of Dyke and records maintained.
- Necessary stock of sand, sand bags, aggregate, boulder etc. is kept at site to counter any emergency situation. Regular ash utilization is being done to keep our ash dykes in healthy condition.
- The toe drain & outer slope of dykes are regularly cleaned of ash/bushes to keep watch on ash dykes. An ash dyke committee comprising of senior members visits the dyke on monthly basis to assess its condition.

Meja (MUNPL)

Following are the details of ash dyke design, operation and maintenance practices to avoid any type of breaches:

- The dedicated Corporate Engineering team is having technical expertise of designing the ash dykes as per relevant Indian Standard Codes.
- Ash dykes of MUNPL, Meja: Lagoon-I-HCSD (for fly ash disposal); Lagoon-II-BA (for Bottom ash disposal); Lagoon-III-BA (for Bottom ash disposal); are designed considering factor of safety of more than 1.5. Corporate Engineering

team after details site visit and survey provides the detailed engineering design and specifications.

- Additionally the ash dyke management team of MUNPL, Meja is continuously monitoring and maintaining the ash dyke on regular basis.
- The toe drain & outer slope of dykes are regularly inspected to keep watch on ash dykes, an ash dyke committee comprising of senior members visits the dyke on monthly basis to assess its condition. As the plant is new and fully operational since May'2020, our ash dykes toe drains are in dry condition.

10. What safety measures are being taken by your TPPs for reducing pollution in transportation? Specify the type of vehicle (i.e. closed/ open) and load carried.

S. No.	Name and Location of Power Plants	Fuel used	Transportation by railway/ road	Installation of CCTV Camera (at exit point) (Yes=1; No=2)	Have any environmental impact (Yes=1; No=2)	Compliance=1; Non-Compliance=2	If Non-Compliance then Compensation Imposed (Yes=1; No=2)	Compensation realized (Yes=1; No=2)	Remarks
1	NTPC Shaktinagar	Coal from linked mines of NCL	Railway (through own MGR Railway system)	01	2	1	NA	NA	Cameras are installed in the track hopper area.
2	NTPC Rihand	Coal from linked mines of NCL	Railway (through own MGR Railway system)	01	2	1	NA	NA	Cameras are installed in the track hopper area.
3	NTPC Tanda	Coal from linked mines of CCL	Railway	01	2	1	NA	NA	Cameras are installed.
4	FGUTPP Unchahar	Coal from linked mines of CCL & BCCL	Railway	1	2	1	2	2	Cameras are installed in the track hopper and WT area.

5	MUNPL Meja	Coal from linked mines of SECL,NCL/ CCL/ ECL	Railway	2	2	1	NA	NA	Cameras installation proposals in progress.

Note: Provide specific details or information in the remarks column

11. What steps have been taken for reduction of coal transportation?

NTPC stations/projects are transporting coal from their linked mines through own railway systems (Merry Go Round System) and through Railway Network. No coal is transported through road.

12. What steps are being taken for Ash dyke management in TPPs?

Status: Details are provided in the status given for point no. 09.

13. Is there Zero discharge from ash dyke in respective TPPs?

Status: Zero discharge is maintained from the ash dykes in all the stations.

14. Do you have any reservoir? If yes, then specify the capacity and the quality of water.

Status: No reservoir at NTPC Singrauli and NTPC Rihand and NTPC Unchahar.

NTPC Tanda

Details of Reservoir

Reservoir-A: Capacity - 217000 M3

Reservoir-B: Capacity - 154000 M3

Water quality testing is done by third party and reports are enclosed as annexure-…...

Meja (MUNPL)

Details of Reservoir

Lagoon-I: Capacity: 2 Lakhs Cum;

Lagoon-II: Capacity: 1.6 Lakhs Cum.

Air and Water quality testing is done by third party and reports are submitted to UPPCB regularly

15. What is the air and water quality of the reservoir and other water bodies including groundwater?

Status: Already mentioned in question-14. Ambient Air and Water Quality including ground water is being regularly monitored by authorized laboratory and reports are submitted to UPPCB regularly.

16. *Have the TPPs installed CAAAQMS? If yes, specify in the given table.*

S. No.	Name and Location of Power Plants	Total Installed Capacity (Unit-wise)	CAA QMS installed (Yes=1; No=2)	Ash Water Recycling System (AWRs) and Electrostatic Precipitators (ESPs) installed (Yes=1; No=2)	Timeline for installation (dd/mm/yy)	Compliance=1; Non-Compliance=2	If Non-Compliance then Compensation Imposed (Yes=1; No=2)	Compensation realized (Yes=1; No=2)	Remarks
1	NTPC Shaktinagar	2000 MW	1	1	NA	1	NA	NA	
2	NTPC Rihand	3000 MW	1	1	NA	1	NA	NA	
3	Tanda Super Thermal Power Station	1100 MW And *U#6 (660 MW) : under construction	1	1	NA	1	NA	NA	
4	Unchahar (FGUTPP)	1550 MW	1	1	NA	1	NA	NA	
5	MUNPL, Meja	660 MW And 660 MW Unit#2 COD expected in Dec'20	1	1	N/A	1	N/A	N/A	

Note: Provide specific details or information in the remarks column

17. *Provide the structural details of ash dyke and their adequacy for handling of Fly Ash generated.*

Status: Already mention at question -9

18. *What is status of action taken by TPPs for third party assessment of Ash Dyke?*

Status: Already mention at question -9

19. *What is the future plan of Thermal Power Plants for disposal of the stored Fly-Ash as well as the currently generated Fly-Ash?*

Status: Details of initiatives of NTPC stations/ projects for ash utilization are provided in the status given for point no. 03.

20. *What efforts have been made to fill up the Fly-Ash in the abandoned Coal Mines and Stone Mines?*

Status: Details are provided in the status given for point no. 08.

21. *Any other information pertaining to the TPP run by your organization?*

Status: We earnestly request Hon'ble NGT / CPCB directive for mixing of 25% pond ash in the overburden dumps of the coal mines of NCL as well as for back filling of the voids of opencast coal mines of NCL so that we can achieve 100% ash utilization on sustainable basis.

सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
बरवा रोड, धनबाद - 826 015, झारखण्ड, भारत
एक आई एस ओ 9001 प्रमाणित संस्थान

CSIR-Central Institute of Mining and Fuel Research
(Council of Scientific and Industrial Research)
Barwa Road, Dhanbad - 826 015, Jharkhand, India
An ISO 9001 Certified Institute

Central Institute of Mining & Fuel Research
This is not a certificate and not valid for purpose of contracts and can not be produced in a court of law.

II/TR/19-20/UT/05

Dated: 01.04.2019

Ref. No. 031/O&M(Chem)/1099 Dated: 23.01.2019
Source : NTPC Singrauli
Dy. Manager (Chem)
NTPC-SSTPS, Shaktinagar
Dist. Sonebhadra (U.P.) 231222

CSIR-CIMFR, DC ★ TEST REPORT 01.04.19 ★ INDUSTRY INTERFACE

Sl. No.	Sample particular as stated by the party	CIMFR Gasification No	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	P_2O_5 (%)	SO_3 (%)
1	AR/DEC /2018	XRF/NTPC/SING /1099	61.52	25.88	8.08	0.70	0.67	1.55	0.84	0.06	0.17	0.53

Remarks: Sampling is not done by CSIR-CIMFR, DC, Dhanbad

Major elemental oxides of ash are reported after normalization based on ignited sample.

Instrument used: XRF (Panalytical MagiX PW 2424)

01.4.19.

प्रभारी / HEAD
इन्डस्ट्री इन्टरफेस / INDUSTRY INTERFACE
सीएसआईआर–सीआईएमएफआर / CSIR-CIMFR

सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
बरवा रोड, धनबाद - 826 015, झारखण्ड, भारत
एक आई एस ओ 9001 प्रमाणित संस्थान

CSIR-Central Institute of Mining and Fuel Research
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Barwa Road, Dhanbad - 826 015, Jharkhand, India
An ISO 9001 Certified Institute

DI/TR/19-20/07/05

CSIR-CIMFR, DC TEST REPORT INDUSTRY INTERFACE

25.03.19

REPORT ON ANALYSIS

To
Dr. Prashant Sukla
Dy Manager (Chem)
Singrauli Super Thermal Power Station
PO. Shaktinagar
Dist. Sonebhadra (UP)
PIN 231 222

Dated: 19.03.2019

Ref. No. : 031/O&M/Chem./1099 dated 23/01/2019

Sampling not done by CIMFR

CIMFR Sample No			Inor 59/19							
Details of Sample(As Stated)			Coal sample							
Hg (µg/kg)	As (µg/g)	Se (µg/g)	Cu (µg/g)	Ni (µg/g)	Cr (µg/g)	Cd (µg/g)	Zn (µg/g)	Co (µg/g)	Pb (µg/g)	Cl (µg/g)
79	0.83	0.05	37.8	16.4	17.8	ND	27.3	3.5	8.9	602

ND = Not Detected

25.03.19

प्रधान/HEAD
इन्डस्ट्री इन्टरफेस/INDUSTRY INTERFACE
सीएसआईआर–सीआईएमएफआर/CSIR-CIMFR

SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

19, University Road, Delhi – 110007 (India)
An ISO - 9001, 14001 & OHSAS 18001 Certified Institute

Website : www.shriraminstitute.org
E-mail id : customercare@shriraminstitute.org

TEST CERTIFICATE

NO : C1/0000235481

TC-5444

Issued To :
Client Code : (SONE01N1452)
NTPC (RIHAND)
NTPC RIHAND PO RIHANDNAGAR, DIST. SONEBHADRA (UP)
SONEBHADRA
UTTAR PRADESH-231 223
Kind Attn: MR. UMESH KUMAR SRIVASTAVA,ADDL. GENERAL MANAGER (FQA)

Date : 11-11-2020
Job No : 2009-1-181-2852
Booking No : RG2021/1/4804
Booking Date : 28-09-2020
Customer Ref No. : REF. NO. : 070/FQA//2020/1498
Customer Ref Dt. : 15-09-2020
ULR NO. : TC544420000012248F

ONE SEALED SAMPLE DESCRIBED AS FLY ASH,FROM SOURCE : SAMPLE NO.1, LOCATION -UNIT NO.4, ESP FIELD NO.1, DATE OF SAMPLING: 11.09.2020, UNIT NO.#4, CAPACITY OF UNIT: 500MW, NAME OF STATION: RIHAND, DECLARED AS" SAMPLES HAVE BEEN COLLECTED & SEALED JOINTLY, SEALED THUS, WAS RECEIVED. NTPC FQA

(The sampling was not carried out by Shriram Institute fo Industrial Research. The sample particulars provided in certificate are based on declaration by the Sponsor).

2009-1-181-2852

Results

Discipline Chemical
Group Building Material

S.No.	Name of Parameter	Observed Value	IS: Requirement [3812(Part 1)-2013, RA 2017]		Conformity
A.	**Chemical Parameters**		Siliceous	Calcareous	
1	Silicon dioxide (as SiO2)+Aluminium oxide (as Al2O3)+Iron Oxide (as Fe2O3), % by mass	96.3	70 Min.	50 Min.	Yes
2	Silicon dioxide (as SiO2), % by mass	67.2	35 Min.	25 Min.	Yes
3	Magnesia (as MgO), % by mass	0.4	5.0 Max.	5.0 Max.	Yes
4	Total Sulphur as sulphur trioxide (as SO3),% by mass	0.3	3.0 Max.	3.0 Max.	Yes
5	Loss on ignition, % by mass	0.6	5.0 Max.	5.0 Max.	Yes
6	Total chlorides, % by mass	0.03	0.05 Max.	0.05 Max.	Yes
7	Available Alkalies as equivalent sodium oxide (Na2O), % by mass	0.3	1.5 Max.	1.5 Max.	Yes
8	Reactive Silica,% by mass	36.8	20 Min.	20 Min.	Yes

AUTHORISED SIGNATORY
EMPLOYEE CODE:(5117)

Scanned copies/photocopies or any other copies should be authenticated by reference to the original report.

Phone : 91-11-27000100, 27667267, 27667860 Fax : 91-11-27667207

Centre for Cement Research & Independent Testing
National Council for Cement and Building Materials
(Under the Administrative Control of Ministry of Commerce & Industry, Govt. of India)
34 Km Stone, Delhi-Mathura Road (NH-2), Ballabgarh - 121 004, Haryana, India

सीमेंट अनुसंधान और स्वतंत्र परीक्षण केन्द्र
राष्ट्रीय सीमेंट एवं भवन सामग्री परिषद्
(भारत सरकार के वाणिज्य एवं उद्योग मंत्रालय के प्रशासनिक नियंत्रणाधीन)
34 कि.मी. स्टोन, दिल्ली-मथुरा रोड (एन एच -2), बल्लभगढ़ 121004, हरियाणा, भारत

(ISO 9001 : 2015)

• दूरभाष / Phone : +91-129-4192237 (D), 4192222, 2242051 • फैक्स / Fax : +91-129-2242100
• ई-मेल / E-mail : crtb@ncbindia.com, ncbcrt2@gmail.com • वेब / Web : www.ncbindia.com

स्पीड पोस्ट

संधर्भ : सी.आर.टी./आई.एन.टी.

दिनांक : 19 फरवरी, 2020
27

सेवा में

श्री दिलीप चक्रबर्ती
एजीएम (कैमिस्ट्रि)
एनटीपीसी लिमिटेड
टांडा थर्मल पावर प्रोजेक्ट
पोस्ट ऑफिस : विद्युत नगर जिला-अंबेडकर नगर - 224238
(उत्तर प्रदेश)

विषय : टेस्टिंग ऑफ कोल & कोल अश

संदर्भ : पत्र सं. एनटीपीसी/टांडा/थर्ड पार्टी कोल एनालिसिस दिनांक 28-12-2019

महोदय,

उपर्युक्त विषय पर आपके उल्लिखित संदर्भाधीन पत्र में अपेक्षित सूचना इस पत्र के साथ संलग्न की जाती है।

संलग्न : यथोक्त

भवदीय

संजीव कुमार चतुर्वेदी

डॉ संजीव कुमार चतुर्वेदी
विभागाध्यक्ष
(सीमेन्ट अनुसंधान एवं स्वतंत्र परिक्षण केन्द्र)

टेस्ट रिपोर्ट न. ITL/004948 से ITL/004950

Centre for Cement Research & Independent Testing
National Council for Cement and Building Materials
(Under the Administrative Control of Ministry of Commerce & Industry, Govt. of India)
34 Km Stone, Delhi-Mathura Road (NH-2) Ballabgarh - 121 004, Haryana, India

सीमेंट अनुसंधान और स्वतंत्र परीक्षण केन्द्र
राष्ट्रीय सीमेंट एवं भवन सामग्री परिषद्
(भारत सरकार के वाणिज्य एवं उद्योग मंत्रालय के प्रशासनिक नियंत्रण के अधीन)
34 कि.मी. स्तंभ, दिल्ली मथुरा रोड (एन.एच.-2), बल्लभगढ़-121004, हरियाणा, भारत

(ISO 9001 : 2015)

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• ई-मेल / E-mail : crtb@ncbindia.com, ncbcrt2@gmail.com • वेब / Web : www.ncbindia.com

SPEED POST

Ref: CRT/TNT
19 Feb, 2020

Sh Dilip Chakraborty
AGM (Chemistry)
NTPC Limited
Tanda Thermal Power Project
P.O: Vidyut Nagar, Dist – Ambedkar Nagar - 224238
(U.P)

Sub: Testing of Coal Ash & Coal

Dear Sir,

With reference to your NTPC/Tanda/Third Party Coal Analysis dated 28-12-2019 we are enclosing our test reports on the above mentioned subject samples.

A customer feedback form is enclosed herewith. Kindly submit your objective assessment of our services and suggestion if any.

Thanking you

Yours faithfully
for National Council for Cement and Building Materials

Dr S K Chaturvedi
Head of Centre
Centre for Cement Research and Independent Testing

Test Report No: ITL/004948 to ITL/004950

राष्ट्रीय सीमेन्ट एवं भवन सामग्री परिषद्
(भारत सरकार के वाणिज्य एवं उद्योग मंत्रालय के शासनाधीन)
NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS
(Under the Administrative Control of Ministry of Commerce & Industry, Government of India)

TC-5296

TESTING LABORATORIES

(NCB/TL/QM/TRF-1.1)

INDEPENDENT TESTING LABORATORIES

TEST REPORT

ULR - TC529620100000204P
No. : ITL/004948
Date : 12/02/2020

Customer Address	**NTPC LIMITED (TANDA)** TANDA THERMAL POWER PROJECT, P.O.: VIDYUT NAGAR, DIST- AMBEDKAR NAGAR, U.P.- 224238
Reference	NTPC/TANDA/THIRD PARTY COAL ANALYSIS, DTD 28/12/19
Sample	*Said to be* Coal Ash
Identification	AF-27-12-19
Condition of Sample	UnSealed with ID Tag
Date of Receipt	01/01/2020 **Laboratory Mark -** ITLL7588/1/1
Period of Testing	20/01/2020 - 05/02/2020
Tested for Conformity to Discipline	Chemical Testing **Group** Solid Fuels

SI No	Test Name		Test Method	Test Results	
1	Loss on Ignition		IS:1727:1967	0.50	% by mass
2	Silica		IS:1727:1967	60.29	% by mass
3	Iron Oxide		IS:1727:1967	5.69	% by mass
4	Alumina		IS:1727:1967	27.69	% by mass
5	Calcium Oxide		IS:1727:1967	1.08	% by mass
6	Magnesium Oxide		IS:1727:1967	0.99	% by mass
7	Sulphuric Anhydride		IS:1727:1967	0.59	% by mass
8	Alkalies	Sodium Oxide	NCB STD(MS-14-2010)	0.18	% by mass
		Potassium Oxide	NCB STD(MS-14-2010)	1.30	% by mass
		Eq. as Na2O	NCB STD(MS-14-2010)	1.04	% by mass
9	Chloride		IS 4032:1985	0.005	% by mass
10	Titanium dioxide		NCB STD(MS-14-2010)	1.44	% by mass
11	Phosphorous penta Oxide		NCB STD(MS-14-2010)	0.27	% by mass
12	Manganic Oxide		NCB STD(MS-14-2010)	0.05	% by mass
13	Pyritic Sulphur*		ASTM C-25: 2017	0.03	% by mass

********** ********* END OF THE TEST REPORT **********

NOTE: The parameter marked with an * is not accredited by NABL

Conditions

1. Results given above refer only to the sample supplied.
2. The Report is being issued on the specific understanding that NCB will not in any way be involved in any action following the interpretation of the above results.
3. This report shall not be reproduced except in full without written approval from NCB.
4. Sample shall be retained for 90 days after reporting the results.
5. This report does not imply that the sample/material is approved or endorsed by NCB or NAB.

Scientist/s

Dr D Yadav
Authorised Signatory

Centre for Cement Research and Independent Testing

राष्ट्रीय सीमेन्ट एवं भवन सामग्री परिषद्
(भारत सरकार के वाणिज्य एवं उद्योग मंत्रालय के शासनाधीन)
NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS
(Under the Administrative Control of Ministry of Commerce & Industry, Government of India)

TC-5296

TESTING LABORATORIES (NCB/TL/QM/TRF-1.1)

INDEPENDENT TESTING LABORATORIES

TEST REPORT

ULR - TC529620100000205F
No. : ITL/004949
Date : 12/02/2020

Customer Address	**NTPC LIMITED (TANDA)** TANDA THERMAL POWER PROJECT, P.O.: VIDYUT NAGAR, DIST- AMBEDKAR NAGAR, U.P.- 224238
Reference	NTPC/TANDA/THIRD PARTY COAL ANALYSIS, DTD. 28/12/19
Sample	*Said to be* Coal.
Identification	AF-27-12-19
Condition of Sample	UnSealed with ID Tag
Date of Receipt	01/01/2020 **Laboratory Mark -** ITLL7588/2/1
Period of Testing	04/02/2020 - 07/02/2020
Tested for Conformity to Discipline	Mechanical Testing **Group** Solid Fuels

SI No	Test Name	Test Method	Test Results
1.	Hardgrove Grindability Test.	IS:4433:1979	69

********** END OF THE TEST REPORT **********

Conditions

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5. This report does not imply that the sample/material is approved or endorsed by NCB or NABL.

Scientist/s

Dr D Yadav
Authorised Signatory

Centre for Cement Research and Independent Testing

राष्ट्रीय सीमेन्ट एवं भवन सामग्री परिषद्
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NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS
(Under the Administrative Control of Ministry of Commerce & Industry, Government of India)

TC-5296

TESTING LABORATORIES (NCB/TL/QM/TRF-1.1)

INDEPENDENT TESTING LABORATORIES

TEST REPORT

ULR - TC529620100000206P
No. : ITL/004950
Date : 12/02/2020

Customer Address	**NTPC LIMITED (TANDA)** TANDA THERMAL POWER PROJECT, P.O.: VIDYUT NAGAR, DIST- AMBEDKAR NAGAR, U.P.- 224238
Reference	NTPC/TANDA/THIRD PARTY COAL ANALYSIS, DTD. 28/12/19
Sample	*Said to be* Coal
Identification	AF 27 12-19
Condition of Sample	UnSealed with ID Tag
Date of Receipt	01/01/2020 **Laboratory Mark -** ITL/558/3/1
Period of Testing	06/01/2020 - 12/02/2020
Tested for Conformity to Discipline	Chemical Testing **Group** Solid Fuels

SI No	Test Name		Test Method	Test Results	
1	Moisture Content (ADB)*		IS:1350(Pt-1):1984	3.83	% by mass
2	Moisture Content (EQB)*		IS:1350(Pt-1):1984	4.14	% by mass
3	Proximate Analysis (ARB)	Total Moisture Content*	IS:1350(Pt-1):1984	8.10	% by mass
		Ash Content	IS:1350(Pt-1):1984	38.49	% by mass
		Volatile Matter	IS:1350(Pt-1):1984	20.99	% by mass
		Fixed Carbon	IS:1350(Pt-1):1984	32.42	% by mass
4	Gross Calorific Value (ARB)		IS:1350(Pt-2):2017	3939	Kcal/Kg
5	Ultimate Analysis(ARB)..	Carbon	IS 16512:2018	43.81	% by mass
		Hydrogen	IS 16509:2018	3.81	% by mass
		Nitrogen	IS 16512:2018	0.84	% by mass
		Sulphur	IS 16509:2018	0.39	% by mass
		Mineral Matter	Calculated	42.34	% by mass
		Oxygen (By Difference)	Calculated	0.71	% by mass
6	Heating Microscope Analysis*	Initial Deformation Temp.	Heating Microscope	1368	oC
		Sphere Temp.	Heating Microscope	1547	oC
		Hemisphere Temp.	Heating Microscope	1565	oC
		Flow Temp.	Heating Microscope	≥1565	oC

********** ******** END OF THE TEST REPORT **********

NOTE: The parameter marked with an * is not accredited by NABL

Conditions

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3. This report shall not be reproduced except in full without written approval from NCB.
4. Sample shall be retained for 90 days after reporting the results.
5. This report does not imply that the sample/material is approved or endorsed by NCB or NABL.

Scientist/s

Authorised Signatory

Centre for Cement Research and Independent Testing

NTPC LTD /एन टी पी सी लिमिटेड

NETRA/नेत्रा

PLOT No -3,Ecotech-II,Greater NOIDA-201308

Environment Science Laboratory/पर्यावरण विज्ञान प्रयोगशाला

Test Report/जाँच रिपोर्ट

1. Test Report No. : NETRA/ESG/XRF/Unchahar/11/2019
2. Test Report Date : 08.11.2019
3. Name of the Client : Ms. Manisha Rajput, Mgr.(Chem-UCR), NTPC- Unchahar
4. IOM/Letter Ref. No. : UCR/O&M/CHEM/2019 Dtd.25.09.2019
5. Sampling station/Location : NTPC- Unchahar
6. Nature of Sample : Bottom Ash sample
7. NETRA Reference No : 9340 dtd. 27.09.2019
8. LAB Entry No. : E-473
9. Date of receipt of sample : 27.09.2019
10. Nature of test : Elemental analysis
11. Date of Testing : 08.11.2019
12. Details of Test Procedure : ED-XRF elemental analysis
13. Enclosure : Nil
14. Total no. of pages : 01

ANALYSIS RESULTS:

S. No.	Sample Description	Condition	Na2O	MgO	Al2O3	SiO2	P2O5	SO3	K2O	CaO	TiO2	MnO	Fe2O3
		Unit	%										
1 (E473)	Bottom Ash sample	Bottom ash	0.21	0.85	24.05	59.91	0.22	0.19	1.55	0.90	1.73	0.03	6.29

(.....)
Dr N K Soni /डॉ एन के सोनी
Manager (NETRA)
(Test in-charge)

(.....)
Dr M Malik /डॉ एम मलिक
Addl. General Manager (NETRA)
(Authorized signatory)

Note:

a) The results are related only to the sample(s) received.
b) The report shall not be reproduced except in full, without the written approval of NETRA, NTPC
c) Corrections/Erasing invalidate the test report
d) Any anomalies /discrepancies in the test report should be brought to our notice within 1 week from the date of issue of test report and the sample will thereafter be disposed off.

एनटीपीसी
NTPC

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Government of India Enterprise)

केन्द्रीय कार्यालय/Corporate Centre

Ref.: AM/ NGT/EC
Date: 22-07-2020

To

Shri Nazimuddin
Division Head –IPC-II
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032

Sub.: Stay given by Hon'ble Supreme Court on demand notices issued against Environment Compensation (EC) on the basis of Hon'ble NGT orders dated 12.02.2020

Dear Sir,

This has reference to the Hon'ble National Green Tribunal (NGT) order dated 12-02-2020 wherein directive was given to CPCB to compute and levy Environmental Compensation (EC) in accordance with the formula referred in the said order w.r.t. individual TPPs in accordance with law. In compliance to Hon'ble NGT order, CPCB has issued demand notices to various NTPC TPPs.

NTPC has filed a Civil Appeal in Hon'ble Supreme Court vide no CA - 2713/2020 for stay on above-mentioned Hon'ble NGT orders. NTPC has also filed IA vide 59147/2020 for stay on demand notices issued by CPCB. Hon'ble Supreme Court vide its order dated 21-07-2020 granted stay on the recovery of EC in pursuance of Hon'ble NGT order. Copy of Hon'ble Supreme Court order is attached herewith for kind information please.

Yours faithfully

22/07/2020

(Bharat Bhushan Chugh)
GM (Ash Management Group)

Encl.: A/a

ITEM NO.1 Virtual Court 4 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s).1692-1693/2020

M/S ARAVALI POWER CO. PVT. LTD. Appellant(s)

VERSUS

VEDPRAKASH & ANR. Respondent(s)

(ONLY C.A. NO. 2713/2020 TO BE LISTED ON 21.7.2020)

WITH
C.A. No. 2713/2020 (XVII)
(WITH IA No. 59150/2020 - EXEMPTION FROM FILING AFFIDAVIT, IA No. 59148/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT, IA No. 64390/2020 - STAY APPLICATION, IA No. 59147/2020 - STAY APPLICATION)

Date : 21-07-2020 This appeal was called on for hearing today.

CORAM :
HON'BLE DR. JUSTICE D.Y. CHANDRACHUD
HON'BLE MS. JUSTICE INDU MALHOTRA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Appellant(s) Mr. Tushar Mehta, SG
Mr. Shailesh Madiyal, AOR
Mr. Sudhanshu Prakash, Adv.

Mr. Gaurav, AOR

For Respondent(s) Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Khandpal, Adv.
Mr. Gaurav Srivastava, Adv.

UPON hearing the counsel the Court made the following
O R D E R

C.A. No. 2713/2020

Signature Not Verified
Digitally signed by ARJUN BISHT
Date: 2020.07.21 19:02:51 IST
Reason:

Issue notice.

2 Dasti, in addition, is permitted.

3 Tag with Civil Appeal Nos 1692-1693 of 2020.

4 Mr Tushar Mehta, learned Solicitor General, states that in the Civil Appeals in which notices have previously been issued by the Court, no interim orders were sought for stay of the demand since no demands had been raised. In the present case, it has been submitted that a demand notice has been issued on the basis of the order of the National Green Tribunal[1].

5 We direct that pending further orders, there shall be a stay of recovery in pursuance of the impugned order of the NGT.

(SANJAY KUMAR-I)
AR-CUM-PS

(SAROJ KUMARI GAUR)
COURT MASTER

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprises)
सिंगरौली / Singrauli

031/EMG/2020

Date: 09.10.2020

To,
Regional Officer,
U P Pollution Control Board,
Robertsganj, Sonebhadra

Sub: Information regarding Stay by Hon'ble Supreme Court for deposition of Environmental compensation in the matter of Hon'ble NGT order OA 453/2019 dtd 24.05.2019.

Dear Sir,

This has reference to Subject matter, it is to mention here that, NTPC Shaktinagar filed a petition jointly with NTPC Rihand in Hon'ble Supreme court vide CA-2983/2020 (diary No. 1197/2019) regarding environmental compensation, in pursuance of Hon'ble NGT order OA 453/2019 dtd 24.5.2020. It is to submit that, a BG of Rs. 10.8 Lacs has been submitted to UPPCB in compliance of specific condition No. 2 of air and water consent with regard to Environmnetal compensation of Rs. 27 Lacs vide letter ref No. H 42339/C-2 /NGT-40/ON-453/2019 dated 4.10.2019 of CEO-2, UPPCB.

Hon'ble Supreme Court vide its order dated 08.10.2020 has granted **stay on recovery of environmental compensation** in above matter of Hon'ble NGT order OA 453/2019 dtd 24.5.2019. Copy of Hon'ble Supreme court order is attached herewith for kind information please.

Thanking You,

Yours faithfully,

S. Manna

(Sudeep Manna)
AGM (EMG)
SUDEEP MANNA सुदीप मन्ना
AGM(EMG) अपर महा प्रबन्धक(ईएमजी)
NTPC Singrauli एन.टी.पी.सी. सिंगरौली
Shaktinagar 231222 शक्तिनगर 231222

Encl: as above

Copy to : 1. Chief Environmental Officer, Circle-2, UPPCB Lucknow
2. Regional Director (North), Zonal Office, CPCB,Lucknow

ITEM NO.1+2 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 3122/2020

VINDHYACHAL SUPER THERMAL POWER STATION Appellant(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

(IA No. 83700/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT)
(IA No. 83702/2020 - EXEMPTION FROM FILING O.T.)
(IA No. 83701/2020 - PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES
(IA No. 83699/2020 - STAY APPLICATION)

with
Civil Appeal No. 2983 of 2020
(I.A.No. 74503/2020-Exemption from filing c/c of the impugned Judgment)(I.A.No. 74504/2020 – exemption from filing O.T.)
(I.A.No. 74502/2020 – Permission to file additional documents/facts/annexures)(I.A.No. 74501/2020 – stay application)

Date : 08-10-2020 These matters were called on for hearing today.

CORAM : HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Appellant(s) Mr. Tushar Mehta, Solicitor General
Mr. Shailesh Madiyal, AOR
Mr. Sudhanshu Prakash, Adv.
Mr. Sarthak Bhardwaj, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Issue notice.

There shall be stay of recovery in the meantime.

Tag the matters along with Civil Appeal Nos. 4251-4252 of 2019.

Signature Not Verified
Digitally signed by Jayant Kumar Arora
Date: 2020.10.08 16:52:25 IST
Reason:

(JAYANT KUMAR ARORA)
COURT MASTER

(R.S. NARAYANAN)
COURT MASTER

SUPREME COURT OF INDIA

|| यतो धर्मस्ततो जयः ||

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NAVIGATION

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- Committees
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- e-Visitor Pass
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- Court Fees Calculator
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Diary Number | Case Number | Party Name | AOR | Court / Tribunal | Free Text

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Case Type	Number	Year	
CIVIL APPEAL	2983	2020	Submit

Diary No.- 1197 - 2020

RIHAND SUPER THERMAL POWER STATION vs. ANJANI JAISWAL

Case Details

Diary No.	**1197/2020** Filed on 09-01-2020 06:34 PM **[SECTION: XVII]**	**PENDING**
Case No.	C.A. No. 002983 - / 2020 Registered on 24-08-2020 (Verified On 11-08-2020)	
Present/Last Listed On	**08-10-2020 [HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN, HON'BLE MR. JUSTICE NAVIN SINHA and HON'BLE MR. JUSTICE K.M. JOSEPH]**	
Status/Stage	Pending - (Motion Hearing [FRESH (FOR ADMISSION) - CIVIL CASES]) List along with case (C.A.Nos.4251 to 4252 of 2019), Notice Issued and Stay Granted-Ord dt:08-10-2020	
Tentatively case may be listed on **(likely to be listed on)**	23-11-2020 (Computer generated)	
Category	1503-Appeal Against Orders Of Statutory Bodies : Tribunals	
Act		
Petitioner(s)	1 RIHAND SUPER THERMAL POWER STATION STATION, P. O. - RIHAND NAGAR, DISTRICT SONEBHADRA , DISTRICT: THROUGH ITS ADDITIONAL GENERAL ,SONBHADRA , UTTAR PRADESH 2 SINGRAULI SUPER THERMAL POWER STATION THROUGH ITS DEPUTY MANAGER PO SHAKTINAGAR , DISTRICT: SONEBHADRA ,SONBHADRA , UTTAR PRADESH	

एनटीपीसी
NTPC
A Maharatna Company

एन टी पी सी लिमिटेड
NTPC Limited

रिहन्द / RIHAND

संदर्भ संख्या / Ref. no.: 070/EMG/AU/UPPCB/2020 दिनांक / Date: 09.10.2020

The Chief Environment Officer (Circle – 2),
Uttar Pradesh Pollution Control Board
T.C. – 12 V., Vibhuti Khand
Gomti Nagar, Lucknow
Pin: 226 010

Subject: Stay granted by Hon'ble Supreme Court for the direction of Hon'ble NGT regarding imposing compensation for damages caused to environment in case no. O.A. 453/2019 in the matter of Shri Anjani Jaiswal vs. Union of India & Ors.

Dear Sir,

With reference to subject referred case and directions of Hon'ble NGT, U.P. Pollution Control Board vide letter ref. H42337/C-2/NGT-40/OAN-453/2019 dated 04.10.2019 has directed us for submitting an amount of Rs. 45.90 Lacs as compensation for the damages caused to environment as per the report of committee constituted of Hon'ble NGT in subject referred case.

In this regard, it is submitted that we had filed a civil appeal vide diary number 1197/2020 dtd. 09.01.2020 and case no. 2983/2020 in Hon'ble Supreme Court to grant stay against above order of Hon'ble NGT.

It is submitted that after hearing Hon'ble Supreme Court has granted stay for submission of subject referred environment compensation vide order dated 08.10.2020. Copy of the order of Hon'ble Supreme Court is enclosed herewith as ready reference.

Above is for your kind information please.

Thanking you

Yours faithfully,

09/10/20

(V.K. Atteri)
AGM (EMG/AU)

Copy:

The Member Secretary
Uttar Pradesh Pollution Control Board
T.C. – 12 V., Vibhuti Khand
Gomti Nagar, Lucknow
Pin: 226 010

रिहन्द सुपर थर्मल पावर प्रोजेक्ट, पोओ - रिहंदनगर, जिला – सोनभद्र (उ.प्र.), पिन – 231 223, टेली / Tel: 05446-242021
Rihand Super Thermal Power Project, PO: Rihand Nagar, Dist: Sonebhadra (UP), Pin: 231 223, Fax: 05446-242115
पंजीकृत कार्यालय एनटीपीसी भवन, स्कोप कॉम्पलेक्स, 07 इन्स्टीटयूशनल एरीया, लोधी रोड, नई दिल्ली - 110 003
Regd Office: NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi – 110 003

Regional Director – North
Central Pollution Control Board
PICUP Bhawan, Ground Floor,
Vibhuti Khand, Gomti Nagar,
Lucknow – 221 010 (UP)

The Regional Officer,
Uttar Pradesh Pollution Control Board
Uttar Mohall, House no. 162, Near Chandi hotel
Robertsganj, Sonebhadra (UP)
Pin: 231 216

ITEM NO.1+2 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 3122/2020

VINDHYACHAL SUPER THERMAL POWER STATION Appellant(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

(IA No. 83700/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT)
(IA No. 83702/2020 - EXEMPTION FROM FILING O.T.)
(IA No. 83701/2020 - PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES
(IA No. 83699/2020 - STAY APPLICATION)

with
Civil Appeal No. 2983 of 2020
(I.A.No. 74503/2020-Exemption from filing c/c of the impugned Judgment)(I.A.No. 74504/2020 – exemption from filing O.T.)
(I.A.No. 74502/2020 – Permission to file additional documents/facts/annexures)(I.A.No. 74501/2020 – stay application)

Date : 08-10-2020 These matters were called on for hearing today.

CORAM : HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Appellant(s) Mr. Tushar Mehta, Solicitor General
Mr. Shailesh Madiyal, AOR
Mr. Sudhanshu Prakash, Adv.
Mr. Sarthak Bhardwaj, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Issue notice.

There shall be stay of recovery in the meantime.

Tag the matters along with Civil Appeal Nos. 4251-4252 of 2019.

(JAYANT KUMAR ARORA)
COURT MASTER

(R.S. NARAYANAN)
COURT MASTER

SUPREME COURT OF INDIA (/)

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Case Information (click here)

Diary Number | Case Number | Party Name | AOR | Court / Tribunal | Free Text

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Case Type	Number	Year	
CIVIL APPEAL	2983	2020	Submit

Diary No.- 1197 - 2020

RIHAND SUPER THERMAL POWER STATION vs. ANJANI JAISWAL

Case Details

Diary No.	**1197/2020** Filed on 09-01-2020 06:34 PM **[SECTION: XVII]** **PENDING**
Case No.	C.A. No. 002983 - / 2020 Registered on 24-08-2020 (Verified On 11-08-2020)
Present/Last Listed On	**08-10-2020 [HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN, HON'BLE MR. JUSTICE NAVIN SINHA and HON'BLE MR. JUSTICE K.M. JOSEPH]**
Status/Stage	Pending - (Motion Hearing [FRESH (FOR ADMISSION) - CIVIL CASES]) List along with case (C.A.Nos.4251 to 4252 of 2019), Notice Issued and Stay Granted-Ord dt:08-10-2020
Tentatively case may be listed on **(likely to be listed on)**	23-11-2020 (Computer generated)
Category	1503-Appeal Against Orders Of Statutory Bodies : Tribunals
Act	
Petitioner(s)	1 RIHAND SUPER THERMAL POWER STATION STATION, P. O. - RIHAND NAGAR, DISTRICT SONEBHADRA , DISTRICT: THROUGH ITS ADDITIONAL GENERAL ,SONBHADRA , UTTAR PRADESH 2 SINGRAULI SUPER THERMAL POWER STATION THROUGH ITS DEPUTY MANAGER PO SHAKTINAGAR , DISTRICT: SONEBHADRA ,SONBHADRA , UTTAR PRADESH
Respondent(s)	1 ANJANI JAISWAL S/D/W/Thru:- ARJUN PRASAD JAISWAL R/O. LIG COLONY, SINGRAULI C/O. RAMLALLU BAISWAR DISTRICT SINGRAULI ,SINGRAULI , MADHYA PRADESH 2 UNION OF INDIA MINISTRY OF ENVIRONMENT AND FOREST THRUGH ITS CHAIRMAN/SECRETARY THRUGH ITS CHAIRMAN/SECRETARY PARYAVARAN BHAWAN ALIGANJ, JOR BAGH ROAD ,NEW DELHI , DELHI 3 CENTRAL POLLUTION CONTROL BOARD THROUGH ITS CHAIRMAN PARVESH BHAWAN CBD-CUM OFFICE COMPLEX EAST ARJUN NAGAR ,NEW DELHI , DELHI 4 STATE OF MADHYA PRADESH THROUGH ITS PRINCIPAL SECRETARY (ENVIRONMENT) E-5 ARERA COLONY PARYAVARAN PARISAR ,BHOPAL , MADHYA PRADESH 5 MADHYA PRADESH POLLUTION CONTROL BOARD THROUGH ITS CHAIRMAN/SECRETARTY E-5 ARERA COLONY PARYAVARAN PARISAR ,BHOPAL , MADHYA PRADESH 6 THE STATE OF UTTAR PRADESH THROUGH ITS CHIEF SECRETARY ROOM NO 601 BAPU BHAWAN SECRETARIAT VIDHAN SABHA MARG ,LUCKNOW , UTTAR PRADESH 7 UTTAR PRADESH POLLUTION CONTROL BOARD THROUGH ITS CHAIRMAN/SECRETARTY PICUP BHAWAN, II FLOOR VIBHUTI KHAD, GOMTI NAGAR ,LUCKNOW , UTTAR PRADESH

मेजा ऊर्जा निगम प्रा० लिमिटेड
एनटीपीसी लिमिटेड एवं उ०प्र० राज्य विद्युत उत्पादन निगम लि० का संयुक्त उपक्रम
MEJA URJA NIGAM (P) LIMITED
(A Joint Venture of NTPC Ltd. & UPRVUN Limited)

प्रयागराज
Prayagraj

Ref.No.MUNPL/2020-21/50/886

Dated: 11/08/2020

To

Shri Nizamuddin
Division Head – IPC-II
Central Pollution Control Board,
Parivesh Bhawan, Eash Arjun Nagar,
DELHI -110032

Sub: Stay given by Hon'ble Supreme Court on demand notices issued against Environment Compensation (EC) on the basis of Hon'ble NGT orders dated 12.02.2020

Ref.: Your Letter no. B-33014/7/2020/IPC-II/TPP/2016 dated 02.07.2020

Dear Sir,

This has reference to the Hon'ble National Green Tribunal (NGT) order dated 12.02.2020 wherein directive was given to CPCB to compute and levy Environmental Compensation (EC) in accordance with the formula referred in the said order w.r.t. individual TPPs in accordance with law. In compliance to Hon'ble NGT order, CPCB has issued demand notice to MTPP, MUNPL-Meja vide above referred letter.

NTPC has filed a Civil Appeal in Hon'ble Supreme Court vide no.CA-2713/2020 for stay on above mentioned Hon'ble NGT orders. NTPC has also filed IA vide 59147/2020 for stay on demand notices issued by CPCB. Hon'ble Supreme Court vide its order dated 21.07.2020 granted stay on the recovery of EC in pursuance of Hon'ble NGT order. Copy of Hon'ble Supreme Court order is attached with for kind information please.

Regards,

For & on behalf of MTPP, MUNPL-Meja,

Encl: As above.

(Asim Kumar Samanta)
Chief Executive Officer

ITEM NO.1 Virtual Court 4 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s).1692-1693/2020

M/S ARAVALI POWER CO. PVT. LTD. Appellant(s)

VERSUS

VEDPRAKASH & ANR. Respondent(s)

(ONLY C.A. NO. 2713/2020 TO BE LISTED ON 21.7.2020)

WITH
C.A. No. 2713/2020 (XVII)
(WITH IA No. 59150/2020 - EXEMPTION FROM FILING AFFIDAVIT, IA No. 59148/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT, IA No. 64390/2020 - STAY APPLICATION, IA No. 59147/2020 - STAY APPLICATION)

Date : 21-07-2020 This appeal was called on for hearing today.

CORAM :
HON'BLE DR. JUSTICE D.Y. CHANDRACHUD
HON'BLE MS. JUSTICE INDU MALHOTRA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Appellant(s) Mr. Tushar Mehta, SG
Mr. Shailesh Madiyal, AOR
Mr. Sudhanshu Prakash, Adv.

Mr. Gaurav, AOR

For Respondent(s) Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Khandpal, Adv.
Mr. Gaurav Srivastava, Adv.

UPON hearing the counsel the Court made the following
O R D E R

C.A. No. 2713/2020

Signature Not Verified
Digitally signed by ARJUN BISHT
Date: 2020.07.21 19:02:51 IST
Reason:

Issue notice.

2 Dasti, in addition, is permitted.

3 Tag with Civil Appeal Nos 1692-1693 of 2020.

4 Mr Tushar Mehta, learned Solicitor General, states that in the Civil Appeals in which notices have previously been issued by the Court, no interim orders were sought for stay of the demand since no demands had been raised. In the present case, it has been submitted that a demand notice has been issued on the basis of the order of the National Green Tribunal[1].

5 We direct that pending further orders, there shall be a stay of recovery in pursuance of the impugned order of the NGT.

(SANJAY KUMAR-I)
AR-CUM-PS

(SAROJ KUMARI GAUR)
COURT MASTER

भारतीय प्रौद्योगिकी संस्थान रुड़की
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
सिविल अभियांत्रिकी विभाग
DEPARTMENT OF CIVIL ENGINEERING
रुड़की – 247 667, उत्तराखण्ड, भारत
ROORKEE-247 667, UTTARAKHAND, INDIA
Fax/फैक्स: 01332-275568, 273560
Tele/फोन : 01332-284319, 285219
E-mail/ई–मेल : civil@iitr.ac.in

Dr. N. K. Samadhiya
Professor
samadhiyank@gmail.com
nksamfce@iitr.ac.in

No. CED/GTE/NKS/ 412
Dated December 04 , 2019

CERTIFICATE OF STABILITY OF NTPC-SSTPS ASH DYKES

NTPC-SSTPS Ash Dykes
Location: Shahpur, MP.

S1: 2nd raising in service.

S2: 1st raising under construction.

SSTPS ash dykes (namely S1 & S2) were visited on 15.11.19 and subsequently thorough analysis was done with respect to Structural Stability of the Dykes.

Based on analysis, it is certified that both dykes of NTPC-SSTPS are "***Technically Sound and Structurally Sustainable***".

Samadhiya

(N K Samadhiya)

भारतीय प्रौद्योगिकी संस्थान रूड़की
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
सिविल अभियांत्रिकी विभाग
DEPARTMENT OF CIVIL ENGINEERING
रुड़की – 247 667, उत्तराखण्ड, भारत
ROORKEE-247 667, UTTARAKHAND, INDIA
Fax/फैक्स: 01332-275568, 273560
Tele/फोन : 01332-284319, 285219
E-mail/ई–मेल : civil@iitr.ac.in

Dr. N. K. Samadhiya
Professor
samadhiyank@gmail.com
narendra.samadhiya@ce.iitr.ac.in
nksamfce@iitr.ac.in

No. CED/GTE/NKS/ 3101
Dated January 31 , 2020

CERTIFICATE OF STABILITY OF NTPC-RIHAND ASH DYKES

NTPC-Rihand Ash Dykes
Mitihini: Lagoon I and II
Central: Lagoon I and II

The NTPC Rihand ash dykes were visited on 10.01.2020 and subsequently thorough analysis was done with respect to Structural Stability of the Dykes. On the basis of the analysis and Ash Dykes Inspection reports, it is certified that all the ash dykes namely Mitihini: Lagoon I and II and Central: Lagoon I and II of NTPC-RIHAND are "***Technically Sound and Structurally Sustainable***".

Samadhiya

(N K Samadhiya)

भारतीय प्रौद्योगिकी संस्थान रुड़की
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
सिविल अभियांत्रिकी विभाग
DEPARTMENT OF CIVIL ENGINEERING
रुड़की – 247 667, उत्तराखण्ड, भारत
ROORKEE-247 667, UTTARAKHAND, INDIA
Fax/फैक्स: 01332-275568, 273560
Tele/फोन : 01332-284319, 285219
E-mail/ई–मेल : civil@iitr.ac.in

Dr. N. K. Samadhiya
Professor
samadhiyank@gmail.com
nksamfce@iitr.ac.in

No. CED/GTE/NKS/ 1206
Dated June 12 , 2020

To,
Er. Om Prakash Gupta
DGM (O&M-Civil)
Feroz Gandhi Unchahar Thermal Power Project
NTPC, UNCHAHAR

Sub: Final Report on Site Visit and Technical assessment w.r.t. stability Study of the starter Dykes (U1 and U2) of FGUTPP, Arkha Village

Dear Sir,

Please find attached herewith the report entitled "Final Report on Site Visit and Technical Assessment on Stability of Starter Dykes (U1 and U2) of FGUTPP,Unchahar"

Please feel free to write for any queries.

Thanking you,

Yours faithfully

Samadhiya

(N. K. Samadhiya)

FINAL REPORT ON SITE VISIT AND TECHNICAL ASSESSMENT ON STABILITY OF STARTER DYKES (U1 AND U2) OF FGUTPP UNCHAHAR

N K Samadhiya
V A Sawant

Sponsored by
FGUTPP, NTPC
Unchahar



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

JUNE 2020

FINAL REPORT ON SITE VISIT AND TECHNICAL ASSESSMENT ON STABILITY OF STARTER DYKES (U1 AND U2) OF FGUTPPUNCHAHAR

N K Samadhiya and V A Sawant
Professor, Department of Civil Engineering, IIT Roorkee

1.0 INTRODUCTION

Er. Om Prakash Gupta DGM (O&M-Civil) NTPC Ltd., Feroz Gandhi Unchahar Thermal Power Project (FGTPP), Unchahar, Uttar Pradesh vide e-mailed letter No. O&M/Civil/Plant/2019/229 dated April 08, 2019, requested Prof N. K.Samadhiya, Department of Civil Engineering, Indian Institute of Technology (IIT) Roorkee for Site Visit and Technical assessment on stability of starter dykes embankment (U1 and U2) of NTPC, FGUTPP at Arkha Village. The proposal was given by Dr. N.K. Samadhiya, Professor, Department of Civil Engineering, IIT Roorkeevide letter No. CED/GTE/NKS/2804 dated April 28, 2019. The acceptance of the proposal was communicated by Er. Mohd Anwar Ansari, NTPC, vide Purchase Order No. 4000224755-026-1006Dated 07.08.2019Accordingly, a two member team comprising Prof. N. K. Samadhiya and Prof. V. A. Sawant visited the Ash-Ponds U1 and U2 and its surroundings on 27th September 2019 to assess the stability of the embankment and provide remedial measures for strengthening the embankment, if any. During the site visit, the team had technical discussions with Er. Om Prakash Gupta DGM (O&M-Civil) and Er. Arun Kumar, Manager (O&M Civil), NTPC Ltd. FGTPP, Unchahar.

A report based on the site visit and the stability analyses carried out for assumed values of material parameters was submitted in November 2019. It was recommended to carry out detailed soil investigation program in order to ascertain the geotechnical parameters for the dykes.

A detailed soil investigation has been carried out by FGTPP Unchahar, to ascertain the geo-technical parameters for the dyke in line with the investigation program as suggested in the earlier report. The geotechnical investigation report has been forwarded to the authors on June 02, 2020. This report includes the updated stability analyses using the strength parameters provided in geotechnical investigation report.

2.0 BRIEF ABOUT DYKES

Feroz Gandhi Unchahar Thermal Power Project (FGTPP), Unchahar, is located at Unchahar, District Raebareli (UP) having two dykes in Arkha village area. Arkha ash dyke area consists 02nos of ash dykes. The 1st raising of dyke U1 is under construction. The NTPC took over the plant from Uttar Pradesh Rajya Vidyut Nigam Limited in 1992.

The FGTPP officials have shared the drawings 9 no. 10056-UNC-W-4005 and 1440-330-POC-C-050) of the ash ponds. Fig.1 shows the site plan of dykes U1 and U2. The initial cross section of the starter dyke is shown in Fig 2. The section on D/S side got reduced due to erosion etc, which was later strengthened by FGTPP, NTPC around year 2002. The present cross section of the starter dyke is shown in Fig 3.

It was informed that the height of the starter dyke is varying between 10m to 12m depending upon the topography. The subsequent raisings shall be of 3m height each. The construction of the embankment for starter dyke is with locally available earth whereas the raisings shall be constructed with ash (compacted to 95% of MDD) with 500 mm thick earth cover. The embankment height was increased by extending the downstream slope of the embankment on to the inner side of the pond after the pond got filled up with ash.

3.0 SITE OBSERVATIONS

Following observations were made during site Visit.

1. No distress was observed/reported by the officials in both the dykes.
2. A small portion of soil, at one of the locations, on the D/S slope got eroded. However, no signs of failure of the embankment were observed. The IIT team suggested to monitor the embankment slope periodically.
3. The rock toes placed at the bottom of the dykes were found intact and no seepage was seen through rock toes.

4.0 GEOTECHNICAL INVESTIGATION PROGRAM

4.1 Suggested Investigation Program

Following investigation program was suggested.

a. Borehole with Standard Penetration Tests in boreholes at 1.5m interval up to 20.0m from the top of starter dyke, density determination — 10 Nos.

b. Borehole with Standard Penetration Tests in boreholes at 1.5m interval up to 9.0m from the top of all the raisings, density determination — 10 Nos.
c. Laboratory tests including classification tests, moisture content determination, direct shear and unconfined compression tests, permeability tests etc.

4.2 Investigation Program Carried Out

The field investigation work at the site, all along the starter dyke, was carried out from 17-03-2020 to 25-03-2020 by the Anu Soil laboratory Lucknow. The investigation work comprised of 10 boreholes of 150 mm diameter within the proposed layout of the structure. The depth of bore hole varied from 4.00-16.00 meter. Standard Penetration Test (SPT) was conducted in the boreholes at every 1.50 m interval and change of strata as per specifications. Undisturbed Soil Samples (UDS) were collected from the boreholes at every 1.5 m interval and change of strata as per sampling specifications. The relevant laboratory tests to determine the engineering characteristics of sub-soils were conducted.

4.3 Physical and Engineering Properties of Starter Dyke Material

The results of laboratory tests and bore hole log charts of bore holes indicate that the strata at the starter dyke is found to comprise of both cohesive as well as non-cohesive soil. The cohesive type soil comprises of either silty clay of low and medium plasticity and compressibility or clayey silt soil of low plasticity and compressibility belonging to 'CL', 'CI' and 'CL-ML', 'ML' group of IS classification and having 82 to 97 percent material finer than 75 micron. Whereas, the non-cohesive type soil is found to comprise of either sandy silt 'ML' type soil or silty sand 'SM' type soil' and having 25 to 76 percent fines. The results of classification tests indicate that the natural soil stratum present at the site is found to comprise of both fine-grained soils (clayey soil) and coarse-grained soils (sandy soil).

The S.P.T. values obtained in the respective clayey layer are found to range from 7 to 31 indicating that of 'MEDIUM' to 'VERY-STIFF' consistency. Whereas, the S.P.T. values obtained in the respective sandy layer region are found to range from 9 to 27 indicating that of 'Medium' to 'Dense' relative density. The water table depth varies from 4.0 to 10.5 meter below existing ground level.

5.0 STABILITY OF DYKES

The stability of the starter dykes has been checked for static and dynamic conditions as per IS:7894 for both the dykes. The stability analyses have been carried out using Bishop Simplified method. SLIDE program of RocScience has been used. The stability analysis has been carried out for starter dykes.

There is a lot of variation in the properties of soil strata available at different depths in the boreholes. A total number of 32 laboratory test results on the strength parameters are reported in the geotechnical investigation report of Anu Soil lab, Lucknow. Out of 32, 19 belongs to sandy strata and remaining 13 belongs to clayey strata. Therefore, average strength parameters have been judiciously obtained for different materials of the dyke and considered for the stability analysis of the starter dyke.

Foundation soil:

Cohesion, c = 25.99 kN/m^2

Angle of internal friction, Ø = 15.5°

Bulk unit weight = 18.83 kN/m^3

Starter Dyke

Core Material

Cohesion, c = 10.79 kN/m^2

Angle of internal friction, Ø = 23.5°

Bulk unit weight = 17.55 kN/m^3

Shell Material

Cohesion, c = 0 kN/m^2

Angle of internal friction, Ø = 29°

Bulk unit weight = 16.67 kN/m^3

Lagoon ash

The investigations were not carried out on the lagoon ash. Therefore, following typical values have been adopted.

Cohesion, c = 0 kN/m^2

Angle of internal friction, Ø = 27°

Bulk unit weight = 11.00kN/m^3

The ash disposal areas are located in Earthquake Zone-III as per IS:1893. Following coefficients have been considered in the analysis:

Horizontal coefficient of earthquake acceleration , α_h= 0.12

Vertical coefficient of earthquake acceleration ,α_v= 0.06

Following geometrical parameters have been considered:

Dyke Height

Starter dyke=12.0m (Max)

Free board= 1.0m

Dyke slope:

Slope of 2.5H:1.0V with berms of width 3m as shown in Fig. 3. The top width of dykes has been considered as 6.0 m.

The stability analyses have been carried out using Bishop Simplified method. SLIDE program of RocScience has been used.The stability analyses have been carried out for following conditions:

1. Starter dyke in dry condition-static
2. Starter dyke in seepage condition-static
3. Starter dyke in seepage and earthquake without Lagoon ash condition-Dynamic
4. Starter dyke with Lagoon ash condition-Dynamic

The results of the stability analyses in the graphical form are presented in Figs. 4 to 7.

The factors of safety, for the different cases analyzed, are summarized in Table as follows.

Case	Factor of Safety	
	Local	Global
Dry condition- static	1.335	2.625
Only seepage- static	1.272	1.924
Seepage and earthquake without lagoon ash-dynamic	0.975	1.260
Seepage , earthquake with lagoon ash- dynamic	1.018	1.221

As can be seen from the table, the global factors of safety for static condition are more than 1.5 for dry and seepage condition and for various dynamic conditions are greater than 1.2. The local factors of safety are also close to 1.3 in static condition and close to 1.0 for dynamic condition. Even for the worst possible cases of seepage

and earthquake loading, which are most unlikely to occur at the same time, factors of safety close to 1.0. Therefore, the dykes are said to be **SAFE** and **STABLE.**

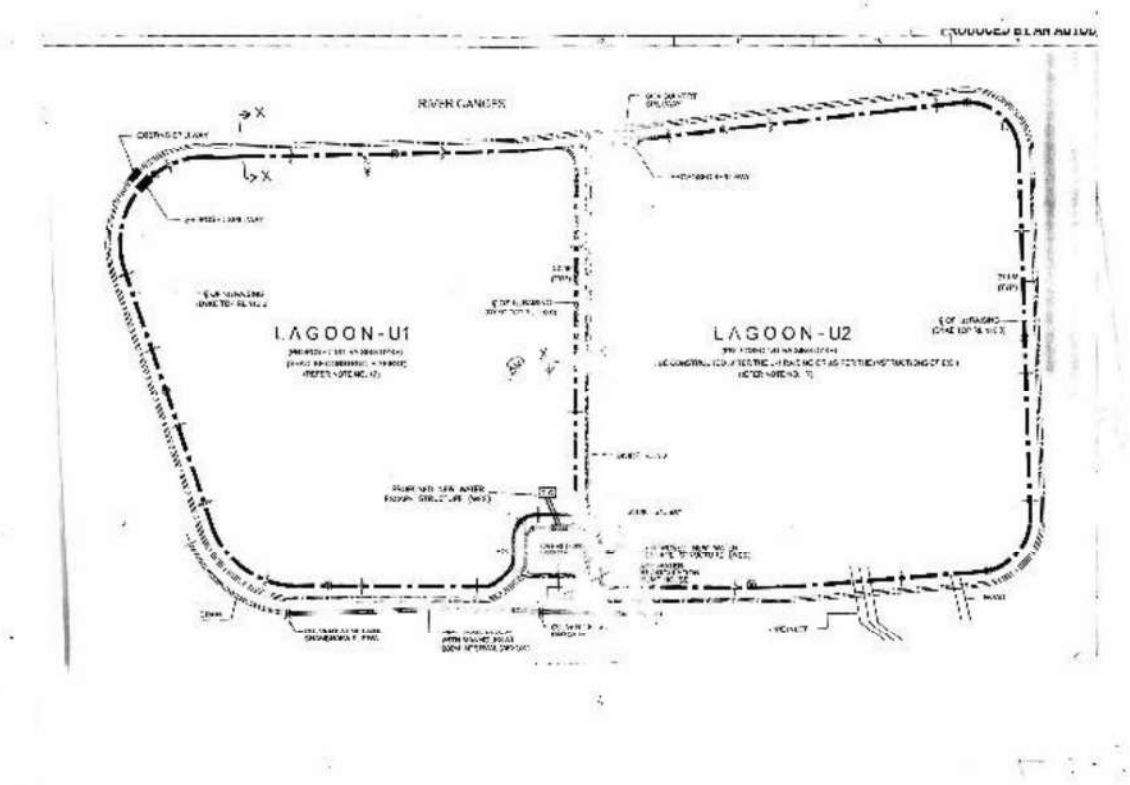


Fig 1 Layout plan of dykes U1 and U2

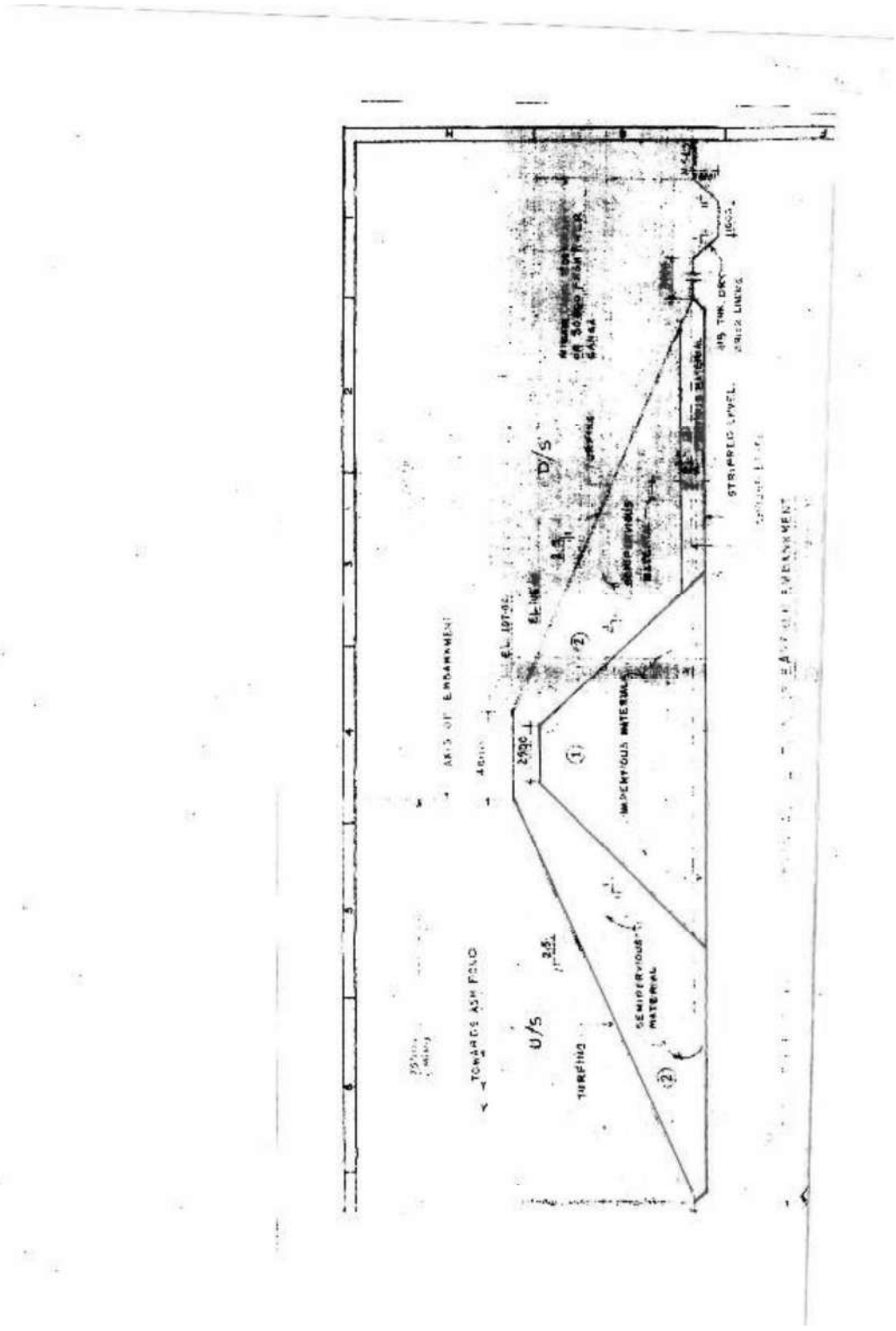


Fig 2.Typical initial cross section of the starter dykes U1 and U2

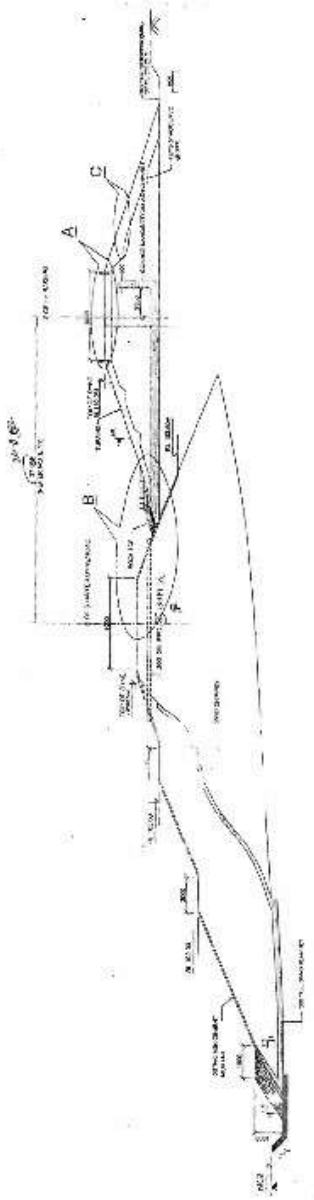


Fig 3.Typical strengthened cross section of the starter dykes U1 and U2

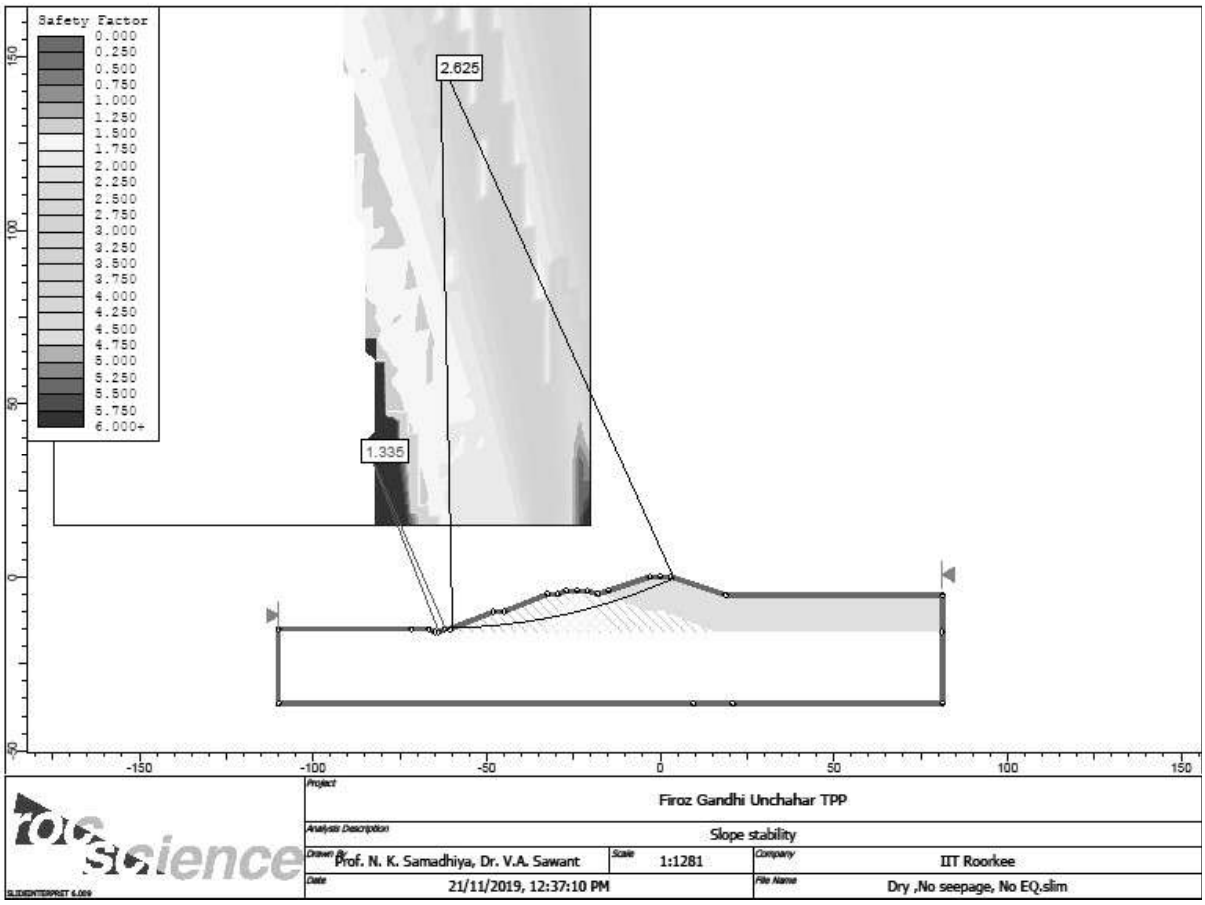


Fig 4 Static Stability analysis of starter dykes U1 and U2- Dry Condition

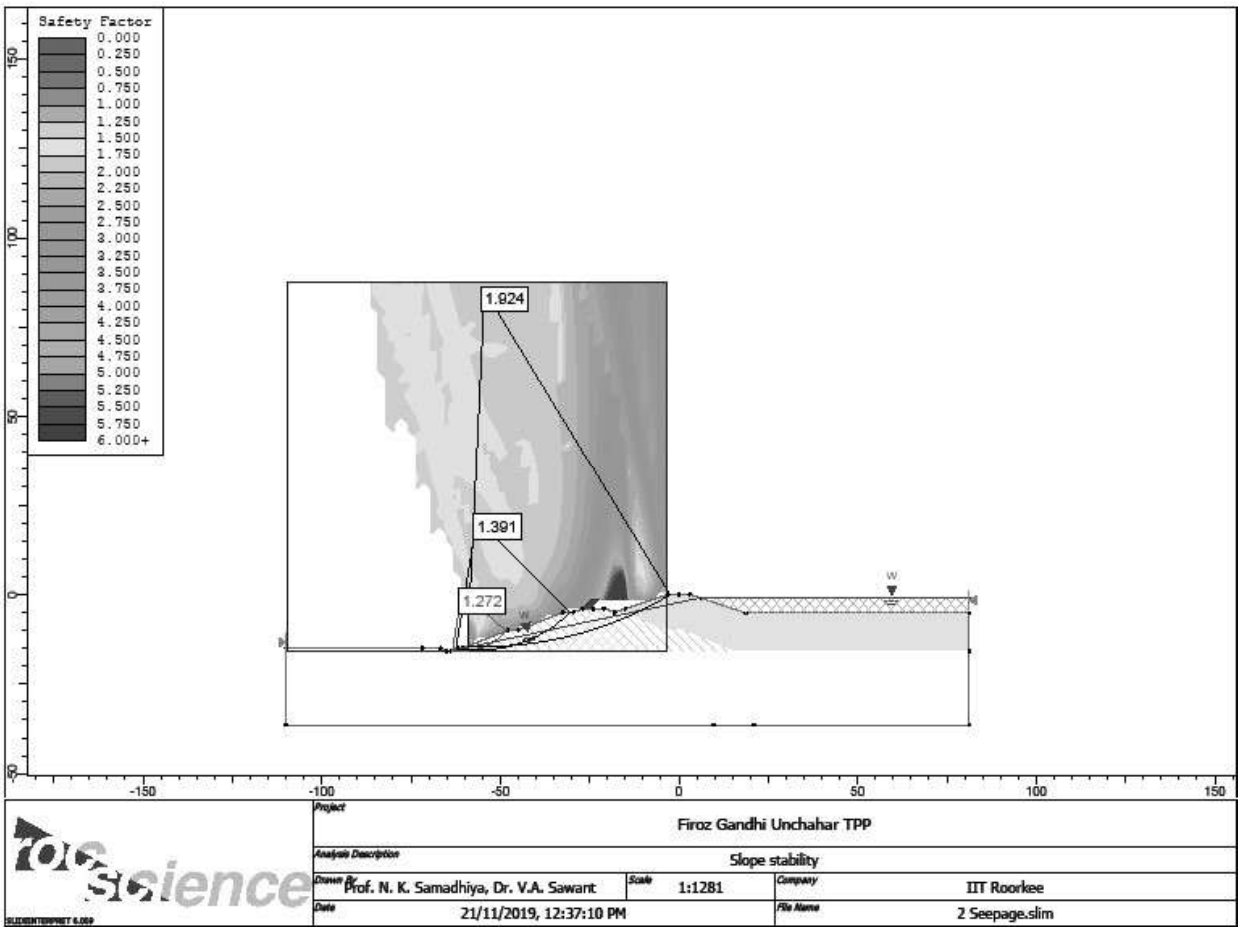


Fig 5 Static Stability analysis of starter dykes U1 and U2- Seepage Condition

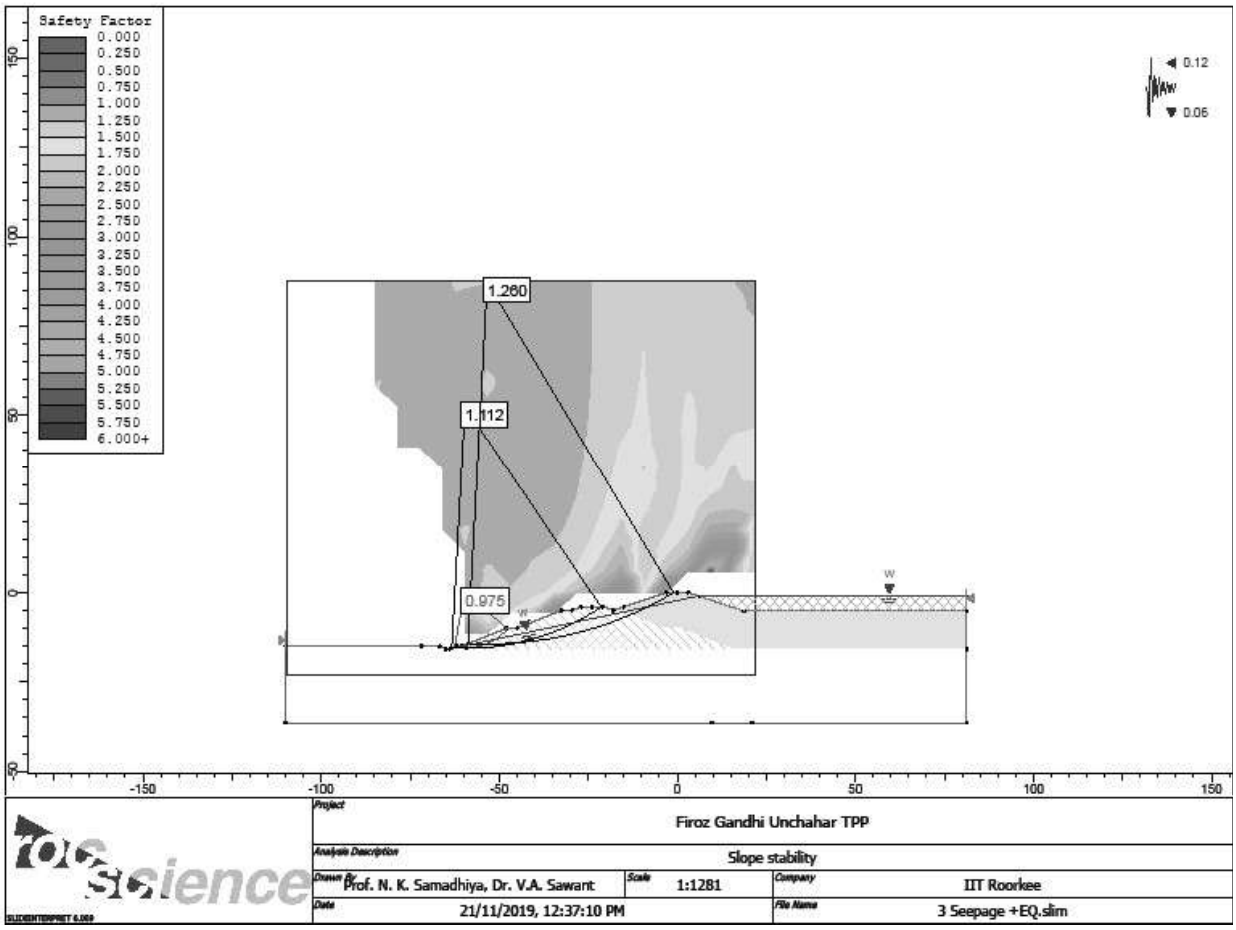


Fig 6 Dynamic Stability analysis of starter dykes U1 and U2- Seepage and Earthquake Condition

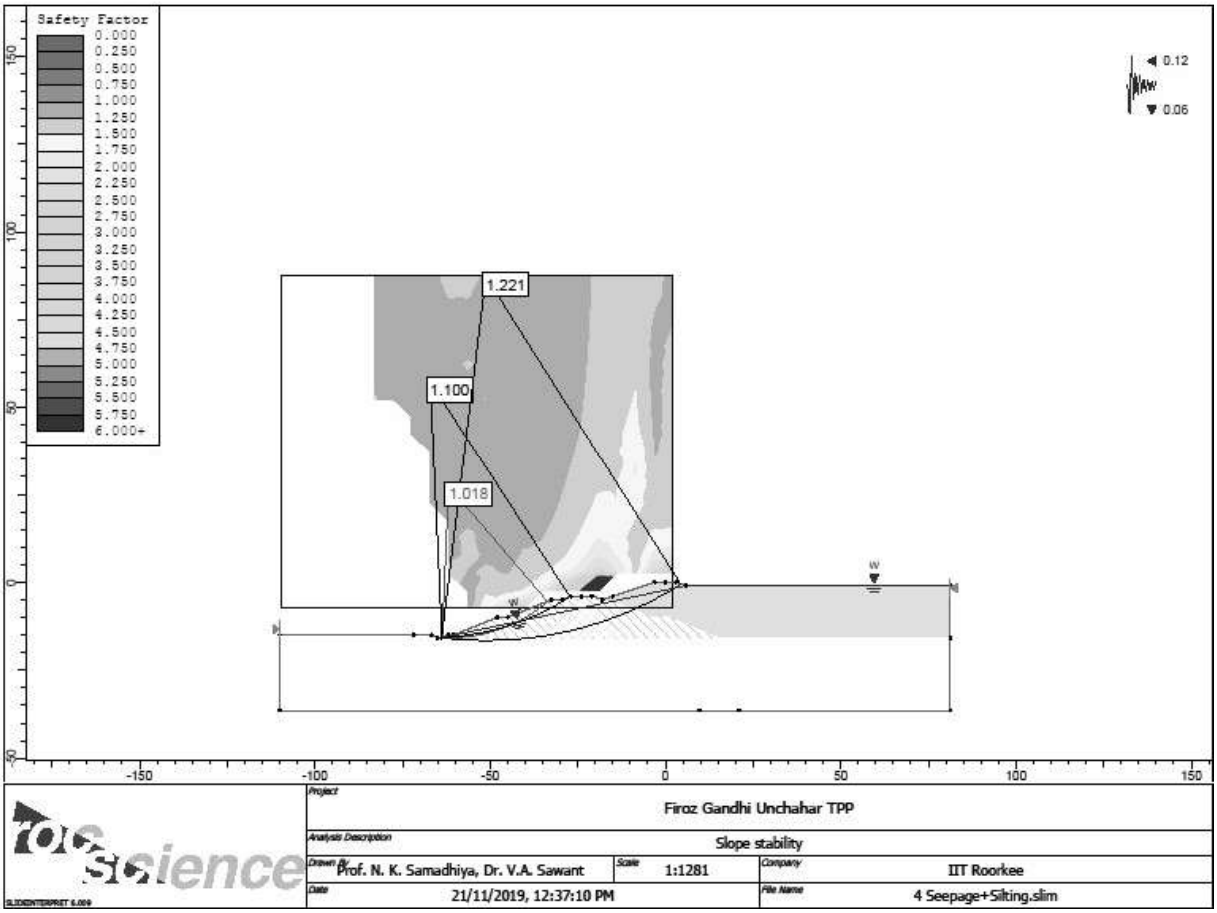


Fig 7 Dynamic Stability analysis of starter dykes U1 and U2- Seepage and Earthquake Condition- filled with Lagoon Ash

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No. CED/GTE/NKS/
Dated June , 2020

To,
Er. Om Prakash Gupta
DGM (O&M-Civil)
Feroz Gandhi Unchahar Thermal Power Project
NTPC, UNCHAHAR

Sub: Final Report on Site Visit and Technical assessment w.r.t. stability Study of the starter Dykes (U1 and U2) of FGUTPP, Arkha Village

Dear Sir,

Please find attached herewith the report entitled **"**Final Report on Site Visit and Technical Assessment on Stability of Starter Dykes (U1 and U2) of FGUTPP,Unchahar"

Please feel free to write for any queries.

Thanking you,

Yours faithfully

(N. K. Samadhiya)

Reply of Questionnaire raised by NGT Oversight committee for meeting dated 29.01.2021 : OA No. 164/2018 (Earlier OA No. 276/2013) in re: Ashwani Kumar Dubey Vs. Union of India & Ors.

Sl. No	Question	Answer
1	What steps have been taken by the TPPs 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? (From UPRVUNL/ NTPCs/ TPPs/ UPPCB)	**Anpara TPS-** It is to intimate that Anpara TPS is situated in power hub area where 20,000MW (approx) electricity is being generated resulting in huge quantities of ash being produced. At present in the vicinity of Anpara Thermal Power Project there is no any cement factory is available. Also there is no major road project running in the vicinity of TPS due to which the fly ash utilization from Anpara TPS is poor. However following efforts have been made by Anpara TPS for achieving 100 % fly ash utilization:- i. Anpara TPS is initiating proposal for developing ash mound in its vicinity for landscaping work. Which is in process of study. ii. Anpara TPS has invited Expression of Interest through newspaper and uploaded UPRVUNL web site three times in a year for lifting of fly ash from the users. iii. The capacity DFAES of B-TPS is to be enhanced along with augmentation in DFAES of ATPS. iv. About 5.0 Lac MT Pond Ash has been utilized in raising of ash dyke and approx 5.0 Lac MT pond ash will be used in next 3-4 months. v. Fly ash is being issued to Brick manufacturers **Obra TPS** :- It is to intimate that Obra TPS is situated in power hub area where 20,000MW (approx) electricity is being generated resulting in huge quantities of ash being produced. At present in the vicinity of Obra Thermal Power Project there is only one cement factory is available which takes only 400 MT/day. Also there is no major road project running in the vicinity of TPS due to which the fly ash utilization from Obra TPS is poor. However following efforts have been made by Obra TPP for achieving 100 % fly ash utilization:- For increasing Fly ash utilization following efforts are being made:- i. Presently only 4 units of 200 MW of Obra BTPS is under operation. ii. Average ash generation during last 4 months has been 3800 MT/day. (114000 MT/month) iii. Average utilization of fly ash through UltraTech cement factory is 400 MT/day (12000 MT/month) iv. Average utilization through Brick manufacturer is 4 MT/day (120 MT/month) v. Remaining ash is being safely disposed in the Ash dyke in the form of Ash slurry. vi. Agreement for lifting 4500 MT/day fly ash is almost in final stage with M/s ACC Limited. After agreement ash lifting

		will be done from 5X200MW Obra BTPS, 4 Units of which are under operation as well as from 2X660 MW Obra C Units upon their synchronization. M/s ACC Limited is going to establish its cement plant at Salai Banwa which is approx. 8-10 km away from Obra Thermal Power Station. vii. District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. In these four mines approx. 3.0 Lac MT ash can be filled. NOC from UPPCB, revenue, mining and forest department has been taken. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process. viii. District Administration has provided a low lying area near Lodhi Toll Plaza near Circuit House for reclamation and development by backfilling with fly ash. NOC from UPPCB has already been obtained. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of 1.5 Lac MT ash in this area shall be process. **ix.** Obra Colony has low lying area in Sector 2 and 3. Approx 2.4 Lakh cum ash can be fill in first phase and subsequently about 5-10 Lakh cum shall also be fill in this low lying area. NOC from UPPCB has already been obtained for filling of ash in low lying area in Sector 2 and 3. Various studies by MNIT, Allahabad are being done which will take about 5 months. Tender for aforesaid work has already been invited. **Parichha TPS-** i. Parichha TPS is situated on Jhansi –Kanpur highway almost 25 km away from Jhansi railway station. A cement factory named M/s Heidelberg Cement is situated nearly 5 km away from the project. Two separate agreements has been made with Heidelberg cement for utilization of dry fly ash generated from units of 210 MW and 250 MW. Presently Heidelberg cement has enhanced its production capacity, to mete out additional fly ash requirement for production of cement M/s Heidelberg cement also using pond ash. ii. Approval for awarding the work of disposal of 5.0 lac MT Pond ash for stowing/backfilling in 04 Nos. abandoned mines/quarries near Jhansi is in process. iii. For package no 4&5 of Bundelkhand Expressway a tender for 30,000.00 cum pond ash transportation in each package i.e. total 60,000.00 cum has been invited. The part-2 has been opened and the case is under negotiation. iv. Pond ash from Parichha ash dyke is being used in Jhansi-Khajuraho expressway for filling. v. Pond ash from Parichha ash dyke is also being used by local users for filling and other purposes.

		Harduaganj TPS- i. Silos are installed in all three units and are in operation. Agreement is made with M/s Kannodia Cement Ltd, M/s Ashtech India Pvt.Ltd. , M/s Mangalam cement Ltd. and M/s Macfinn Infra, Dadri for disposal of dry fly ash and they are lifting fly ash from silo. ii. Dry Fly ash is being issued to Brick/ Block manufacturers free of cost.
2	What is present status of ambient air quality and water quality of Rihand reservoir and other water bodies including groundwater? (From UPPCB/ CPCB)	N/A
3	De-silting of Rihand reservoir needs to be undertaken on scientific basis and cost recovered in the manner apportioned by CPCB. Apart from desilting, structural improvement of the dykes needs to be simultaneously taken up. Present Status? (From UPPCB/CPCB)	N/A
4	Present status of development of fly ash mounds and back filling of the abandoned mines and also cost apportionments for desilting and restoration of Rihand reservoir. (From CPCB/ TPPs/NTPCs/UPRVUNL)	i. Anpara TPS is initiating proposal for developing ash mound in its vicinity for landscaping work. Which is in process of study. ii. District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. In these four mines approx. 3.0 Lac MT ash can be filled. NOC from UPPCB, revenue, mining and forest department has been taken. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process.
5	What is the present status regarding the study to assess sediment volume at various places in the reservoir as per the direction given by Hon'ble NGT? (From CPCB/ Irrigation Department, U.P.)	N/A
6	What steps have been taken by Anpara TPS and Lanco-Anpara Power Plants to stop ash pond overflow discharge into Rihand reservoir as per the direction of Hon'ble NGT. (From NTPCs/ UPRVUNL)	Raising of ash pond of Anpara is being done which will be completed by March 2021.Entire ash pond is divided in two parts. The one part i.e. lagoon 02 is almost completed in which ash slurry will be disposed in next 02 months. Apart from above following is being made to arrest the overflow:- i. Increasing the height of main spillway ii. Construction of RR wall with steel gate in auxiliary pond. iii. AWRS of A, B ,D and Lanco TPs is in operation.

		iv. For Morcha Nala diversion offer from following department has been invited (a) Central Water and Energy Research centre, Pune (b) Central Water Institute, New Delhi. Reply from the above agencies is still awaited v. At present there is no any overflow from ash pond to Rihand reservoir.
7	What steps have been taken by TPPs and UPRVUNL for transportation of coal as per the direction of Hon'ble NGT. (From NTPCs/ UPRVUNL/ Hindalco Industries)	Transportation of coal is being done through MGR system. In this system there is no any pollution to environment.
8	Any EC imposed on the non-compliant TPPs (the cut-off date of 31.12.2017 as stipulated in the Notification dated 27.01.2016). (From CPCB)	N/A
9	Present status regarding health status of the citizens of the affected areas and the trend of diseases related to pollution arises from TPPs. (From Health Secretary, UP)	N/A
10	Present status of shifting of Mercury brine sludge and muck. (From UPPCB/ Grasim Industry)	N/A
11	Present status on ban of manufacturing of red bricks by use of clay/soil and by burning of coal with a view to facilitate more disposal of fly ash in brick manufacturing. (From MoEF&CC/ CPCB/ Hindalco Industries)	N/A
12	Are CPCB Guidelines of May 2019 for Utilization/Disposal of Fly ash for Reclamation of Low-Lying Areas and regarding Stowing/Back filling of Abandoned Mines/Quarries being complied with? (From UPPCB/ CPCB/ DM, Sonbhadra/ NTPCs/ UPRVUNL)	Following area has been identified for filling of ash in low lying area and in abandoned Stone quarry:- 1. 04 mines (Area 3.6 acre) in Billi Markundi 2. Low lying area near Lodhi Toll Plaza and near Circuit House. 3. Low lying area in sector 2 & 3 at Obra colony. In compliance of CPCB guidelines various studies are being done by MNIT, Allahabad which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process.
13	CPCB's action plan has been implemented?	As per guideline of CPCB study is being done by MNIT Allahabad. After getting the recommendation of MNIT same shall be followed at site for filling of ash in low lying area/abandoned stone quarry.
14	Has the Task Force of Ministry of Power and Ministry of Coal prepare list of abandoned mines/quarries for mine back filling purposes to the CPCB.	UPRVUNL has requested to NCL for allotment of abandoned coal mines at Gorbi

	CPCB may notify the same accordingly for use by the TPPs as per applicable guidelines and permission from UPPCB?	
15	What is the status of action taken report of Joint Committee comprising members from MOEF & CC, CPCB and UPPCB with reference to the allegation that Thermal Power Stations operating in district Sonebhadra (U.P.) are causing damage to the environment? (From UPPCB/ CPCB/ MOEF&CC)	N/A
16	Has the joint Committee comprising of MoEF&CC, CPCB, IIT Roorkee send the 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. with its implementation status.?	N/A
17	What steps have been taken by NTPCs to promote offtake of dry fly ash as well as the problem of transportation of fly ash in bulk quantity.	Some firms has shown their interest for lifting of ash from Anpara TPS through railway rakes. They have been requested by UPRVUNL to visit the Anpara TPP for the feasibility of ash transportation through railway rakes.
18	What action has been taken by NTPCs for supply of fly ash to brick manufacturers located within 300 kms radius from NTPCs in the State of UP?	UPRVUNL frequently call EoI for lifting of ash from brick manufacturers/Tile manufactures etc. Apart from above, for maximum ash utilization no of letters has been issued to UPPWD/UPRNN/UPEIDA/NHAI/ U.P. Irrigation etc to lift the ash from ash pond of TPS free of cost. But these agencies didn't show their interest to lift the ash from ash pond.
19	As per earlier meeting dated 25.09.2020, the Oversight Committee directed General Manager, NTPCs; Director, UPRVUNL and District Administration, in order to enhance fly ash utilization levels, to provide the list of wastelands available within 100 kms of NTPCs in the State. Present Status?	UPRVUNL identified some land in the vicinity of thermal power project whose details are as under- **Anpara TPS-** • Dibulganj low lying area- After obtaining NOC from UPPCB ash filling work started. • Saddle Dam Area- This area is abandoned ash pond which is identified for ash mound area. This is in process of study. **Obra TPS-** • District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. In these four mines approx. 3.0 Lac MT ash can be filled. NOC from UPPCB, revenue, mining and forest department has been taken. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process. • District Administration has provided a low lying area near Lodhi Toll Plaza near Circuit House for reclamation and

		development by backfilling with fly ash. NOC from UPPCB has already been obtained. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of 1.5 Lac MT ash in this area shall be process. • Obra Colony has low lying area in Sector 2 and 3. Approx 2.4 Lakh cum ash can be fill in first phase and subsequently about 5-10 Lakh cum shall also be fill in this low lying area. NOC from UPPCB has already been obtained for filling of ash in low lying area in Sector 2 and 3. Various studies by MNIT, Allahabad are being done which will take about 5 months. Tender for aforesaid work has already been invited.
20	What action has been taken by NTPC Shaktinagar to repair the AWRS dislodged pipeline and to stop discharge of decant water of the dykes as per recommendation by the Committee? (From NTPC Shaktinagar)	N/A
21	Has all the TPPs develop RCC wall around the power plants?	**Anpara TPS-** The fly ash dyke is structurally safe. The soil investigation of ash dyke was done be MNIT Allahabad and on the basis of investigation report IIT Roorkee has design the ash dyke raising work using Gabion Wall. All safety measures such as Sand filter, Chimney Filter, Geo grid, Geo textile, Brick pitching with pointing, grass turfing on outer slope, decantation well etc has been taken. The ash dyke is being raised on IIT Roorkee Report in which all safety measure has been taken therefore, there is no any chances of breaching of ash dyke. Hence RCC wall is not required around the ash dyke. **Obra TPS-** The fly ash dyke is structurally safe. The soil investigation of ash dyke was done by IIT BHU and on the basis of investigation report IIT Roorkee has designed the ash dyke using Gabion Wall. All safety measures such as Sand filter, Chimney Filter, Geo grid, Geo textile, Brick pitching with pointing, grass turfing on outer slope, decantation well etc has been taken. The ash dyke is being raised on IIT Roorkee Report in which all safety measure has been taken therefore, there is no any chances of breaching of ash dyke. Hence RCC wall is not required around the ash dyke.
22	The Committee observed that 04 mines in Dalla-Bari area had been identified as undisputed and District Administration has allotted these mines to UPRVUNL in which Obra TPS of UPRVUNL will start filling ash after obtaining NOC from UPPCB. Dispute of ownership between Revenue department	District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. NOC for 4 mines (Area 3.6 acre) has been taken from UPPCB, revenue, mining and forest department has been taken. The ownership on rest 03 mines is under dispute which is to be resolve. However for filling of ash in abandoned 04 No. stone quarry, various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process.

	and Forest department for other mines is still to be resolved. It is recommended that UPPCB issues NOC to UPRVUNL within 15 days so that work may start. Furthermore, regarding other mines a meeting to be conducted in chairmanship of concerned District Magistrates and officials from Forest and Revenue Department in this month. Present status?	
23	What action has been taken on the project on priority basis by the Irrigation Department regarding natural drain (Morcha Nala). Present status? (Ref: Assessment report received from IIT- BHU has been sent to Corporation HQ. Corporate HQ is waiting for action on the said proposal from the Irrigation Department)	For diversion of Morcha Nala a meeting was conducted on 04.11.2020 in the chairmanship of Additional Chief Secretary, Irrigation department. In the above meeting irrigation department has denied to divert the morcha nala by their department and they suggested to take consultancy from Central Water and Energy Research centre, Pune and Central Water Commission, New Delhi. In compliance of above directives offer has been invited from the above agencies but the reply from them is yet to be received.
24	**Present status of the following regarding Anpara TPS:**	
	The breach of Flyash dyke in U.P. Rajkiya Vidyut Nirman Anpara, Lanco Thermal Power Plant and its measures. (From UPVUNL/ NTPCs/ CPCB)	The fly ash dyke is structurally safe. The soil investigation of ash dyke was done by MNIT Allahabad and on the basis of investigation report IIT Roorkee has design the ash dyke raising work using Gabion Wall. All safety measures such as Sand filter, Chimney Filter, Geo grid, Geo textile, Brick pitching with pointing, grass turfing on outer slope, decantation well etc has been taken to ensure for all the safety of ash dyke. There is no any breach from ash dyke of Anpara till date.
	Zero discharge from ash dyke and constraints in Anpara TPS	Raising of ash pond of Anpara is being done which will be completed up to March 2021.Entire ash pond is divided in two parts. The one part i.e. lagoon 02 is almost completed in which ash slurry will be disposed in next 02 months. Apart from above UNL following is being made to arrest the overflow:- i. Increasing the height of main spillway ii. Construction of RR wall with gate in auxiliary pond. iii. AWRS of A, B ,D and Lanco TPs is in operation. iv. For Morcha Nala diversion consultancy from…… is being taken. v. At present there is no any overflow from ash pond to Rihand reservoir.
	Ash Utilization in stone quarry of Anpara TPS	District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. In these four mines approx. 3.0 Lac MT ash can be filled. NOC from UPPCB, revenue, mining and forest department has been taken. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process.

	Ash filing in Low lying area of Anpara TPS	Dibulganj low lying area- After obtaining NOC from UPPCB low lying area dibulganj has been filled up with ash.
	Other avenues for ash disposal/utilization of Anpara TPS	i. Anpara TPS is initiating proposal for developing ash mound in its vicinity for landscaping work. This is in process of study. ii. Anpara TPS has invited Expression of Interest through newspaper and uploaded UPRVUNL web site three times in a year for lifting of fly ash from the users. iii. The capacity DFAES of B-TPS is to be enhanced along with augmentation in DFAES of ATPS. iv. About 5.0 Lac MT Pond Ash has been utilized in raising of ash dyke and approx 5.0 Lac MT pond ash will be used in next 3-4 months. v. Fly ash is being issued to Brick manufacturers vi. UPRVUNL has requested to NCL for allotment of abandoned coal mines at Gorbi
	What action has been taken by the Irrigation and Water Resources Department, UP for ensuring compliance of the direction of Hon'ble NGT regarding liability for Environmental Compensation in respect of UPRVUNL Anpara? (Irrigation and Water Resources Department, UP /CPCB/UPPCB/ Anpara TPS)	Hon'ble Supreme Court of India has passed stay order on the NGT orders.
25	Present status of the **Performance Guarantee** to be furnished regarding ambient air quality and water quality of Rihand reservoir and other water bodies including groundwater and status of CAAQMS installed/under process by Thermal Power Plants (From NTPCs/ UPRVUNL/ UPPCB/CPCB)	**Obra:-** Obra TPS has installed Continuous Ambient Air Quality Monitoring Systems (CAAQMS) at three places viz. VIP Guest House, ETP and CHP, ATPS which are operational. **Anpara:-** The Anpara TPS has installed three CAAQMS for ambient air quality monitoring. All the three CAAQMS are working effectively and with CPCB server. The location of CAAQMS equipment are Anpara colony near aurimore, Anpara Admin building near bajarang Nagar and Anpara DTPS coal Handling Plant Performance gurantee for water quality has been submitted to UPPCB
26	As per the observation by the Committee that EC had been imposed on 10 industrial units but UPPCB's share has been recovered only from one unit. Rest all the industries have filed an appeal in Hon'ble Supreme Court and are pending and stay has been granted in all such cases. Present status? (From CPCB/ UPPCB)	N/A

27	All Thermal Power Plants have been directed by Hon'ble NGT to discuss about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed. **In this regard:**	
	What are structural details of Ash Dykes and their adequacy for handling of Fly Ash generated. Present Status?	**Anpara TPS-** The fly ash dyke is structurally safe. The soil investigation of ash dyke was done be MNIT Allahabad and on the basis of investigation report IIT Roorkee has design the ash dyke raising work using Gabion Wall. All safety measures such as Sand filter, Chimney Filter, Geo grid, Geo textile, Brick pitching with pointing, grass turfing on outer slope, decantation well etc has been taken to ensure that no breach will take place. **Obra TPS-** The fly ash dyke is structurally safe. The soil investigation of ash dyke was done by IIT BHU and on the basis of investigation report IIT Roorkee has designed the ash dyke using Gabion Wall. All safety measures such as Sand filter, Chimney Filter, Geo grid, Geo textile, Brick pitching with pointing, grass turfing on outer slope, decantation well etc has been taken to ensure that no breach will take place. **Parichha TPS-** The fly ash dyke is structurally safe. For the raising of ash dyke consultancy has been obtained from IIT-Roorkee and according to their direction raising work was executed. **Harduajang TPS-** The fly ash dyke is structurally safe. At present work for raising of ash dyke is under progress along with raising width of ash dyke is also increased for safety of ash dyke. The consultancy for dyke raising has been obtained from IIT Roorkee**.**
	Present status of the action taken by TPPs for third party assessment of Ash Dyke of their plants through expert institutions like NEERI, IITs.	UPRVUNL raised their ash dyke on the suggestion of IITs. Which is third party institute.
	Thermal Power Plants directed to submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash. What is the present Status?	**Anpara TPS-** It is to intimate that Anpara TPS is situated in power hub area where 20,000MW (approx) electricity is being generated resulting in huge quantities of ash being produced. At present in the vicinity of Anpara Thermal Power Project there is no any cement factory is available. Also there is no major road project running in the vicinity of TPS due to which the fly ash utilization from Anpara TPS is poor. However following efforts

		have been made by Anpara TPS for achieving 100 % fly ash utilization:- i. Anpara TPS is initiating proposal for developing ash mound in its vicinity for landscaping work. Which is in process of study. ii. Anpara TPS has invited Expression of Interest through newspaper and uploaded UPRVUNL web site three times in a year for lifting of fly ash from the users. iii. About 5.0 Lac MT Pond Ash has been utilized in raising of ash dyke and approx 5.0 Lac MT pond ash will be used in next 3-4 months. iv. Fly ash is being issued to Brick manufacturers v. UPRVUNL has requested to NCL for allotment of abandoned coal mines at Gorbi **Obra TPS** :- It is to intimate that Obra TPS is situated in power hub area where 20,000MW (approx) electricity is being generated resulting in huge quantities of ash being produced. At present in the vicinity of Obra Thermal Power Project there is only one cement factory is available which takes only 400 MT/day. Also there is no major road project running in the vicinity of TPS due to which the fly ash utilization from Obra TPS is poor. However following efforts have been made by Obra TPP for achieving 100 % fly ash utilization:- For increasing Fly ash utilization following efforts are being made:- i. Presently only 4 units of 200 MW of Obra BTPS is under operation. ii. Average ash generation during last 4 months has been 3800 MT/day. (114000 MT/month) iii. Average utilization of fly ash through UltraTech cement factory is 400 MT/day (12000 MT/month) iv. Average utilization through Brick manufacturer is 4 MT/day (120 MT/month) v. Agreement for lifting 4500 MT/day fly ash is almost in final stage with M/s ACC Limited. After agreement ash lifting will be done from 5X200MW Obra BTPS, 4 Units of which are under operation as well as from 2X660 MW Obra C Units upon their synchronization. M/s ACC Limited is going to establish its cement plant at Salai Banwa which is approx. 8-10 km away from Obra Thermal Power Station. vi. District Administration has allocated 7 nos. abandoned stone quarries in Billi Markundi area (Area 8.4 Acre) out of which 04 mines (Area 3.6 acre) are undisputed. In these four mines approx. 3.0 Lac MT ash can be filled. NOC from UPPCB, revenue, mining and forest department has been taken. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of ash in these mines shall be process. vii. District Administration has provided a low lying area near Lodhi Toll Plaza near Circuit House for reclamation and development by backfilling with fly ash. NOC from

		UPPCB has already been obtained. Various studies by MNIT, Allahabad are being done which will take about 5 months. After completion of above study, tender for filling of 1.5 Lac MT ash in this area shall be process. **viii.** Obra Colony has low lying area in Sector 2 and 3. Approx 2.4 Lakh cum ash can be fill in first phase and subsequently about 5-10 Lakh cum shall also be fill in this low lying area. NOC from UPPCB has already been obtained for filling of ash in low lying area in Sector 2 and 3. Various studies by MNIT, Allahabad are being done which will take about 5 months. Tender for aforesaid work has already been invited. **Parichha TPS-** i. Parichha TPS is situated on Jhansi –Kanpur highway almost 25 km away from Jhansi railway station. A cement factory named M/s Heidelberg Cement is situated nearly 5 km away from the project. Two separate agreements has been made with Heidelberg cement for utilization of dry fly ash generated from units of 210 MW and 250 MW. Presently Heidelberg cement has enhanced its production capacity, to mete out additional fly ash requirement for production of cement M/s Heidelberg cement also using pond ash. ii. Approval for awarding the work of disposal of 5.0 lac MT Pond ash for stowing/backfilling in 04 Nos. abandoned mines/quarries near Jhansi is in process. iii. For package no 4&5 of Bundelkhand Expressway a tender for 30,000.00 cum pond ash transportation in each package i.e. total 60,000.00 cum has been invited. The part-2 has been opened and the case is under negotiation. iv. Pond ash from Parichha ash dyke is being used in Jhansi-Khajuraho expressway for filling. v. Pond ash from Parichha ash dyke is also being used by local users for filling and other purposes. **Harduaganj TPS-** i. Silos are installed in all three units and are in operation. Agreement is made with M/s Kannodia Cement Ltd, M/s Ashtech India Pvt.Ltd. , M/s Mangalam cement Ltd. and M/s Macfinn Infra, Dadri for disposal of dry fly ash and they are lifting fly ash from silo. ii. Dry Fly ash is being issued to Brick/ Block manufacturers free of cost. ***In view of above it is clear that Parichha and Harduaganj TPP achieved 100% ash utilisation. In case of Anpara and Obra it is to intimate that there is no ample avenues for mass ash utilisation near Anpara and Obra TPS due to which the ash utilisation of these projects is poor.*** ***In this context for increasing ash utilisation from pit head TPS, the suggestions are as under-*** ***The manufacturing of Red Bricks (clay brick) should be stopped in the radius 100 km from the Thermal Power Station.***

		UPRVUNL's Power stations shall provide dry fly ash/ pond ash to these brick manufacturers free of cost. However the transportation cost of ash is to be borne by brick manufacturers. • ***The major avenues of ash utilization is filing of ash in abandoned coal mines situated near pit head thermal power stations but due to the condition of many long duration`n studies and tests, it is getting delayed and not possible to utilise ash in these mines. Hence in this regard following guideline should be issued by MoEF&CC.*** ***I. Mandatory allotment of abandoned coal mines to pit head station for filling of ash.*** ***II. A simple and well defined transparent SOP to be made for filling of ash in shortest possible time.*** • ***Bearing of transportation cost of ash by TPPs for road projects up to 300 km will have huge impact on tariff and will ultimately affect the affordability and energy empowerment. As the road construction agencies are commercial entities, putting the responsibility on coal/lignite plants may not be a correct option. The transportation cost may be reimbursed through toll tax***
	What efforts have 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.	Four number abandoned stone quarry has been allotted to UPRVUNL . For filling of ash in these mines, study is being done by MNIT Allahabad to meet the CPCB guideline. Apart from above many letters have been written to NCL for allotment of abandoned Gorbi coal mines but the allotment of same has not been done by NCL till date.
	Preparation of DPR for project of de-silting the Rihand Reservoir and bearing of expenditure by TPPs of the area on polluter pay principle. Present Status?	**N/A**
	Whether the dispute of title of abandoned mines between Forest Department and Revenue Department has been resolved due to which its allotment is being delayed? Please mention the name of vacant mines.	Only four numbers abandoned stone quarry has been allotted to UNL. Details of other mines is available with the District Administration, Sonebhadra.

Annexure(Regarding Morcha Nala):-

1. Minutes of meeting of irrigation department dated 04.11.2020
2. Letter no. 944/CE(L-1)/ATPS/Camp Dated 31.12.2020 (for the offer from Central Water and Energy Research Centre)
3. Letter no. 945/CE(L-1)/ATPS/Camp Dated 31.12.2020 (for the offer from Central Water Commission)
4. Letter no. 84/CE(L-1)/ATPS/Camp Dated 27.01.2021(Reminder sent to Central Water and Energy Research Centre for the offer)
5. Letter no. 85/CE(L-1)/ATPS/Camp Dated 27.01.2021(Reminder sent to Central Water Commission for the offer)

कार्यालय मुख्य अभियन्ता (स्तर– प्रथम)
अनपरा तापीय परियोजना
उ0प्र0 राज्य विद्युत उत्पादन निगम लि0
पत्रालय: अनपरा, जनपदः सोनभद्र
CIN:U40101UP1980SGC005065

पत्रांकः 944/मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 31/12/2020

विषयः– अनपरा तापीय परियोजना के राख बाँध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में।

केन्द्रीय जल एवं ऊर्जा अनुसन्धान केन्द्र,
खड़कवासला, पुणे (महाराष्ट्र)

उपरोक्त विषयक के सम्बन्ध में अनपरा तापीय परियोजना के राख बांध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में अपर मुख्य सचिव सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन की अध्यक्षता में आहूत बैठक में विभिन्न नालों के डायवर्जन हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जांच के निर्णय लिये गये हैं।

ततकम में अनुरोध है कि अनपरा तापीय परियोजना के राख बांध जो कि जनपद–सोनभद्र के ग्राम–बेलवादह में स्थित है, में निकटवर्ती क्षेत्र से आने वाले विभिन्न नालों यथा– मोखा नाला, मोर्चा नाला एवं अन्य प्राकृतिक नालों जिसका प्रवाह अब तक मुख्य राख बांध से होता हुआ रिहन्द जलाशय में जाता था, को माननीय एन0जी0टी0 के निर्देशानुसार अनपरा तापीय परियोजना के मुख्य राख बाँध के बाहरी क्षेत्र से ले जाने हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जॉच हेतु अपना प्रस्ताव अतिशीघ्र प्रेषित करने का कष्ट करें। सुलभ सन्दर्भ हेतु मुख्य राख बांध एवं निकवटर्ती क्षेत्र का गूगल मैप से डाउनलोडेड ले–आउट प्लान की प्रति संलग्न है।

संलग्नक– यथोपरि।

No. Dir. (T) UNL
Date 07-1-2021

(एच0पी0 सिंह)
मुख्य अभियन्ता (स्तर–प्रथम)

प्रतिलिपि –

1. निदेशक (तकनीकी),उ0प्र0रा0वि0उ0नि0लि0, 8 वां तल, शक्ति भवन विस्तार, लखनऊ।
2. मुख्य अभियन्ता(पर्या0 एवं सु0),उ0प्र0रा0वि0उ0नि0लि0, 7 वां तल, शक्ति भवन विस्तार, लखनऊ।

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Director (Tech.)
U.N.L.

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SE-I
11/1/2021
cc-

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कार्यालय मुख्य अभियन्ता (स्तर– प्रथम)
अनपरा तापीय परियोजना
उ0प्र0 राज्य विद्युत उत्पादन निगम लि0
पत्रालयः अनपरा, जनपदः सोनभद्र
CIN:U40101UP1980SGC005065

पत्रांकः 945/मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 31/12/2020

विषयः– अनपरा तापीय परियोजना के राख बाँध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में।

अध्यक्ष,
केन्द्रीय जल आयोग,
नई दिल्ली।

उपरोक्त विषयक के सम्बन्ध में अनपरा तापीय परियोजना के राख बांध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में अपर मुख्य सचिव सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन की अध्यक्षता में आहूत बैठक में विभिन्न नालों के डायवर्जन हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जांच के निर्णय लिये गये हैं।

ततकम में अनुरोध है कि अनपरा तापीय परियोजना के राख बांध जो कि जनपद–सोनभद्र के ग्राम–बेलवादह में स्थित है, में निकटवर्ती क्षेत्र से आने वाले विभिन्न नालों यथा– मोखा नाला, मोर्चा नाला एवं अन्य प्राकृतिक नालों जिसका प्रवाह अब तक मुख्य राख बांध से होता हुआ रिहन्द जलाशय में जाता था, को माननीय एन0जी0टी0 के निर्देशानुसार अनपरा तापीय परियोजना के मुख्य राख बाँध के बाहरी क्षेत्र से ले जाने हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जॉच हेतु अपना प्रस्ताव अतिशिघ्र प्रेषित करने का कष्ट करें। सुलभ सन्दर्भ हेतु मुख्य राख बांध एवं निकवटर्ती क्षेत्र का गूगल मैप से डाउनलोडेड ले–आउट प्लान की प्रति संलग्न है।

संलग्नक– यथोपरि।

(एच0पी0 सिंह)
मुख्य अभियन्ता (स्तर–प्रथम)

41
No. Dir. (T) UNL
Date 07-01-2021

प्रतिलिपि –

1. निदेशक (तकनीकी),उ0प्र0रा0वि0उ0नि0लि0, 8 वां तल, शक्ति भवन विस्तार, लखनऊ।
2. मुख्य अभियन्ता(पर्या0 एवं सु0),उ0प्र0रा0वि0उ0नि0लि0, 7 वां तल, शक्ति भवन विस्तार, लखनऊ।

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Director (Tech.)
U.N.L.

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1/1/2021

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1/1/2021

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अनपरा तापीय परियोजना के राख बांध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में अपर मुख्य सचिव, सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन की अध्यक्षता में दिनांक 04.11.2020 को पूर्वान्ह 11:30 बजे प्रमुख अभियन्ता, कार्यालय, सिंचाई एवं जल संसाधन विभाग, उ0प्र0, लखनऊ के सभागार में आयोजित बैठक का कार्यवृत्त :–

बैठक में निम्नलिखित अधिकारियों की उपस्थिति :–

1. श्री टी0 वेंकटेश, अपर मुख्य सचिव, सिंचाई एवं जल संसाधन एवं परती भूमि विकास विभाग, उ0प्र0 शासन।
2. श्री अनिल गर्ग, सचिव, सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
3. श्री सैन्थिल पाण्डियन सीं, प्रबन्ध निदेशक, राज्य विद्युत उत्पादन निगम लिमिटेड,उ0प्र0, लखनऊ।
4. डॉ0वी0के0सिंह, विशेष सचिव, ऊर्जा विभाग, उ0प्र0 शासन।
5. श्री मदन मोहन त्रिपाठी, अनु सचिव, सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
6. श्री राजीव कुमार सिंह, प्रमुख अभियन्ता एवं विभागाध्यक्ष, सिंचाई एवं जल संसाधन विभाग, उ0प्र0, लखनऊ।
7. श्री ए0के0 सिंह, प्रमुख अभियन्ता, परिकल्प एवं नियोजन, सिंचाई एवं जल संसाधन विभाग, उ0प्र0, लखनऊ।
8. श्री ए0के0तिवारी, डायरेक्टर, टेक्निकल, राज्य विद्युत उत्पादन निगम लिमिटेड, उ0प्र0, लखनऊ।
9. श्री डी0 के0 मिश्रा, मुख्य अभियन्ता स्तर–1 नियोजन, सिंचाई एवं जल संसाधन विभाग, उ0प्र0।
10. श्री जीवन राम यादव, मुख्य अभियन्ता (विन्ध्याचल), सिंचाई एवं जल संसाधन विभाग उ0प्र0, प्रयागराज।
11. श्री जे0पी0एस0 गंगवार, मुख्य अभियन्ता, उर्जा कय अनुबन्ध (पी0पी0ए0) निदेशालय, शक्ति भवन विस्तार, यू0पी0पी0सी0एल0, लखनऊ।
12. श्री श्याम सुन्दर, मुख्य अभियन्ता (सोन), सिंचाई एवं जल संसाधन विभाग उ0प्र0, वाराणसी।
13. श्री हारून असलम, अधीक्षण अभियन्ता, उर्जा कय अनुबन्ध (पी0पी0ए0) निदेशालय, शक्ति भवन विस्तार, यू0पी0पी0सी0एल0, लखनऊ।
14. श्री पंकजपाणि शुक्ल, अधिशासी अभियन्ता, रिहन्द बांध सिविल खण्ड पिपरी, सोनभद्र।
15. श्री अजय कुमार पाण्डेय, सहायक अभियन्ता, रिहन्द बांध सिविल खण्ड पिपरी, सोनभद्र।

बैठक मा0 हरित राष्ट्रीय अधिकरण द्वारा अनपरा तापीय परियोजना के द्वारा ऐशपाण्ड से राख मिश्रित जल के रिहन्द जलाशय में आने के कारण हो रहे प्रदूषण के परिपेक्ष्य में दिये गये आदेशों के कम में आयोजित की गयी थी। बैठक में श्री सैन्थिल पाण्डियन सीं, प्रबन्ध निदेशक, राज्य विद्युत उत्पादन निगम लिमिटेड द्वारा अवगत कराया गया कि जलाशय के किनारे बेलवादह ग्राम में 774.738 एकड़ भूमि में अनपरा तापीय परियोजना से निकलने वाली राख के भण्डारण एवं डिस्पोजल हेतु एक ऐशपाण्ड का निर्माण किया गया है। उक्त ऐशपाण्ड में मोरचा नाले का पानी भी आकर गिरता है तथा ऐशपाण्ड भर जाने के पश्चात् पानी Ashdyke के स्पिलवे से होते हुए रिहन्द जलाशय में जल जाता है। उनके द्वारा अवगत कराया गया कि मा0 राष्ट्रीय हरित अधिकरण ने उक्त प्रकार से हो रहे जल के रिसाव एवं राख मिश्रित जल के रिहन्द जलाशय में प्रवेश कर रहे जल से प्रदूषण फैलने की आशंका के दृष्टिगत आपत्ति व्यक्त की है। उन्होने सिंचाई एवं जल संसाधन विभाग से अपेक्षा की है कि मोरचा नाले के जिसका मानसून काल में डिस्चार्ज लगभग 12 हजार क्यूसेक है, को ऐशपाण्ड क्षेत्र की परिधि से मोड़कर अन्य स्थानों से डायवर्ट करते हुए रिहन्द जलाशय में गिराया जाए जिससे रिहन्द जलाशय में राख मिश्रित जल से प्रदूषण नहीं फैलेगा उक्त कार्य पर होने वाले व्यय को वहन करने की उन्होने सहमति व्यक्त की।

No. 480 VIP/ Dated 26-11-2020

No. 393/VIP/Dir. (T) UNL Dated 26.11.2020

Director (Tech.) U.N.L.

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2– मुख्य अभियन्ता (विन्ध्याचल), प्रयागराज सिंचाई एवं जल संसाधन विभाग उ0प्र0, के क्षेत्रीय अधिकारियों द्वारा उस पूरे क्षेत्र का ड्रोन सर्वे का प्रस्तुतीकरण किया गया। ड्रोन सर्वे के अवलोकन से स्पष्ट परिलक्षित हो रहा है कि मोरचा नाला रेनूकोट अनपरा मार्ग के दाहिनी ओर स्थित पहाडियों के मध्य से निकल कर उक्त मार्ग को काटते हुए रिहन्द जलाशय की ओर जा रहा है। ड्रोन सर्वे के अवलोकन से यह भी स्पष्ट हुआ कि अनपरा तापीय परियोजना द्वारा जो क्षेत्र अपनी गीली उत्सर्जित राख से भरा गया है उसी से होकर वर्तमान में मोरचा नाले के पानी का बहाव हो रहा है। रेनूकूट से अनपरा मार्ग के बांयीं ओर रिहन्द जलाशय स्थित है उसी में मोरचा नाला सड़क के दोनों ओर स्थित उंची पहाड़ियों के बीच से गुजर कर जलाशय की ओर जाता है। पहाड़ियों के बीच स्थित मोरचा नाले का ढाल (Slope) बहुत ज्यादा है, जिसके कारण नाले का बहाव काफी तेज होता है। फलस्वरूप इस पानी के बहाव के साथ फ्लाई ऐश नाले के जल में मिश्रित होकर रिहन्द जलाशय में चली जाती है, जिसके कारण जलाशय का जल प्रदूषित हो जाता है। इसी प्रदूषण के कारण मा0 एन0जी0टी0 द्वारा थर्मल प्लांट की राख जलाशय तक न पहुंचने देने हेतु आवश्यक कार्यवाही किये जाने के निर्देश राज्य विद्युत उत्पादन निगम लिमिटेड को दिये गये हैं जिसके उपचार स्वरूप उक्त प्रस्ताव राज्य विद्युत उत्पादन निगम लिमिटेड द्वारा प्रस्तुत किया गया है।

3– सिंचाई एवं जल संसाधन विभाग के अधिकारियों द्वारा यह भी अवगत कराया गया कि रिहन्द बांध का निर्माण रेहर नदी (रेणुनदी) पर सन् 1954 में प्रारम्भ हुआ एवं सन् 1962 में पूर्ण हुआ। रिहन्द जलाशय (गोविन्द बल्लभ पन्त सागर) का डूब क्षेत्र 466 वर्ग किमी0 (180 वर्ग मील) एव जल ग्रहण क्षेत्र 13333 वर्ग किमी0 (5148 वर्ग मील) है। रिहन्द बांध एवं उसकी परिसम्पत्तियॉ वर्ष 1965 में उ0प्र0 राज्य विद्युत परिषद को स्थानान्तरित कर दी गयी गयी हैं। तत्पश्चात वर्ष 2001 में रिहन्द जलाशय उ0प्र0 ज0वि0नि0लि0 को हस्तान्तरित हुआ है। अनपरा तापीय विद्युत परियोजना द्वारा उत्सर्जित होने वाली गीली राख का निस्तारण रिहन्द जलाशय (गोविन्द बल्लभ पन्त सागर) के डूब क्षेत्र अन्तर्गत ग्राम–बेलवादह स्थित 774.738 एकड़ भूमि में पिछले 30–32 वर्षो से तटबन्ध बनाकर किया जा रहा है। चूँकि वर्तमान में रिहन्द जलाशय का पूर्ण स्वामित्व उ0 प्र0, जल विद्युत निगम लिमिटेड का है अतएव उक्त ऐशपाण्ड क्षेत्र से निकल रहे मोरचा नाले का सुचारू प्राकृतिक बहाव भी उन्हीं की सहमति से आर0वी0यू0एन0एल0 द्वारा सुनिश्चित किया जाना उचित होगा।

4– सिंचाई एवं जल संसाधन विभाग द्वारा अवगत कराया गया है कि अनपरा तापीय परियोजना द्वारा बेलवादह स्थित भूमि में गीली राख का निस्तारण बांध के निकट मोरचा नाले का प्राकृतिक बहाव मार्ग में किये जाने से नाले का बहाव बाधित हुआ है। मानसून अवधि में मोरचा नाला के माध्यम से आने वाले अत्यधिक बहाव के कारण उनके द्वारा निर्मित उक्त राख तटबंध क्षतिग्रस्त हो जाता है, अथवा Ashdyke पर से ओवरफ्लो के कारण ऐशपाण्ड में भरी गयी राख सीधे जलाशय में पहुँचती है।

5– सिंचाई एवं जल संसाधन विभाग के क्षेत्रीय अधिकारियों द्वारा सर्वे ऑफ इण्डिया का मैप भी रिहन्द जलाशय के कैचमेण्ट एरिया एवं डूबक्षेत्र को प्रदर्शित करते हुए प्रस्तुत किया गया। इस मैप में मोरचा नाले की भी स्थिति प्रदर्शित हो रही है। सिंचाई एवं जल संसाधन विभाग के अधिकारियों द्वारा अवगत कराया गया कि कार्यस्थल की भौतिक स्थिति एवं जनपद सोनभद्र की टोपोग्राफी को देखते हुए उक्त नाले का डायवर्जन किया जाना प्रथम दृष्टयाः सम्भव प्रतीत नहीं हो रहा है।

6– इस सम्बन्ध में तकनीकी निदेशक रा0वि0उ0नि0लि0 द्वारा अवगत कराया गया कि आई0आई0टी0 रूड़की से नाला डायवर्जन के लिए एक परीक्षण कराया गया है। इस पर अपर मुख्य सचिव, सिंचाई एवं जल संसाधन विभाग द्वारा यह सुझाव दिया गया कि इस प्रस्ताव का कार्यस्थल की टोपोग्रॉफी के अनुसार पुनः अध्ययन कराया जाये तथा इसकी आर्थिक साध्यता (Economic viability) का भी परीक्षण करा लिया जाए।

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7– उक्त सम्पूर्ण स्थिति के दृष्टिगत यह मत स्थिर हुआ कि राज्य विद्युत उत्पादन निगम लिमिटेड द्वारा नाला डायवर्जन की तकनीकी, वित्तीय एंवं पर्यावरणीय जांच केन्द्रीय जल आयोग नई दिल्ली एवं केन्द्रीय जल एवं ऊर्जा अनुसंधान केन्द्र खड़कवासला, पुणे से करा लिया जाना उचित होगा।

अन्त में धन्यवाद ज्ञापन के उपरान्त बैठक सम्पन्न हुई।

प्रियंका निरंजन
विशेष सचिव।

उत्तर प्रदेश शासन
सिंचाई एवं जल संसाधन अनुभाग–2
संख्या–1525/2020–27–सिं–2–37बाढ़/2020
लखनऊ:: दिनांक:: 25 नवम्बर, 2020

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :–

1. निजी सचिव, अपर मुख्य सचिव, सिंचाई एवं जल संसाधन एवं परती भूमि विकास विभाग, उ0प्र0 शासन।
2. निजी सचिव, सचिव, सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
3. निजी सचिव, विशेष सचिव (श्रीमती प्रियंका निरंजन), सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
4. निजी सचिव, विशेष सचिव (श्री मुश्ताक अंहमद), सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
5. श्री सैन्थिल पाण्डियन सीं, प्रबन्ध निदेशक, राज्य विद्युत उत्पादन निगम लिमिटेड, उ0प्र0, लखनऊ।
6. डॉ0वी0के0सिंह, विशेष सचिव, ऊर्जा विभाग, उ0प्र0 शासन।
7. श्री मदन मोहन त्रिपाठी, अनु सचिव, सिंचाई एवं जल संसाधन विभाग, उ0प्र0 शासन।
8. प्रमुख अभियन्ता एवं विभागाध्यक्ष, सिंचाई एवं जल संसाधन विभाग, उ0प्र0, लखनऊ।
9. प्रमुख अभियन्ता, परिकल्प एवं नियोजन, सिंचाई एवं जल संसाधन विभाग, उ0प्र0, लखनऊ।
10. श्री ए0के0तिवारी, डायरेक्टर, टेक्निकल, राज्य विद्युत उत्पादन निगम लिमिटेड, उ0प्र0, लखनऊ।
11. श्री डी0 के0 मिश्रा, मुख्य अभियन्ता स्तर–1 नियोजन, सिंचाई एवं जल संसाधन विभाग, उ0प्र0।
12. श्री जीवन राम यादव, मुख्य अभियन्ता (विन्ध्याचल), सिंचाई एवं जल संसाधन विभाग, उ0प्र0, प्रयागराज।
13. श्री जे0पी0एस0 गंगवार, मुख्य अभियन्ता, उर्जा कय अनुबन्ध (पी0पी0ए0) निदेशालय, शक्ति भवन विस्तार, यू0पी0पी0सी0एल0, लखनऊ।
14. श्री श्याम सुन्दर, मुख्य अभियन्ता (सोन), सिंचाई एवं जल संसाधन विभाग उ0प्र0, वाराणसी।
15. श्री हारून असलम, अधीक्षण अभियन्ता, उर्जा कय अनुबन्ध (पी0पी0ए0) निदेशालय, शक्ति भवन विस्तार, यू0पी0पी0सी0एल0, लखनऊ।
16. श्री पंकजपाणि शुक्ल, अधिशासी अभियन्ता, रिहन्द बांध सिविल खण्ड पिपरी, सोनभद्र।
17. श्री अजय कुमार पाण्डेय, सहायक अभियन्ता, रिहन्द बांध सिविल खण्ड पिपरी, सोनभद्र।
18. गार्ड बुक।

आज्ञा से,

(मदन मोहन त्रिपाठी)
अनु सचिव।

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कार्यालय मुख्य अभियन्ता (स्तर– प्रथम)
अनपरा तापीय परियोजना
उ0प्र0 राज्य विद्युत उत्पादन निगम लि0
पत्रालयः अनपरा, जनपदः सोनभद्र
CIN:U40101UP1980SGC005065

पत्रांकः 85 /मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 27/01/2021

विषयः– अनपरा तापीय परियोजना के राख बाँध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में।

अनुस्मारक

अध्यक्ष,
केन्द्रीय जल आयोग,
नई दिल्ली।

कृपया उपरोक्त विषयक इस कार्यालय के पत्रांकः 945/मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 31.12.2020 का सन्दर्भ ग्रहण करने का कष्ट करें। विषयांकित पत्र के माध्यम से अनपरा तापीय परियोजना के राख बांध जो कि जनपद–सोनभद्र के ग्राम–बेलवादह में स्थित है, में निकटवर्ती क्षेत्र से आने वाले विभिन्न नालों यथा– मोखा नाला, मोर्चा नाला एवं अन्य प्राकृतिक नालों जिसका प्रवाह अब तक मुख्य राख बांध से होता हुआ रिहन्द जलाशय में जाता था, को माननीय एन0जी0टी0 के निर्देशानुसार अनपरा तापीय परियोजना के मुख्य राख बाँध के बाहरी क्षेत्र से ले जाने हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जॉच हेतु अपना प्रस्ताव अतिशीघ्र प्रेषित करने का अनुरोध किया गया था जो अभी तक प्रतीक्षित है। साथ ही अवगत कराना है कि विषयांकित कार्य संवेदनशील एवं महत्वपूर्ण प्रकृति का है।

अतएव पुनः अनुरोध है कि अनपरा तापीय परियोजना के राख बांध जो कि जनपद–सोनभद्र के ग्राम–बेलवादह में स्थित है, में निकटवर्ती क्षेत्र से आने वाले विभिन्न नालों यथा– मोखा नाला, मोर्चा नाला एवं अन्य प्राकृतिक नालों जिसका प्रवाह अब तक मुख्य राख बांध से होता हुआ रिहन्द जलाशय में जाता था, को माननीय एन0जी0टी0 के निर्देशानुसार अनपरा तापीय परियोजना के मुख्य राख बाँध के बाहरी क्षेत्र से ले जाने हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जॉच हेतु अपना प्रस्ताव अतिशीघ्र प्रेषित करने का कष्ट करें।

(एच0पी0 सिंह)
मुख्य अभियन्ता (स्तर–प्रथम)

प्रतिलिपि –

1. निदेशक (तकनीकी),उ0प्र0रा0वि0उ0नि0लि0, 8 वां तल, शक्ति भवन विस्तार, लखनऊ।
2. मुख्य अभियन्ता(पर्या0 एवं सु0),उ0प्र0रा0वि0उ0नि0लि0, 7 वां तल, शक्ति भवन विस्तार, लखनऊ।

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कार्यालय मुख्य अभियन्ता (स्तर– प्रथम)
अनपरा तापीय परियोजना
उ0प्र0 राज्य विद्युत उत्पादन निगम लि0
पत्रालयः अनपरा, जनपदः सोनभद्र
CIN:U40101UP1980SGC005065

पत्रांकः 84 /मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 27/01/2021

विषयः– अनपरा तापीय परियोजना के राख बाँध में आने वाले विभिन्न नालों के डायवर्जन के सम्बन्ध में।

अनुस्मारक

केन्द्रीय जल एवं ऊर्जा अनुसन्धान केन्द्र,
खड़कवासला, पुणे (महाराष्ट्र)

कृपया उपरोक्त विषयक इस कार्यालय के पत्रांकः 944/मु0अभि0(स्तर–1)/अ0ता0प0/कैम्प दिनांकः 31.12.2020 का सन्दर्भ ग्रहण करने का कष्ट करें। विषयांकित पत्र के माध्यम से अनपरा तापीय परियोजना के राख बांध जो कि जनपद–सोनभद्र के ग्राम–बेलवादह में स्थित है, में निकटवर्ती क्षेत्र से आने वाले विभिन्न नालों यथा– मोखा नाला, मोर्चा नाला एवं अन्य प्राकृतिक नालों जिसका प्रवाह अब तक मुख्य राख बांध से होता हुआ रिहन्द जलाशय में जाता था, को माननीय एन0जी0टी0 के निर्देशानुसार अनपरा तापीय परियोजना के मुख्य राख बाँध के बाहरी क्षेत्र से ले जाने हेतु नाला डायवर्जन की तकनीकी, वित्तीय एवं पर्यावरणीय जॉच हेतु अपना प्रस्ताव अतिशीघ्र प्रेषित करने का अनुरोध किया गया था जो अभी जो अभी तक प्रतीक्षित है। साथ ही अवगत कराना है कि विषयांकित कार्य संवेदनशील एवं महत्वपूर्ण प्रकृति का है।

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(एच0पी0 सिंह)
मुख्य अभियन्ता (स्तर–प्रथम)

प्रतिलिपि –

1. निदेशक (तकनीकी),उ0प्र0रा0वि0उ0नि0लि0, 8 वां तल, शक्ति भवन विस्तार, लखनऊ।
2. मुख्य अभियन्ता(पर्या0 एवं सु0),उ0प्र0रा0वि0उ0नि0लि0, 7 वां तल, शक्ति भवन विस्तार, लखनऊ।

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Report on implementation of action plan to achieve 100% fly ash utilisation by the Thermal Power Plants (TPPs)

Background

Hon'ble National Green Tribunal (NGT) vide its orders dated 20.11.2018 and 12.03.2019 in the matter of Sandplast (India) Ltd. & Anr. Vs. MoEF&CC & Ors. in O. A. No. 102 of 2014 directed MoEF&CC to constitute a joint committee comprising the MoEF&CC, CPCB, IIT Roorkee and any other members considered necessary for implementation of action plan to achieve 100% fly ash utilisation by the Thermal Power Plants (TPPs) and its final report is to be submitted by MoEF&CC.

In pursuance of Hon'ble NGT order, MoEF&CC has constituted a joint committee under the chairmanship of Joint Secretary (HSMD) comprising the following members to review the fly ash utilisation and finalise action plan to achieve 100% utilization of fly ash generated from each TPP in an environmentally sound manner:

(i) Member Secretary, Central Pollution Control Board;

(ii) Representatives of IIT Rorkee;

(iii) Representatives of Ministry of Power;

(iv) Representatives of Ministry of Coal;

(v) Representatives of Ministry of Housing and Urban Affairs;

(vi) Representatives of NHAI;

(vii) Representatives of Odisha State Pollution Control Board.

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Four meetings of Joint Committee were convened on 18th April, 17th – 18th July, 30th September, 2019 and 11th December, 2019 respectively. Details of deliberations of the meetings and recommendations of the joint committee are as follows:

1. The Ministry of Environment, Forest and Climate Change (MoEF&CC) issued the first Fly Ash notification on 14th September, 1999, which has subsequently been amended in 2003, 2009 and 2016. The Fly Ash notification (1999) mandates the use of fly ash for the purpose of manufacturing ash-based products such as cement, concrete blocks, bricks, panels or any other material or for construction of roads, embankments, dams or for any other construction activity within a radius of 300 km from thermal power stations (TPPs). Besides, it is also mandatory to use fly ash in the external overburden, mines backfilling or stowing of mines within a distance of 50 km. It is also mandatory for all construction agencies/Government Departments undertaking road projects, fly over/ bridges as well as local authorities to make provisions for use of fly ash in their tender documents and schedule of material and rates. The notification also prescribes the targets for Fly Ash utilization in a phased manner for all Coal/Lignite based TPPs in the country so as to achieve 100% utilization of fly ash. The amended notification (2016) provides that the cost of transportation of ash up to 100 km distance shall be borne by the TPPs and for distance between 100 km to 300 km, cost will be shared equally between the user and TPPs. The notification further prescribes to constitute a Monitoring Committee at the Central level and State level to monitor the implementation of provisions of fly ash notification.

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2. Various efforts made for enhanced utilisation of fly ash in the following sectors:

i. **Ash based building construction material such bricks/blocks/tiles.**

Use of fly ash in manufacture of fly ash bricks is technically well established and being utilized in large scale in some part of country. However, the extent of fly ash utilization under this sector is about 9% only and it needs enhancement.

In order to enhance fly ash utilization, MoEF&CC has issued the following necessary directives through its gazette notification dated 25-01-2016:

a. Mandatory use of fly ash based products for construction activity by every construction agency within a radius of 300 km from coal/lignite based power plants.

b. Power plant to bear transportation cost of fly ash up to radius of 100 km and beyond radius of 100 km to 300 km, it shall be borne equally by the fly ash users and power plants.

c. Coal based power plant to bear entire cost of transportation of fly ash up to radius of 300 km in asset creation program of Government involving construction of building, roads, Dams.

Further, to maximize fly ash utilization in this sector, MoEF&CC has also issued draft amendment vide gazette notification dated 26-02-2019 inviting public comments, wherein the following provisions have been proposed:

i) No new red clay brick kiln shall be installed within radius of 300 km of power plant.

ii) Existing red clay brick kiln within radius of 300 km of power plant shall be converted to fly ash bricks/ blocks / tile manufacturing units.

iii) To encourage conversion, thermal power plant should provide fly ash at nominal rate of Rs. 1 per ton and bear full transportation cost up to 300 km to such units.

a. At least 20% fly ash shall be made available to units manufacturing fly ash bricks, blocks and tiles on priority basis over other users at rate Rs. 1 per ton, even, thermal power plants achieve 100% ash utilization.

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ii. Road / flyover embankment construction.

This is one of the area that utilizes deposited ash of ash pond. Presently, about 3% of total ash produced is being utilized in this sector. This area envisages large quantity utilization of deposited ash but it is one time use till the road project construction is over.

To maximize ash utilization in this area, MoEF&CC has given necessary directives to thermal power plants and construction agency/ organization undertake construction of road/ fly over embankment through its gazette notification dated 25-01-2016, which are as given below:

a. Mandatory use of ash in road embankment/ fly over embankment construction within 300 km radius of coal/ lignite based thermal power plant.

b. Power plant to bear transportation cost of ash up to radius of 100 km and beyond radius of 100 km to 300 km shall bear equally between fly ash users and power plant.

c. Coal based power plant to bear entire cost of transportation of ash up to radius of 300 km in asset creation program of Government involving road construction projects under PMGSY, construction of building, roads, dams and embankments.

It is expected that use of ash in this sector will increase further.

iii. Development of low-lying areas.

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Development of low lying area with ash is one of the area where ash is being used mostly by thermal power plants in the vicinity. Presently about 11% of total ash produced is being utilized in this segment. This is also the area wherein mostly pond ash is used so that no fugitive dust emission during the ash filling activities.

For maximizing ash utilisation in this segment, MoEF&CC through its gazette notification dated 03-11-2009 given directives that " No agency, person or organization shall within a radius of three hundred kilometers of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities". In the revised directive, the distance has been increased from 100 km to 300 km and therefore, ash utilization will increase in this segment.

iv. Reclamation of abandoned mine voids

Ash is being used in reclamation of abandoned coal mine voids by many pithead thermal power stations. This is one of areas where large quantity of ash produced by pithead and remotely located power plants can be utilized on sustainable basis. Huge size of pits developed due to coal mining can be converted in to developed land for afforestation and other useful purposes. However, present utilization is limited to about 6% only.
The provisions in the MoEF&CC gazette notification dated 03-11-2009 stipulate that atleast 25% ash can be mixed with Overburden material for filling in the coal mines and other mines of mineral and metals. Mixing of fly ash along with over burden material and filling in operating coal mine is not being accepted by Coal India Limited (CIL) and Ministry of Coal (MoC) due to mine safety issue. However, CIL and MoC are allowing ash back filling in abandoned mine voids.

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In order to identify the abandoned coal mine voids so that same will be given to thermal power plant for backfilling with ash, a task force having members from various stake holders has been constituted by Ministry of Power to identify the abandoned coal mine voids and other mines mineral and metals. The identified mine voids will be allocated to thermal power plants for taking up ash backfilling. CPCB has also formulated the guidelines/ Standard Operating Procedure (SOP) so that ash filling will be carried out in environment friendly manner by thermal power plants. This will help to achieve 100% ash utilization by pithead power plants.

v. Ash utilisation as soil conditioner in Agriculture

Fly ash is used as soil conditioner in agriculture. Present use in this segment is limited to 1% only. Amendment fly ash notification dated 25-01-2016 prescribes that the Ministry of Agriculture may consider the promotion of ash utilisation in agriculture as soil conditioner. This will help to enhance fly ash utilization.

3. **Finalisation of action plan as well as time frame to achieve 100% fly ash utilisation by Thermal Power Plants**. The Committee has recommended a period of 1 year to achieve 100 % utilization for non-compliant coal based thermal power plants having fly ash utilization more than 85% and a period of maximum 2 years may be given to achieve 100% fly ash utilization for non-compliant TPPs having fly ash utilization below 85%. Details of TPP wise action plan are as under:

Table: Status of Action Plan submitted by non-compliant Thermal Power Plants to achieve 100% fly ash utilisation

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S.N.	Name of TPS	Installed capacity	% Fly ash utilisation		Time frame to achieve 100% fly ash utilisation		Remarks
			2017-18	2018-19	2019-20	2020-21	
1	Dr. N.T.R (Vijawada), APGENCO (Andhra Pradesh)	1760.00	90.7	103	104		Action plan annexed
2	KOTHAGUDEM-VI, TSPGCL (Telangana)	500.00	91.8	4	56.04	100	Action plan annexed
3	MUNDRA TPS, APL (Gujarat)	4620.00	99.4	100	--	--	Already achieved 100% fly ash utilisation
4	BARKHERA, BEPL (UP)	90.00	99.8	100	--	--	Already achieved 100% fly ash utilisation
5	KHAMBER KHERA, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
6	KUNDARKI, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
7	MAQSOODAPUR, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
8	UTRAULA, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
9	MUTIARA, COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1200.00	99.4	100	100		Action plan annexed
10	D.P.P.S., DPL (West Bengal)	660.00	93.9	95.52			Not submitted
11	DHARIWAL INFRASTRUCTURE Ltd., Dhariwal Infrastructure Ltd. (Maharashtra)	600.00	91.0	90.33	100	100	Action plan annexed
12	GMR Chhattisgarh, GMR Chhattisgarh Energy LTD. (Chhattisgarh)	1370.00	90.1	78.48	100		Action Plan Annexed
13	VIJAYANAGAR, JSW Energy Limited (Karnataka)	860.00	95.6	100	100		Action Plan Annexed

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14	DERANG TPP, JINDAL INDIA THERMAL POWER LIMITED (Odisha)	1200.00	91.1	97	100		Action Plan Annexed
15	DANGAMAHUA CAPITIVE POWER PLANT, JINDAL STEEL AND POWER LIMITED (CHHATTISHGARH)	576.00	99.8	100	100		Action Plan Annexed
16	MCCP BANDHAKHAR, Maruti Clean Coal and Power Limited (Chhattisgarh)	300.00	93.6	100	100		Action Plan Annexed
17	NEYVELI-I EXPN, NLC LTD (Tamilnadu)	420.00	99.9	100	100		Action Plan Annexed
18	UNCHHPINDA R.K.M. POWERGEN PVT. LTD (PGCIL) Chhattisgarh)	1080.00	99.7	90	100		Action Plan Annexed
19	AMRAVATI TPS, RATTANINDIA POWER LTD. (Maharashtra)	1350.00	97.1	115	100		Action Plan Annexed
20	CUDDALORE, TAQA NEYVELLY POWER CO. PVT. LTD. (Tamil Nadu)	250.00	99.9	91			Action plan no submitted
21	HARDUAGANJ, U.P.R.V.U.N.L. (U.P.)	610.00	90.3	96	100		Action plan annexed
22	BAKRESWAR, W.B.P.D.C.L (W.B.)	1050.00	99.3	116	150		Action plan annexed
23	SAI WARDHA POWER LTD., WARORA, WPCL (Maharashtra)	540.00	99.6	91	--	--	Not operational during 2019-20
24	RAYALSEEMA, APGENCO (Andhra Pradesh)	1650.00	74.1	84	90	100	Action Plan submitted
25	SRI DAMODARAM SANJEEVAIAH, APPDCL (Andhra Pradesh)	1600.00	75.6	65	85	100	Action Plan submitted
26	TIRORA, ADANI POWE LTD. (Maharashtra)	3300.00	80.9	84	100	100	Action plan annexed
27	MUNDRA UMPP, CGPL (Gujarat) Tata	4000.00	80.2	100			100 % utilization achieved
28	BOKARO 'B', D.V.C. (Jharkhand)	710.00	84.4	36	100		Action plan annexed
29	DURGAPUR STEEL, D.V.C. (West Bengal)	1000.00	73.7	76	77	100	Action plan annexed
30	KODERMA, D.V.C. (Jharkhand)	1000.00	71.9	98.3	100		Action plan annexed

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31	UKAI, G.S.E.C.L. (Gujarat)	1110.00	75.8	82	85	100	Action plan annexed
32	WANAKBORI , G.S.E.C.L. (Gujarat)	1471.00	70.5	88.33	100		Action plan annexed
33	HISAR, H.P.G.C.L. (Haryana)	1200.00	84.8	60	100		Action plan annexed
34	MAHATMA GANDHI, JHPL (Haryana)	1320.00	76.4	89.06	100		Action plan annexed
35	O.P. Jindal Super TPP (Stage-I), JPL (Chhattisgarh)	1000.00	75.6	102	100		Action plan annexed
36	O.P. Jindal Super TPP (Stage-II), JPL Chhattisgarh)	2400.00	77.1	102	100		Action plan annexed
37	KMPCL (AKALTARA), KSK Mahanadi Power Company Limited (Chhattisgarh)	1800.00	88.4	70	95.91	100	Action plan annexed
38	LALITPUR, LALITPUR POWER GENERATION COMPANY LIMITED (UP)	1980.00	85.8	104	108		Action plan annexed
39	SANJAY GANDHI, M.P.P.G.C.L. (M.P.)	1340.00	73.3	71	100		Action plan annexed
40	BHUSAWAL, M.S.P.G.C.L. (Maharashtra)	1210.00	85.5	95	95		Action Plan not submitted
41	LEHRA MOHABAT, P.S.P.C.L. (Punjab)	920.00	71.4	71	92.5	100	Action plan annexed
42	PRAYAGRAJ TPS, PRAYAGRAJ POWER GENERATION COPMANY LTD. (U.P)	1980.00	81.0	93	100		Action plan annexed
43	ROSA PHASE-I, RPSCL (U.P.)	1200.00	75.5	97.05	77		Action Plan not submitted
44	RATIZA TPS, SPECTRUM COAL & POWER LTD (Chhattisgarh)	100.00	86.7	77	100		Action plan annexed
45	JOJOBERA, T.P. CO. (Jharkhand)	547.50	87.8	92.77	100		Action plan annexed
46	METTUR-II, T.N.G & D Corporation (Tamil Nadu)	600.00	74.0	80	100		Action plan annexed
47	KAKATIA (Stage-I), T.S.G.E.N.C.O (Telangana)	500.00	78.3	101	100		Action plan annexed
48	RAIGARH TPP, TRN ENERGY Pvt. Ltd. (Chhattisgarh)	600.00	76.2	92	93		Action plan not submitted
49	TENUGHAT TPS, TENUGHAT VIDHYUT NIGAM LIMITED	420.00	89.0				Action plan not submitted

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	(Jharkhand)						
50	M/s TALWANDI SABO POWER LTD, TALWANDI SABO POWER LTD (PUNJAB)	1980.00	72.6	109	10		Action plan annexed
51	INDIRA GANDHI, APCPL (Haryana)	1500.00	68.9	103	100		Action plan annexed
52	BALLARI, K.P.C.L. (Karnataka)	1700.00	50	73	99	108	Action plan annexed
53	RAICHUR, K.P.C.L. (Karnataka)	1720.00	57	70	87	100	Action plan annexed
54	AMARKANTAK, M.P.P.G.C.L. (M.P.)	210.00	56.5	66	100		Action plan annexed
55	SHREE SINGAJI, M.P.P.G.C.L. (M.P.)	1200.00	60.3	16	70-80	100	Action plan annexed
56	JHABUA POWER LIMITED (SEIONI TPP), M/S JHABUA POWER LIMITED	600.00	66.1	70	80	100	Action plan annexed
57	VALLUR, NTPC TAMIL NADU ENERGY COPMANY LTD {(NTECL) (Tamil Nadu)}	1500.00	65.0	67	81	100	Action plan annexed
58	FARAKKA, NTPC LTD. (W.B.)	2100.00	52.9	76.97	84	100	Action plan annexed
59	MOUDA TPS, NTPC LTD.	2100.00	699.9		93	100	Action plan annexed
60	SOLAPUR, NTPC LTD. (Maharashtra)	660.00	59.8	100			Already achieved
61	KUDGI, NTPC LTD. (Karnataka)	1600.00	50.0	62.23	77	100	Action plan annexed
62	lB VALLEY, O.P.G.C.L. (Odisha)	420.00	55.4	33	70	100	Action plan annexed
63	TUTICORIN, T.N.G & D Corporation (Tamil Nadu)	1050.00	59.5	100	100	100	Action plan annexed
64	KAKATIA (Stage-II), T.S.G.E.N.C.O. (Telengana)	600.00	62.0	101	100		Action plan annexed
65	PARICHHA, U.P.R.V.U.N.L. (U.P.)	1140.00	57.4	87.53	96	100	Action plan annexed
66	SAGARDIGHI, W.B.P.D.C.L. (W.B.)	1600.00	65.5	93	85	100	Action plan annexed
67	RAMAGUNDAM'B', TSPGCL (Telengana)	62.50	27.8	126	100		Action plan annexed
68	NABINAGAR, Bharatiya Rail Bijlee Company Limited (Bihar)	500.00	28.2	34	92	100	Action plan annexed

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69	KOTHAGUDEM V, TSPGCL (Telengana)	500.00	0.0	20	56	100	Action plan annexed
70	MARWA TENDUBHATA, C.S.P.G.C.L (Chhattisgarh)	1000.00	33.9	24	100	100	Action plan annexed
71	DSPM, C.S.P.G.C.L (Chhattisgarh)	500.00	20.4	32	64	100	Action plan annexed
72	KORBA (WEST), C.S.P.G.C.L (Chhattisgarh)	1340.00	16.0	50	73	100	Action plan annexed
73	DURGAPUR, D.V.C. (West Bengal)	210.00	4.4	7.26	23	100	Action plan annexed
74	RAGHUNATHPUR, D.V.C. (West Bengal)	1200.00	2.3	9.76	23		Action plan not submitted
75	Vizag TPS, Hinduja National Power Corporation Limited (Andhra Pradesh)	1040.00	13.0	256	69	100	Action plan annexed
76	MUZAFFARPUR TPS, KANTI BIJLEE UTPADAN NIGAM LIMITED (Bihar)	610.00	34	40	72	100	Action plan annexed
77	AMARKANTAK TPS, LANCO AMARKANTAK POWER LIMITED (Chhattisgarh)	600.00	43.4	50.5	100		Action plan annexed
78	SATPURA, M.P.P.G.C.L. Sarni (M.P.)	1330.00	28.8	16.78	100		Action plan annexed
79	CHANDRAPUR, M.P.P.G.C.L. (Maharashtra)	2920.00	26.3	36	58	100	Action plan annexed
80	KHAPARKHEDA, M.P.P.G.C.L. (Maharashtra)	1340.00	35.5	30.52			Action plan not submitted
81	KORADI, M.P.P.G.C.L. (Maharashtra)	2600.00	13.1	14.05			Action plan not submitted
82	PARAS, M.P.P.G.C.L. (Maharashtra)	500.00	38.3	43	100		Action plan annexed
83	ANUPPUR TPS, M.P.P.G.C.L. (Maharashtra)	1200.00	48.6				Action Plan not submitted
84	SINGRAULI, NTPC LTD. (U.P.)	2000.00	30.2	35	50	100	Action plan annexed
85	RIHAND, NTPC LTD. (U.P.)	3000.00	31.1	31	60.74	100	
86	KORBA, NTPC (Chhattisgarh)	2600.00	43.0	50.19	65	100	Action plan annexed
87	VINDHYACHAL, NTPC LTD. (M.P.)	4760.00	24.6	51	51	100	Action plan annexed
88	SIPAT, NTPC (Chhattisgarh)	2980.00	18.6	40.44	69	100	Action plan annexed

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89	KAHALGAON, NTPC LTD. (Bihar)	2340.00	45.8	46.09	85	100	Action plan annexed
90	BARH SUPER TPS, NTPC LTD. (Bihar)	1320.00	39.1	50	77	100	Action plan annexed
91	TALCHAR(KAN), NTPC LTD. (Odisha).	3000.00	47.5	46.96	80	100	Action plan annexed
92	BONGAIGAON, NTPC LTD. (Assam)	250.00	4.5	30	74	100	Action plan annexed
93	YERAMARUS TPS, RAICHUR POWER CORPORATION LIMITED (Karnataka)	1600.00	0	32	70	100	Action plan annexed
94	SEMBCORP ENERGY INDIA Ltd., SEMBCORP ENERGY INDIA Ltd. (Formerly Thermal Powertech Corporation India Ltd) (Andhra Pradesh)	1320.00	30.8	75	80	100	Action plan annexed
95	SASAN UMPP, RELIANCE POWER LIMITED (Madhya Pradesh)	3960.00	29.6	30	70	100	Action plan annexed
96	METTUR-I, T.N.G & d Corporation (Tamil Nadu)	840.00	41.1				Action plan not submitted
97	NORTH CHENAI-I, T.N.G & d Corporation (Tamil Nadu)	630.00	39.7	66	96.6 (one quarter)		Action plan not submitted
98	NORTH CHENAI-II, T.N.G & d Corporation (Tamil Nadu)	1200.00	40.1	63.69	98.77(one quarter)		Action plan not submitted
99	KOTHAGUDEM (Stage I to IV), T.S.P.G.C.L (Telangana)	720.00	39.5				Action plan not submitted
100	ANPARA 'A' & 'B', U.P.R.V.U.N.L. (U.P.)	2630.00	1.6	3.18	100		Action plan annexed
101	OBRA, U.P.R.V.U.N.L. (U.P.)	1000.00	20.7	12.77	10	100	Action plan annexed
102	Essar Power MP Ltd.	1200	61	86	83	100	Action plan annexed
103	Vedanta Ltd. Jharsuguda	2400	108	120	100		Action plan annexed
104	Vedanta Ltd. Jharsuguda	1215	114	112	100		Action plan annexed
105	Balco, Balco Nagar	1740	60	102	83	93	Not submitted
106	NALCO, Angul, Odisha	1200	75	75	75	100	Action plan annexed
107	Chandrapura Thermal Power Plant, DVC	630	140	97	100		Action plan annexed

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108	Durgapur Thermal Power Station, DVC	210	4.5	8.5	74	100	Action Plan annexed
109	Mejia Thermal Power Plant, DVC	2340	106	74	97	100	Action Plan annexed
110	Raghunathpur Thermal Power Plant, DVC	1200	2.52	9.76	23	100	Action Plan annexed
111	Anpara C, Lanco Power Sonebhadra	1200	6.9	22%	54	100	Action Plan annexed
112	Adhunik Power Natural Resources, Jharkhand	540	98	99	100		Action Plan annexed
113	D B Power Ltd	1200	71.6	72	100		Action Plan annexed
114	Korba East	240	47	100	80	100	Action Plan annexed
115	Kota Super Thermal Power Station, Kota	1240	104	99.4	92	100	Action Plan annexed
116	Nabha Power Ltd, Rajpura	1400	111	91	100		Action Plan annexed
117	TPS Parli	1170	64.52	83.73	100		Action Plan annexed
118	SKS Power Generation, Chhattisgarh	1200	32	70	100		Action Plan annexed

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It was decided that action plan received from TPPs would be forwarded to Central Pollution Control Board and Central Electricity Authority. Both agencies should review status quarterly and annual basis. Quarterly status should be forwarded to MoEF&CC. CPCB should take appropriate action against the non-compliant TPPs, which have not submitted the action plan/revised action plan so far. It was also decided that all pollution control measures (air and water) should be adopted by the TPPs and user agencies while handling, transportation and disposal of fly ash. CPCB may issue appropriate directions in this regard.

4. **Draft proposal submitted by CPCB for determining environmental compensation (EC)**

CPCB has submitted a draft proposal for determining environmental compensation (EC), which is annexed as **Annexure – II**. The committee recommended that environmental compensation should be imposed on non-pit head thermal power plant only as pit head plant has some genuine issues of massive fly ash generation and unavailability of user agencies nearby the Power Plant. The most viable solution for pit head plant is utilisation of ash in abandoned coal mines. But declaration of coal mines as abandoned is the major issue. Coal Ministry may be requested to expedite the allocation of abandoned mines especially for 100% fly ash utilisation. It was recommended that CPCB/SPCB should ensure that collected EC should be mobilised for utilisation of ash in the respective TPPs as far as possible.

5. **Exclusion of ash dyke raising of ash pond as fly ash utilisation from action plan for 100 % fly ash utilisation.**

Keeping in view of recent incidents of ash dyke breach at Vidhyanchal TPP and Essar TPP in Singrauli area, it was discussed that ash dyke raising of ash pond should be considered as fly ash utilisation during initial 5 years. Thereafter, TPPs can use ash for strengthening of

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ash dyke as per engineering requirement but can claim only a maximum of 5-7% of fly ash generation as utilisation. This will prevent ash dumping at ash pond.

With regards to breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area, the Committee decided that CPCB should direct MP Pollution Control Board to ensure effective restoration/remediation of affected sites urgently. Action Taken report should be furnished to this Ministry within a week.

6. **Utilisation of unutilized accumulated fly ash (pond ash)**

For non-pit head plant, the balance unutilized fly ash accumulated (the difference between the generation and the utilization target) shall be utilized progressively over next three years in addition to 100% utilization of current generation of fly ash w.e.f. April 2021.

With regard to pit head plant, the balance unutilized fly ash accumulated (the difference between the generation and the utilization target) shall be utilized progressively over next four years in addition to 100% utilization of current generation of fly ash w.e.f. April 2021.

7. **Review of action taken report on recommendations of Expert Committee for enhanced utilisation of fly ash.**

An Expert Committee was constituted by Niti Aayog on 12.06.2018 for developing a focused strategy for best utilisation of fly ash to manufacture end products. The recommendations of the Expert Committee for enhanced utilization of fly ash in the various sectors i.e. mines, roads, cement industry, bricks, etc and its implementation status are as under:

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(a) Following are the recommendations of the Expert Committee pertaining to Ministry of Power

i. The Task Force constituted vide O.M. dated 29th September, 2011 of Ministry of Power comprising representatives of CIMFR, CMPDI, DGMS, etc. for taking up pilot project for utilisation of fly ash in operational mines should be revitalized and additional members representing Ministry of Mines and State Pollution Control Boards should be included in the aforesaid Task Force. The Task Force could meet quarterly to review and update the list of operational mines or abandoned mines/quarries. Backfilling should be started on the existing list of abandoned mines/quarries that have already been examined and recommended by the Task Force.

Action Taken:
MoP vide letter dated 14.03.2019 and 10.04.2019 has constituted the Task Force to review and recommend a list of abandoneed mines/quarries in the country for mine backfilling purpose. NTPC Ltd. has been made the Convenor of the Task Force. MoP vide letter dated 19.08.2019 also forwarded the list of Mines as identified by task force, giving preference particularly for pit head plants.

ii. Tender/auction for sale of fly ash should be done by TPPs initially for end user/industry and not for traders. If fly ash is not taken by the end user/industry, then it could be given to traders. TPPs should also consider entering into longer term contracts with end users.

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iii. TPPs may explore the possibility that once a tender for utilisation of fly ash is allotted to a company, any unit /plant of the same company should be allowed to purchase and utilise the fly ash and TPPs can also directly raise the invoice to such Unit/Plant.

iv. TPPs should give incentive to entities which can (through R&D) come up with fly ash products with ash content of at least 75% and established sustainable application of those fly ash products in the industry. The incentive could be given from the money available with the TPPs from auctioning of fly ash.

v. Creation of fly ash parks/hubs on public-private-partnership mode. Such parks will act as facilities for enabling quality control of fly ash made products, generate employment and also act as models which will promote use of innovative fly ash products which can be replicated at other locations.

Action taken:
MoP vide letter dated 26.03.2019 requested CEA to circulate and give wider publicity /circulate these recommendations of the Expert Committee to all thermal power plants/State Gencos for necessary action. Accordingly, CEA vide letter dated 17.07.2019 has circulated the same to all power utilities for taking appropriate action on these recommendations of Expert Committee.

In the Joint Committee Meeting held on 11.12.2019, it was decided that Ministry of Power should follow up with State Government for necessary compliance.

vi. Ministry of Power should come up with incentives/awards for TPPs that come up with innovations in fly ash disposal keeping all the environment and pollution norms in consideration.

Action taken:

The issue is under consideration in Ministry of Power/CEA.

(b) Following are the recommendations of the Expert Committee pertaining to Ministry of Coal

i. Ministry of Coal should identify list of abandoned mines for utilisation of fly ash in mines backfilling.

Action taken:

A list of seven abandoned mines has been communicated by Ministry of Coal for utilisation of fly ash in mines backfilling. Details are as under:
SECL: Bisrampur OC and Dugga OC
MCL: South Balanda Mine
NCL: Gorbi OC
WCL: Naveen Kunada OC; Telwasa OC & Dhorwasa OC

ii. The Task Force constituted vide O.M. dated 29th September, 2011 of Ministry of Power comprising representatives of CIMFR, CMPDI, DGMS, etc. for taking up pilot project for

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utilisation of fly ash in operational mines should be revitalized and additional members representing Ministry of Mines and State Pollution Control Boards should be included in the aforesaid Task Force. The Task Force could meet quarterly to review and update the list of operational mines or abandoned mines/quarries. Backfilling should be started on the existing list of abandoned mines/quarries that have already been examined and recommended by the Task Force.

iii. Ministry of Coal should expedite the permission of Jingurda mine of NCL, Gevra & Dipika Mines of SECL, Kaniha mine of MCL, and OCP-1 & RG-1 of SCCL for fly ash backfilling/stowing.

Action taken:

Ministry of Coal has informed that all the above mentioned mines at S.N. iii are not declared as abandoned mines and the same are operation mines.

iv. It is reported that fly ash is being used for mines backfilling in some mines. Mining Companies should share their experiences of mines backfilling to enhance fly ash utilisation in this sector.

Action taken report is awaited on the above recommendation at sl. no. iv.

(c) Following are the recommendations of the Expert Committee pertaining to NTPC

i. **All Thermal Power Plants (TPPs) should comply with the provision in the fly ash notification of giving subsidies on the cost of transportation to brick manufacturing units so that utilization of fly ash could be further enhanced**.

Action taken:

NTPC informed that with regards to bearing/ subsidies on the cost of transportation to brick manufacturing units, subsidy of Rs. 150/- per MT towards transportation cost of fly ash for brick manufacturers in compliance of OSPCB directive is being given at Talcher Th, Talcher Kaniha. ***Fly ash Park has been set up at Varanasi and Rewa****. Fly ash is being made available to users. Such depot are being set up at Bhubaneshwar and Pune. Rate contract for supply of fly ash to fly ash brick manufacturers has been awarded by the Vindhyachal TPP.*

ii. **Tender/auction for sale of fly ash should be done by TPPs initially for end user/industry and not for traders. If fly ash is not taken by the end user/industry, then it could be given to the traders. TPPs should also have to consider entering into longer term contracts with the end users**.

Action taken:

NTPC informed that NTPC's Ash Policy has been modified in line with the recommendations of Expert Committee and is being implemented at stations. Process has been initiated for charging a nominal amount Rs. 1/- per ton to fly ash brick/

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blocks/ tile manufacturers from 12 stations where fly ash is being issued on price. It is expected to start from Oct'19 onward progressively. Long term tie up with end users are being tied up. At - Dadri, Unchahar, Farakka, Kahalgaon, Tanda and Khargone have already signed long term MoU. It is in process at Rihand/ Vindhyachal, Barh.

iii. **TPPs may explore the possibility that once a tender for utilisation of fly ash is allotted to a company, any unit /plant of the same company should be allowed to purchase and utilise the fly ash, and TPPs can also directly raise the invoice to such Unit/Plant.**

Action taken:

NTPC informed that necessary provisions have been made in Ash Utilization policy by NTPC to allow any unit / plant of same company who have been issued contract to for fly ash, at same price along with requisite invoice.

iv. **NTPC and NHAI should come out with suitable guidelines for payment of transportation cost.**

Action taken:

NTPC informed that presently, payment is being made to NHAI based on the State SoR rates. CERC order dated 05-11-2018 stipulates that actual additional expenditure incurred by NTPC towards transportation of ash in terms of MoEF & CC notification is admissible under "Change in Law" as additional O&M expenditure subject to (a) Award of fly ash transportation contract through a transparent competitive bidding procedure; (b) Alternatively, the schedule rates of the respective State Governments. Efforts are being made to supply ash for road projects through transparent bidding process.

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v. **TPPs should give incentive to entities which can (through R&D) come up with fly ash products with ash content of at least 75% and established sustainable application of those fly ash products in the industry. The incentive could be given from the money available with the TPPs from auctioning of fly ash.**
Action taken:

NTPC informed that necessary provision has been made in Ash Utilization policy of NTPC.

vi. **Fly Ash based Sintered Light Weight Aggregates (SLWA) manufacturing technology, which is approved by BIS may be replicated in other TPPs in a time bound manner.**

Action taken:

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NTPC informed that NTPC is setting up LWA plant at Sipat and such activity will be promoted at other stations based on the success of the plant and product. In addition to this, to promote fly ash based nano-concrete aggregate (light weight aggregate), a demonstration building is under construction at Simahdri so as to assess its performance.

vii. **Alternate mode of transportation such as BTAP (Bogie Tank for Alumina Powder) wagons may be used for bulk transportation of ash through rail for distant users and transportation through Barge.**

Action taken:

NTPC informed that NTPC has placed order to M/s Texmaco Rail & Engineering Ltd, Kolkata for manufacture and supply of three BTAP rakes. NTPC has also signed an agreement with Railway Administration for bulk transportation of fly ash from its remotely located Rihand and Vindhyachal TPS to the cement plants of Satna/ Maihar/ Katni belt. Signing of MoU with Cement Industries through BTAP is in process. Rail loading facilities for bulk transportation already existing at Rihand, Kahalgaon & Ramagundam. It is in progress at Sipat, Simhadri, Mouda, Barh & Vindhyachal and planned at all upcoming stations.

viii. **Awareness needs to be created among building construction agencies (such as PWD, CPWD, NBCC, etc.) for the use of Bottom Ash as replacement of Fine Aggregate (sand) in Cement Concrete.**

Action taken:

NTPC informed that for use of bottom ash in cement concrete, a R&D project has been carried out in association National Council for Cement & Building Material (NCBM), Ballabhgarh. Recommendation of NCBM has been sent to BIS for issuing code.

(d) Following are the recommendations of the Expert Committee pertaining to Ministry of Central Pollution Control Board

i. CPCB should come out with the guidelines for reclamation of low lying area and abandoned mines.

ii. SPCBs should direct all TPPs in their respective States to link with the CEA's Mobile Phone App.

Action taken:

CPCB informed that as per status informed by NTPC who is providing technical inputs with respect to linking the plan data to the App, 170 plants are linked with the App, of which 120 plants are regularly updating the data. The Committee recommended that CPCB shall initiate action against coal based thermal power plants, which have not been linked with the App.

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iii. CPCB should come out with guidelines based on Odisha SPCB experience for reclamation of low lying areas and abandoned quarries with ash.

Action taken:
CPCB has issued guidelines for disposal/utilisation of flyash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries.

(e) Following are the recommendations of the Expert Committee pertaining to Ministry of Central Electricity Authority

i. CEA's app should have additional features like quarterly trends of production & utilization of fly ash.
ii. Public Awareness Campaign should be undertaken for CEA's app in the media (newspaper, etc.) for public dissemination at the level of generators and users.

Action taken:
Action taken report is awaited on the above recommendations at S.N. i & ii. The Joint Committee has recommended that CEA shall include an 'alert' notification in the feature of 'Ash track' for quarterly and annual non-compliance by the TPPs.

(f) Following are the recommendations of the Expert Committee pertaining to Ministry of National Highway Authority of India

i. NHAI should compulsorily use fly ash in their projects. They should verify their project at regular intervals regarding utilisation of fly ash in their projects.
ii. NHAI should approach to the nearest TPPs with respect to road project for supply of ash for road construction.
iii. NHAI and NTPC should come out with suitable guidelines for payment of transportation cost. State SOR or CPWD SOR could be the norms that could be used for fixing the costs.

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Action taken:
NHAI has informed that status of ash requirement and utilisation of NHAI is as under:

FY	**Ash required**	**Ash Utilised**
2019-20	34.6 lakh ton	12.12 Lakh Ton
2018-19	0.42 Lakh ton	6.70 Lakh ton

(g) Following are the recommendations of the Expert Committee pertaining to Ministry of Environment, Forest and Climate Change:

i. MoEF&CC should revisit the conditions stipulated in the existing environmental clearance of Thermal Power Plants for fly ash utilisation and modify them in consonance with the fly ash notification.
ii. Appropriate conditions need to be incorporated in the environmental clearance for utilisation of fly ash in mines backfilling/stowing.

Action taken:

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MoEF&CC vide OM dated 28th August, 2019 has issued amendment in the EC's conditions of Thermal Power Plants and Coal Mines in line with the fly ash notification, 1999 as amended from time to time.

iii. Fly ash manufacturing units should be given minimum 20% fly ash even if the TPP has achieved 100% utilisation.

iv. District Level Monitoring committee under the Chairmanship of District Magistrate may be formed for effective monitoring for implementation of fly ash notification.

v. Red clay brick kilns located within 300 km need to be converted into fly ash based brick manufacturing unit. One-year time frame should be given for conversion of such brick units. To encourage the conversion, TPPs should provide fly ash free of cost and bear the full transportation charges upto 300 km to such units. To encourage the conversion, capital subsidy to the brick units for converting to fly ash may be provided by the Ministry of Power / MSME or a long-term, low-interest scheme may be provided by Banks/SIDBI. The money available with TPPs from auctioning of fly ash should be used to give transportation subsidy.

Action taken:

Draft amendment to fly ash notification has been issued on 25.02.2019. Around 35,000 comments/suggestions have been received from the various stake holders on the draft notification. Out of these, around 33,000 comments/suggestions have been received stating objections/ opposing the ban on red clay brick kilns. MoEF&CC is examining the matter.

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(h) Following is the recommendations of the Expert Committee pertaining to Ministry of Housing and Urban Affair:

i. State Governments should offer incentive of additional 5 % FAR for the building construction projects that are not using red clay bricks and only using fly ash based building products

Action taken:

MoHUA has issued advisory vide OM dated 18.14.2019 to all Urban Development Department in States and UTs.

(i) Following is the recommendations of the Expert Committee pertaining to Ministry of HRD:

i. Ministry of HRD may be requested to include use of fly ash in the curriculum of civil engineering and architecture degree.

Action taken:

All India Council for Technical Education vide letter dated 26.04.2019 has informed that the matter is referred to AICTE all India Board of Under Graduate Study in Engineering and Technology for its consideration.

(j) Following is the recommendations of the Expert Committee pertaining to BIS:

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i. BIS should make relevant standards for use of fly ash in geo-polymer concrete and extend the use of Bottom Ash as replacement of Fine Aggregate (sand) for concrete beyond lean concrete in IS 383:2016, after considering the report of R&D being carried out at NCB, Ballabgarh.

ii. The BIS should examine the request of the cement industry to increase fly ash use to 45% and take a suitable decision after considering the report of R&D being carried out at NCB, Ballabgarh.

Action taken report is awaited.

(k) Following is the recommendations of the Expert Committee pertaining to IRC:

i. Use of fly ash in geo-polymer products can be commercialised after notification of relevant standards by IRC. Awareness needs to be created among road making agencies such as NHAI, PWD, Border Road Organisation, etc.

Action taken report is awaited.

Encl.:

1. Copy of minutes of 1st meeting of Joint Committee held on 18th April, 2019 is annexed as annexure.
2. Copy of minutes of 2nd meeting of Joint Committee held from 17th to 18th July, 2019 is annexed as annexure.
3. Copy of minutes of 3rd meeting of Joint Committee held on 30th September, 2019 is annexed as annexure.
4. Copy of minutes of 4th meeting of Joint Committee held on 11th December, 2019 is annexed as annexure.

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Annexure - II

Mechanism for assessment of Environmental Compensation for non-compliance of targeted flyash utilization by thermal power plants

1. Provisions of Flyash Notification

Ministry of Environment, Forest & Climate Change (MoEF&CC) issued directions vide notifications dated 14th September, 1999, 27th August, 2003, and 3rd November, 2009 respectively for achieving the target of 100% fly ash utilization by all Coal/Lignite based thermal power stations in the country in a progressive manner.

1.1 1999 notification

As per the notification para 2

Sub-para (2) : Every coal or lignite based thermal power plant commissioned subject to environmental clearance conditions stipulating the submission of an action plan for full utilisation of fly ash shall, within a period of **nine years** from the publication of this notification, phase out the dumping and disposal of fly ash on land in accordance with the plan. Such an action plan shall provide for thirty per cent of the fly ash utilisation, within three years from the publication of this notification with further increase in utilisation by atleast ten per cent points every year progressively for the next six years to enable utilisation of the entire fly ash generated in the power plant atleast by the end of ninth year. Progress in this regard shall be reviewed after five years.

(3) Every coal or lignite based thermal power plant not covered by para (2) above shall, within a period of **fifteen years** from the date of publication of this notification, phase out the utilisation of fly ash in accordance with an action plan to be drawn up by the power plants. Such action plan shall provide for twenty per cent of fly ash utilisation within three years from the date of publication of this notification, with further increase in utilisation every year progressively for the next twelve years to enable utilisation of the entire fly ash generated in the power plant.

1.2 2009 notification (2nd amendment to principal notification)

Thermal Power Stations in operation before the date of 3rd November, 2009 Notification were to necessarily achieve the target of fly ash utilization in successive 5 years as: at least 50% by 1st year; 60% by 2nd year ; 75% by 3rd year; 90% by 4th year and 100% by 5th year from the issue of this notification.

The unutilised flyash in relation to the target during a year, if any shall be utilised within next two years in addition the targets stipulated for those years and balance unutilised flyash accumulated during first five years (the difference between the generation and the utilisation targets) shall be utilised progressively in next five years in addition to 100% utilisation of current generation of flyash i.e by 2019

2.3 New Thermal Power Stations coming into operation after the MoEF's notification (i.e. 3rd November, 2009) were to necessarily achieve the target of fly ash utilization as: atleast

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50% by the 1st year, 70% by 2nd year , 90% by 3rd year and 100% by 4th year from their date of commissioning.

The unutilised flyash in relation to the target during a year, if any shall be utilised within next two years in addition the targets stipulated for these years and balance unutilised flyash accumulated during first four years (the difference between the generation and the utilisation targets) shall be utilised progressively in next five years in addition to 100% utilisation of current generation of flyash . i.e. by 2018.

Further vide Notification No. S.O 254(E) dated 27th January 2016, para (5) "coal or lignite based thermal power plants were directed to comply with the provisions in the said notification in addition to 100 % utilization of fly ash generated by them before 31st December, 2017".

2. Joint Committee constituted by MoEF & CC

A Joint committee has been constituted by MoEF & CC in pursuance of the direction of Hon'ble NGT dated 20.11.2018 in OA No. 117 of 2014 in the matter of shantanu Sharma Vs Union of India and 102 of 2014 in the matter of Sandplast (India) Ltd. Vs Union of India & Ors to discuss action plan to achieve 100 % flyash utilisation by thermal power plants. In its meeting held on 18th April, 2019 the said Joint committee decided that "CPCB will come out the mechanism to determine the quantum of penalty based on (per ton or percentage basis) to be paid for violation".

3. Determination of Environmental Compensation (EC)

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

EC = PI x Rx N x F x LF
= ₹ 30000per day (80x250x1.5) x N x LF
EC = Environmental compensation/penalty (₹);
PI = Pollution Index of industrial sector (80 for red category of industries)
R = Rs in per day (₹ 250)
N = Number of days of violations.
F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5
LF = Location factor,1.5 if industry is located in critically polluted area/urban area /ecologically sensitive area; otherwise 1

3.2 In light of the above environmental compensation (₹30000 per dayx330 days per year= ₹9900000, say 1 crore per year), it is proposed that , EC may be imposed based on annual basis for compliance of flyash notification after December 31st, 2017 as below:

3.2.1 **EC for plants commissioned before 3.11.2009**

A : EC for year 2018 and 2019

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EC = ₹ 1 crore/year x C x P x LF

C : Capacity factor 1 for 500 MW and MW/500 for other capacity
P : Non-compliance during the year i.e. (100- % utilisation during the year /100)
LF = Location factor, 1.5 if industry is located in critically polluted area/urban area /ecologically sensitive area; otherwise 1

B: Annual EC for year 2020 onwards

EC = ₹ 1 crore/year x C x P' x LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity
LF : Location factor, 1..5 if industry is located in critically polluted area/urban area /ecologically sensitive area; otherwise 1

3.2.2 **EC for plants commissioned after 3.11.2009**

A : EC for year 2018

EC = ₹ 1 crore/year x C x P x LF

C : Capacity factor 1 for 500 MW and MW/500 for other capacity
P : Non-compliance during the year i.e. (100- % utilisation during the year /100)
LF: Location factor, 1..5 if industry is located in critically polluted area/urban area /ecologically sensitive area; otherwise 1

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B: Annual EC for year 2019 onwards

EC = ₹ 1 crore/year x C x P' x LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity
LF : Location factor, 1..5 if industry is located in critically polluted area/urban area /ecologically sensitive area; otherwise 1

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

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Annexure

Action Plan submitted by non-compliant Thermal Power Plants to achieve 100% fly ash utilisation

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S.N 1

FORMAT FOR FLY ASH UTILISATION ACTION PLAN

1. Name of the Units: Dr.Narla Tata Rao Thermal Power Station
2. Power Generation Capacity: 1760MW (6x210 MW & 1x500MW)
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

	2017-18	2018-19
Ash generation	3861149	4114930
Ash utilisation	3502544	4275210

S.NO.	Description	Unit	2017-18 Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2017-18
A	Ash Generation (Fly Ash + Bed Ash)	MT	1053626	858112.954	809938.6458	1139471	3861149
B	Ash Utilisation	MT	840794	775610	818362.78	1067777	3502544
i)	Brick Manufacturing	MT	395106	330584	451424	572588	1749702
ii)	Ready Mix Concrete	MT	13192	12516	21535	30129	77372
iii)	Low Lying area filling/ Area Development	MT	173045	132504	77599	134310	517458
iv)	Road Construction	MT	1573	14367	0	0	15940
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (Cement & A.C.Sheet manufacturing industries)	MT	257878	285639	267804.78	330750	1142071.78
	Total Ash Utilisation	MT	2735214	2409332.954	2446664.206	3275025	3502544
C	Ash Utilisation percentage	%	79.80	90.39	101.04	93.71	90.71

Not for development

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S.NO.	Description	Unit	2018-19 Q1	Q2	Q3	Q4	TOTAL
A	Ash Generation (Fly Ash + Bed Ash)	MT	1185049	1060091	936904	932886	41149
B	Ash Utilisation	MT	1073069	1068290	1080742	1053109	427521
i)	Brick Manufacturing	MT	474339	567406	664770	590645	2297159.8
ii)	Ready Mix Concrete	MT	35559	41077	44952	38192	159780
iii)	Low Lying area filling/ Area Development	MT	216622	142242	71189	64490	494543
iv)	Road Construction	MT	11873	0	0	10490	22363
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (Cement & AC Sheet manufacturing)	MT	334676	317565	299831	349292	130136
	Total Ash Utilisation	MT	1073069	1068290	1080742	1053109	427521
C	Ash Utilisation percentage	%	90.55	100.77	115.35	112.89	103.

Agreement

4. Fly Ash Utilisation Action Plan FOTR THE YEAR 2019-20 (quarter wise)*:

NO.	Description	Unit	Q1	Q2	Q3	Q4	Total
A	Ash Generation (Fly Ash + Bed Ash)	MT	1083846	1012052	1012051	1012051	4120000
B	Ash Utilisation						
i)	Brick Manufacturing	MT	1170867	1043045	1043044	1043044	4300000
ii)	Ready Mix Concrete	MT	702779	650000	650000	650000	2652779
iii)	Low Lying area filling/ Area Development	MT	32239	32000	32000	32000	128239
iv)	Road Construction	MT	12458	12500	12500	12500	49958
v)	Filling of abandoned stone quarry	MT	69440	68000	68000	68000	273440
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (Cement and A.C.Sheet manufacturing industries)	MT	353951	280545	280544	280544	1195584
	Total Ash Utilisation	MT	1170867	1043045	1043044	1043044	4300000
C	Ash Utilisation percentage	%	108.03	104.05	104.05	104.05	104.36

Name of Authorised Person:CH.RAMBABU
Signature:. Ch: RamBabu.
E-mail id envdr.nttps@gmail.com
Phone no. :9440907646

*Note :

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

CHIEF ENGINEER/O&M
Dr.NTTPS/IBRAHIMPATNAM

Page Replacement

SN2

Format for Ash Utilisation Action Plan

1. Name of the Unit: KOTHAGUDEM THERMAL POWER STATION / V & VI-STAGES
2. Power Generation Capacity: 2 X 250 mw , 1 X 500 mw
3. Fly ash generation and utilisation year 2019-2020
4. Fly Ash Utilisation Action Plan(quarter wise)*:

2019-2020 (proposed utilization)

S.No.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-2020
A	Total Ash Generation (Fly Ash + Bed Ash)	MT	392221.46	425000.00	420000.00	400000	439247.23
B	Total Ash Utilisation	MT	27496.04	170000	210000	220000	
i)	Brick Manufacturing	MT	8710.85	50000	50000	50000	
ii)	Ready Mix Concrete	MT		20000	10000	10000	
iii)	Low Lying area filling/ Area Development (Pond ash)	MT	6800.00	50000	50000	50000	
iv)	Road Construction	MT		20000	60000	60000	
v)	Filling of abandoned stone quarry	MT					
vi)	Mines void filling	MT		30000	40000	40000	
vii)	Agriculture Utilisation	MT					
viii)	If any other area (specify) - Cement	MT	11985.19	20000	60000	70000	
	Total Ash Utilisation	MT	27496.04	170000	210000	220000	
C	Ash Utilisation percentage (Avg.)	%	7.01	40.00	50.00	55.00	

Name of the Authorised Person: Sri K. Anandam

Signature

E-mail id: ce.ktps5@tsgenco.co.in

Phone nos.: 08744 - 255272

CHIEF ENGINEER
Unit, KTPS-V&VI Stages,
DAMMAPET.

*Note :

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Format for Ash Utilisation Action Plan

1. Name of the Unit : KOTHAGUDEM THERMAL POWER STATION / V & VI-STAGES
2. Power Generation Capacity : 2 X 2520 mw , 1 X 500 mw
3. Fly ash generation and utilisation year 2020-2021
4. Fly Ash Utilisation Action Plan(quarter wise)*:

2020-2021

S.No.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2020-2021
A	Total Ash Generation (Fly Ash + Bed Ash)	MT	400000.00	395000.00	400000.00	390000	
B	Total Ash Utilisation	MT	220000	250000	340000	390000	840000.00
i)	Brick Manufacturing	MT	50000	70000	90000	100000	
ii)	Ready Mix Concrete	MT	10000	20000	30000	30000	
iii)	Low Lying area filling/ Area Development (Pond ash)	MT	50000.00	70000	90000	120000	
iv)	Road Construction	MT	10000	20000	60000	60000	
v)	Filling of abandoned stone quarry	MT					
vi)	Mines void filling	MT	40000	40000	60000	60000	
vii)	Agriculture Utilisation	MT					
viii)	If any other area (specify) - Cement	MT	70000.00	50000	70000	80000	
	Total Ash Utilisation	MT	220000.00	250000	340000	390000	
C	Ash Utilisation percentage (Avg.)	%	55.00	63.29	85.00	100.00	

Name of the Authorised Person: Sri K. Anandam

Signature:

E-mail id : ce.ktps5@tsgenco.co.in

Phone no. : 08744 - 255272

*Note :

CHIEF ENGINEER
KTPS-V&VI Stages,
PALONCHA

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

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Format for Ash Utilisation Action Plan

1. **Name of the Unit: Mutiara power plant, Coastal Energen Pvt Ltd, Tutlcorin, TamilNadu**
2. **Power Generation Capacity: 2 x 600 MW**
3. **Fly Ash Generation and Utilistion in previous two years (2017-18 and 2018-19):**

Year	Generation (T)	Utilization (T)	% of utilization
2017-18	89691	89064	99.4
2018-19	76624	76827	100

4. **Fly Ash Utilisation Action Plan for the year 2019 -20 & 2020 -21(quarter wise)*:**

S.NO	Description	Unit	Q1	Q2	Q3*	Q4*	Total Fly Ash Utilisation in Fy 2019-20
A	Ash Generation (Fly ash + Bottom ash)	MT	17423	15285	67500	67500	167708
B	Ash Utilisation	MT					
i)	Brick Manufacturing	MT	7102	6741	24000	24000	61483
ii)	Ready Mix Concrete/cement	MT	8715	7463	30000	30000	76178
iii)	Low Lying area filling / Area Development (Inside the plant project area)	MT	1698	1054	13500	13500	29752
iv)	Road Construction	MT					
v)	Filling of abandoned stone quarry	MT					
vi)	Mines void filling	MT					
vii)	Agriculture Utilisation	MT					
viii)	If any other area (specify): Dyke raising	MT					
	Total Ash Utilisation	MT	17516	15259	67500	67500	167413
C	Ash Utilisation percentage	%	100%	100%	100%	100%	100%

*Ash generation depends on the plant load factor and coal quality.

We are already achieving the fly ash utilization of 100%. Our Ash dyke is empty right from the inception.

Name of the Authorised Person: **Mr.P.Sundararajan**

Signature:

Coastal Energen Pvt. Ltd. TUTICORIN Melamaruthur

E-mail id: Sundararajan.p@coastalenergen.com; Phone no.: 9600058053

***Note:**

TPPs having fly ash utilisation less than 85% will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achive 100% fly ash utilisation.

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S.N. 11

RP-Sanjiv Goenka Group

Fly Ash Utilization Action Plan (quarter wise) - 2020-21

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in (FY 2020-21)
A	Ash Generation (Fly Ash + Bed Ash)	MT	123607	123607	100063	123607	470885
B	Ash Utilisation	MT	123607	123607	100063	123607	470885
i)	Brick Manufacturing	MT	11125	11125	9006	11125	42380
ii)	Ready Mix Concrete	MT					
iii)	Low Lying area filling/ Area Development	MT					
iv)	Road Construction	MT	1236	1236	1001	1236	4709
v)	Filling of abandoned stone quarry	MT					
vi)	Mines void filling	MT					
vii)	Agriculture Utilisation	MT					
viii)	If any other area (specify) (cement industry)	MT	111247	111247	90057	111247	423796
	Total Ash Utilisation	MT	123607	123607	100063	123607	470885
C	Ash Utilisation percentage	%	100	100	100	100	100

Note - Total Ash generation is based on consideration of Unit-2 only running at 85% PLF (Ash within 34%) and at present there is no schedule for running of Unit-1.

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RP-Sanjiv Goenka Group

Fly Ash Utilization Action Plan (Quarter Wise)

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in (FY 2019-20)
A	Ash Generation (Fly Ash + Bed Ash)	MT	198431	104935	63874	104935	472175
B	Ash Utilisation	MT	198431	104935	63874	104935	472175
i)	Brick Manufacturing	MT	17747	5494	6387	9494	39122
ii)	Ready Mix Concrete	MT					
iii)	Low Lying area filling/ Area Development	MT		5000			5000
iv)	Road Construction	MT	8119			1000	9119
v)	Filling of abandoned stone quarry	MT					
vi)	Mines void filling	MT					
vii)	Agriculture Utilisation	MT					
viii)	If any other area (specify) (cement industry)	MT	172564	94442	57486	94442	418934
	Total Ash Utilisation	MT	198431	104935	63874	104935	472175
C	Ash Utilisation percentage	%	100	100	100	100	100

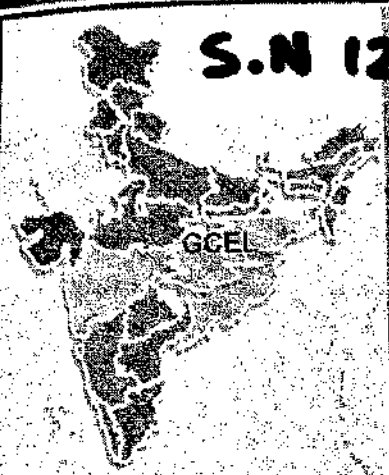
Note - Total Ash generation is based on consideration of Unit-2 only running at 85% PLF (Ash within 34%) and at present there is no schedule for running of Unit-1.

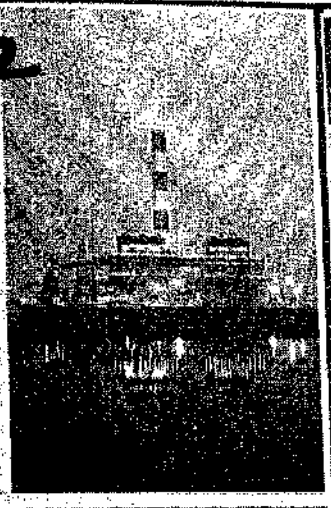
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GCEL TPP

S.N 12





GCEL TPP	
Year of COD	FY 2015-16
Capacity	1370 MW
Coal Source	Domestic
Fine Fly Ash Generation	232.87 MT/day
Coarse Fly Ash Generation	3817.125 MT/day
Bottom Ash Generation	450 MT/day
Silo Capacity	3 X 1200 MT
Pond Ash Availability	0.3 lacs MT
Nearest port	Vizag (~550 km)

Particulars	2016-17	2017-18	2018-19	2019-20* (Projcted)
Total Ash Generation (Lacs MT)	1.71	2.96	4.37	16.74
Fly Ash Utilization (Lacs MT)	1.23	2.67	3.43	16.74
Utilization (%)	71.59	90.11	78.48	100

* Ash generation is projected based on possible PLF and ash content in coal within limit as per EC.

Existing Avenues:

- Supplying to nearby Cement Industries.
- For evacuation of Bottom Ash already discharged in the Bottom Ash Pond-1 the process of drying is initiated through transferring the accumulated water in Ash Pond through recovery water pumps.
- Since the quality of the decanted Ash Water matches the Raw water quality this water is being transferred to Raw Water Reservoir through Ash recovery water pumps. (Suitable modification in the pipeline is already done).
- Also during subsequent operation of units the Bottom Ash will be discharged in BA Pond-2 only

New Initiatives:

- At GCEL the bottom ash is handled in slurry form and is disposed in Bottom ash ponds 1&2. GCEL has made the necessary arrangements for evacuating Bottom Ash directly from the Ash Ponds. For achieving this GCEL has constructed ramps at suitable locations in Bottom Ash Ponds-1 so that Hywa and Loader can directly enter the Ash Pond and bottom Ash evacuation can be achieved. With the completion of ramp construction, the disposal of bottom ash in the BA pond has already started.

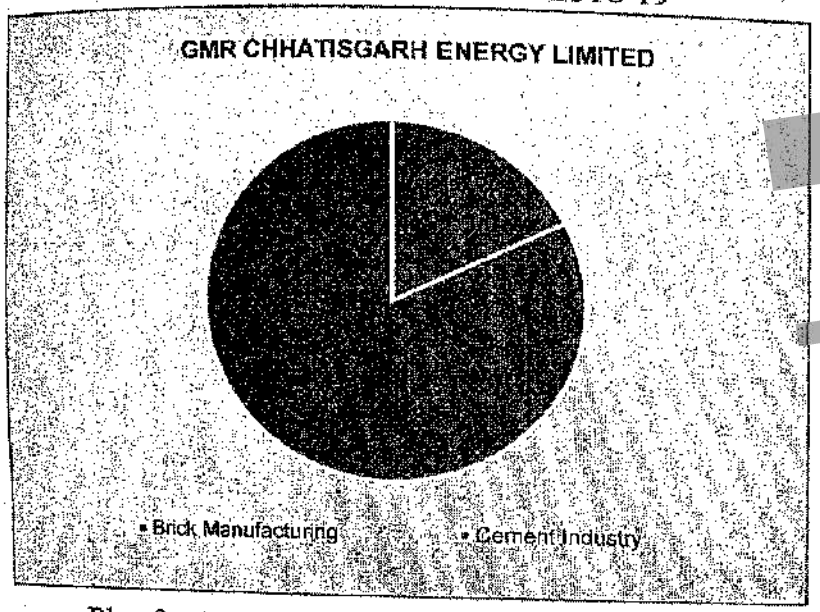
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ASH UTILIZATION

Mode of Ash Utilization FY 2018-19



FACTORS AFFECTING 100% FLY ASH UTILIZATION

- GCEL doesn't have a long term PPA, which adds to the uncertainties in meeting the contractual requirements of Fly Ash supply to the Cement Industries and Brick Manufacturers.
- New CTO Condition: "The industry shall install Fly Ash brick plant of at least 1,80,000 numbers of bricks per day on or before July 2018". We are installing a fly ash brick manufacturing unit within the plant premises. The brick manufacturing is expected to start in the first week of May'19.

Plan for Ash Utilization – Quarterly (FY 2019-20)

Quarter	Coal Consumption (MT)	Power generation (MUS)	Quantity of fly ash generated (MT)	Quantity of bottom ash generated (MT)	Total Ash Generated	Brick Manufacturing (MT)	Supplied to Industry	Other purposes (MT)			Total Ash Utilized (MT)	% of ash utilization
							cement	Road Making	Mine Filing	Tiles		
Q-1	1181622	2499	361577	40175	401751	21560	376551	3640	If required	If required	401751	100
Q-2	1227943	2454	375750	41750	417500	31010	381940	4550	If required	If required	417500	100
Q-3	1282014	2404	392296	43588	435884	18750	413134	4000	If required	If required	435884	100
Q-4	1232225	2274	377060	41895	418956	20850	394256	3850	If required	If required	418956	100

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Format for Ash Utilisation Action Plan

1. Name of the Unit : 2 x 130 MW, JSW Energy Limited, Vijayanagar, Karnataka.
2. Power Generation Capacity : 260 MW
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19) : Attached
4. Fly Ash Utilisation Action Plan (quarter wise) * 2019-20 and 2020-21 :

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	11539	**11539	**11539	**11539	46156
B	Ash Utilisation	MT	11539	11539	11539	11539	46156
i)	Brick Manufacturing	MT	6856	6856	6856	6856	27424
ii)	Ready Mix Concrete / Cement manufacturing	MT	2481	2481	2481	2481	9924
iii)	Low Lying area filling/ Area Development	MT	-	-	-	-	-
iv)	Road Construction	MT	-	-	-	-	-
v)	Filling of abandoned stone quarry	MT	-	-	-	-	-
vi)	Mines void filling	MT	-	-	-	-	-
vii)	Agriculture Utilisation	MT	-	-	-	-	-
viii)	If any other area (specify),/ Pond embankment	MT	2202	2202	2202	2202	8808
	Total Ash Utilisation	MT	11539	11539	11539	11539	46156
C	Ash Utilisation percentage	%	100	100	100	100	100

**Fly ash utilization & generation Plan for Q2, Q3 & Q4 of FY 2019-20 is based on Q1 plant load factor and coal quality.

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Name of the Authorised Person : Pradeep Manoor

Signature :

E-mail id : pradeep.manoor@jsw.in

Phone no. : 9449849708

*Note :

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

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Format for Ash Utilisation Action Plan

1. Name of the Unit : 2 x 300 MW, JSW Energy Limited, Vijayanagar, Karnataka.
2. Power Generation Capacity : 600 MW
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19) : Attached
4. Fly Ash Utilisation Action Plan (quarter wise) * 2019-20 and 2020-21 :

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	23348	**23348	**23348	**23348	93392
B	Ash Utilisation	MT	23348	23348	23348	23348	93392
i)	Brick Manufacturing	MT	0	0	0	0	0
ii)	Ready Mix Concrete / Cement manufacturing	MT	22591	22591	22591	22591	90364
iii)	Low Lying area filling/ Area Development	MT	-	-	-	-	-
iv)	Road Construction	MT	-	-	-	-	-
v)	Filling of abandoned stone quarry	MT	-	-	-	-	-
vi)	Mines void filling	MT	-	-	-	-	-
vii)	Agriculture Utilisation	MT	-	-	-	-	-
viii)	If any other area (specify),/ Pond embankment	MT	757	757	757	757	3028
	Total Ash Utilisation	MT	22348	22348	22348	22348	93392
C	Ash Utilisation percentage	%	100	100	100	100	100

**Fly ash utilization & generation Plan for Q2, Q3 & Q4 of FY 2019-20 is based on Q1 plant load factor and coal quality.

Name of the Authorised Person : Pradeep Manoor

Signature :

E-mail Id : pradeep.manoor@jsw.in

Phone no. : 9449849708

*Note :

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

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S.N. 14 (14)

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Format for Ash Utilisation Action Plan

1. **Name of the Unit: Captive Power Plant, Jindal Steel & Power Ltd- Angul, Odisha**
2. **Power Generation Capacity: 6 x 135 MW****
3. **Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):**

Year	Generation (T)	Utilization (T)	% of utilization
2017-18	823844	811084	98.45
2018-19	1178045	1151604	97.76

4. Fly Ash Utilisation Action Plan(quarter wise)*:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation In FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	322830	345600	504000	504000	1676430
B	Ash Utilisation	MT					
i)	Brick Manufacturing	MT	3607	4500	4500	4500	17107
ii)	Ready Mix Concrete	MT	Nil				
iii)	Low Lying area filling/ Area Development (Inside the plant project area)	MT	Nil	191100	287500	261500	740100
iv)	Road Construction	MT	247448	0	12000	38000	297448
v)	Filling of abandoned stone quarry	MT	Nil				
vi)	Mines void filling	MT	Nil				
vii)	Agriculture Utilisation	MT	Nil				
viii)	If any other area (specify): Dyke raising	MT	71775	150000	200000	200000	621775
	Total Ash Utilisation	MT	322830	345600	504000	504000	1676430
C	Ash Utilisation percentage	%	100	100	100	100	100

** The Captive Power Plant is located within Integrated Steel Plant Boundary

Name of the Authorised Person: Dr. J.K.Soni
Signature: .....
E-mail Id: jagdish.soni@jindalsteel.com
Phone no.: 8826298942

***Note :**
TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

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S.N.15

Format for Ash Utilisation Action Plan (FY :2019-20)

1. **Name of the Unit: Captive Power Plant, JSPL, Raigarh, Chattisgarh**
2. **Power Generation Capacity: 134 MW****
3. **Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):**

Year	Generation (T)	Utilization (T)	% of utilization
2017-18	484873	484873	100
2018-19	362789	362789	100

4. **Fly Ash Utilisation Action Plan (quarter wise) *:**

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	90,000	90,000	90,000	90,000	360000
B	Ash Utilisation	MT	90,000	90,000	90,000	90,000	360000
i)	Brick Manufacturing	MT	23,250	23,250	23,250	23,250	93000
ii)	Ready Mix Concrete	MT					
iii)	Low Lying area filling/ Area Development	MT	66,750	66,750	66,750	66,750	267000
iv)	Road Construction	MT					-
v)	Filling of abandoned stone quarry	MT					-
vi)	Mines void filling	MT					-
vii)	Agriculture Utilisation	MT					-
viii)	If any other area (specify)	MT					-
	Total Ash Utilisation	MT	90,000	90,000	90,000	90,000	360000
C	Ash Utilisation percentage	%	100	100	100	100	100

** The Captive Power Plant is located within Integrated Steel Plant Boundary

pdfelement

Name of the Authorised Person: Dr. J.K. Soni

Signature: .....

E-mail id: jagdish.soni@jindalsteel.com

Phone no.: 8826298942

***Note :**

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

Remove Watermark Now

S.N. 16

Format for Ash Utilisation Action Plan

1. Name of the Unit: Maruti Clean Coal And Power Limited 1X300 MW TPP
2. Power Generation Capacity: 300 MW
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

Year	2017-18	2018-19
Fly ash generation (MT)	772448	727948
Fly ash utilisation (MT)	723216	727948

4. Fly Ash Utilisation Action Plan(quarter wise)*:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	216434	178874	219394	202077	816779
B	Ash Utilisation	MT					
i)	Brick Manufacturing	MT	18474	8944	10971	10105	48494
ii)	Ready Mix Concrete	MT					
iii)	Low Lying area filling/ Area Development	MT	69979	61930	98727	90934	321570
iv)	Road Construction	MT	127981	108000	109697	101038	446716
v)	Filling of abandoned stone quarry	MT	0	0	0	0	
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	
viii)	If any other area (specify)	MT	0	0	0	0	0.00
	Total Ash Utilisation	MT	216434	178874	219395	202077	816780
C	Ash Utilisation percentage	%	100	100	100	100	

Name of the Authorised Person: Tushar Ahlawat
Signature:
E-mail id :tushar.ahlawat@acbindia.com
Phone no. : 9654129396

*Note :

Partial Statement not to be published

S.N. 17

Remove Watermark Now

25

NLC TAMILNADU POWER LIMITED

ASH UTILIZATION ACTION PLAN

1. Name of the Unit: NLC TAMILNADU POWER LIMITED, TUTICORIN

2. Power Generation Capacity: 1000 MW (2 x 500 MW)

3. Fly ash generation and utilization in previous two years (2017-18 & 2018-19):

Period: 2017-18

Sl.No.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilization in FY 2017-18
A	Ash Generation (Fly Ash + Bottom Ash)	MT	245693	272539	292547	282101	1092880
B	Ash Utilization	MT	245693	272539	292547	282101	1092880
i)	Brick Manufacturing	MT	11352	9994	31639	18101	71087
ii)	Ready Mix Concrete	MT	-	-	-	-	-
iii)	Low Lying area filling/ Area Development (Bottom Ash)	MT	-	8332	4290	-	-
iv)	Road construction	MT	-	-	-	-	-
v)	Filling of abandoned stone quarry	MT	-	-	-	-	-
vi)	Mines void filling	MT	-	-	-	-	-
vii)	Agriculture Utilization	MT	144796	186936	213327	212559	737619
vii)	Cement	MT	89544	87276	43290	51441	271553
viii)	Bottom Ash to Cement & Brick manufacturers	MT	245693	272539	292547	282101	1092880
ix)	Total Ash Utilization	%	100.00	100.00	100.00	100.00	100.00
C	**Ash Utilization Percentage**						

pdfelement

S.N. 18

(18)

Remove Watermark Now

Format for Ash Utilisation Action Plan

1. **Name of the Unit: R.K.M Powergen Pvt Ltd**
2. **Power Generation Capacity:** 4 x 360MW
3. **Fly ash generation and utilisation in previous two years** (2017-18 and 2018-19):

S.No.	Financial Year	Fly Ash Generation	Fly Ash Utilization
i	2017-18	420640.4	381612
ii	2018-19	608142	550627.5

4. **Fly Ash Utilisation Action Plan (quarter wise)** *: considering operation of all the units i.e (4x360MW)

S. No.	Description	Unit	Quarterly Fly Ash Generation				Total Fly ash Generation
			Q1	Q2	Q3	Q4	
A	Ash Generation (Fly Ash + Bed Ash)	MT	705667.5	705667.5	705667.5	705667.5	
B	Ash Utilisation						
i)	Brick Manufacturing	MT	30203.7	30203.7	30203.7	30203.7	120815
ii)	Ready Mix Concrete	MT	-	-	-	-	
iii)	Low Lying area filling	MT	45625	45625	45625	45625	182500
iv)	Road Construction	MT	45625	45625	45625	45625	182500
v)	Filling of abandoned stone quarry	MT	-	-	-	-	
vi)	Mines void filling	MT	80000	80000	80000	80000	320000
vii)	Agriculture Utilisation	MT	-	-	-	-	
viii)	**Others – as specified under :**						
1	Cement Plant	MT	730000	730000	730000	730000	2920000
2	Light weight Aggregate	MT	50000	50000	50000	50000	200000
3	Transportation to other State	MT	18250	18250	18250	18250	73000

16/7/19

pdfelement

S.N. 19

RattanIndia Power Ltd., Amravati 5 x 270 MW Ash Utilisation Action Plan

1. Name of the Unit: RattanIndia Power Ltd. Plot Number D2 & D2 (Part) Additional Industrial Area, Nandgaonpeth, MIDC, Amravati-444901(MS).
2. Power Generation Capacity: 5x 270 MW
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

Sr.No	Financial Year	Total Ash Generation	Total Ash Utilization
		MT	MT
1	2017-18	8,26,918	8,33,561
2	2018-19	7,21,492	8,32,669

4. Fly Ash Utilisation Action Plan (quarter wise) * 2019-20 and 2020-21:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
			2019-20	2019-20	2019-20	2019-20	
A	Ash Generation (Fly Ash + Bed Ash)	MT	231898.896	178410.21	178410.21	178410.21	767129.53
B	Ash Utilisation	MT	246813.72	98125.61	196251.23	226580.97	767771.54
i)	Brick Manufacturing	MT	229935	49062.80	98125.62	113290.48	490413.91
ii)	Ready Mix Concrete	MT	6625	2796.58	5593.16	6457.56	21472.30
iii)	Low Lying area filling/ Area Development	MT	10245	46266.22	92532.46	106832.93	255876.61
iv)	Road Construction	MT	0.00	0.00	0.00	0.00	0.00
v)	Filling of abandoned stone quarry	MT	0.00	0.00	0.00	0.00	0.00
vi)	Mines void filling	MT	0.00	0.00	0.00	0.00	0.00
vii)	Agriculture Utilisation	MT	0.00	0.00	0.00	0.00	0.00
viii)	If any other area (specify)	MT	8.72	9.81	19.62	22.65	60.82
	Total Ash Utilisation	MT	246813.72	98135.42	196270.85	226603.62	767823.63
C	Ash Utilisation percentage	%	106.4	55.0	110.0	127.0	100.09

Name of the Authorised Person: Gautam Wazir

Signature:

E-mail id : gwazir@rattanindia.com

Phone no. : +91-9818489280

pdfelement

(12) S.N.20 (20)

Format for Ash Utilisation Action Plan

1. Name of the Unit: **TAQA Neyveli Power Company Pvt. Ltd.,**
2. Power Generation Capacity: **250 MW**
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

Year	Fly ash generation (Tons)	Fly ash utilisation (%)
2017 - 2018	62500	97
2018 - 2019	85964	90.9

4. Fly Ash Utilisation Action Plan (quarter wise) *:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	26519				
B	Ash Utilisation	MT					
i)	Brick Manufacturing	MT	3151				
ii)	Ready Mix Concrete	MT	0				
iii)	Low Lying area filling/ Area Development	MT	0				
iv)	Road Construction	MT	0				
v)	Filling of abandoned stone quarry	MT	0				
vi)	Mines void filling	MT	672				
vii)	Agriculture Utilisation	MT	0				
viii)	cement	MT	18,048				
viii)	If any other area (specify)Construction	MT	1680				
ix	Total Ash Utilisation	MT	23551				
C	Ash Utilisation percentage	%	88				

Name of the Authorised Person:..... Pravin Kumaar V A.

Signature:..... Pravin

E-mail id :..... Pravinkumaar.va@taqaglobal.com

Phone no:..... 9842355883

pdfelement

For the Year 2017 - 2018

Sl No	Month	Fly Ash						Bottom ash				Total ash(Fly ash+Bottom ash)			
		Fly Ash Generation(Tonnes)	Fly Ash Disposal(Tonnes)				% of fly ash utilization	Bottom Ash Generation(Tonnes)	Bottm Ash		% of bottom ash utilization	Total Ash Generation(Tonnes)	Total Ash		% of total ash utilization
			Cement plant	Brick manufacturer	Fly as Silo closing level	Ash pond			Cement plant	Ash pond			Cement plant	Ash pond	
					223										
1	April	6613	4,941	943	69	883	91.30%	1,653	28	1,625	1.69%	8,266	5,912	2,508	71.52%
2	May	5672	4,822	867	52	0	100.60%	1,418	26.6	1,391	1.88%	7,090	5,716	1,391	80.62%
3	June	4338	3,918	289	75	108	96.45%	1,085	162	923	14.93%	5,423	4,369	1,031	80.57%
4	July	2500	2,132	163	110	171	90.37%	625	164	461	26.24%	3,125	2,458	632	78.66%
5	August	5409	4,014	930	149	425	90.69%	1,352	54	1,298	3.99%	6,761	4,998	1,723	73.93%
6	Septembe	5808	4,540	1,317	0	100	103.41%	1,452	291	1,161	20.04%	7,260	6,148	1,261	84.68%
7	October	0	0	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	#DIV/0!
8	Novembe	6640	5,545	1,025	70	0	97.89%	1,660	196	1,464	11.81%	8,300	6,766	1,464	81.52%
9	Decembe	4627	3,680	985	32	0	101.65%	1,157	93	1,064	8.04%	5,783	4,758	1,064	82.27%
10	January	5592	4,336	1,012	190	86	92.82%	1,398	140	1,258	10.02%	6,990	5,488	1,344	78.52%
11	February	5446	4,537	979	120	0	102.57%	1,361	145	1,216	10.65%	6,807	5,661	1,216	83.16%
12	March	9856	8,262	1,459	50	205	99.34%	2,464	560	1,904	22.73%	12,321	10,281	2,109	83.45%
Total		62500.2	50727.3	9968.62		1978	97.11	15624.8	1859.6	13764.8	11.90	78125.1	62555.3	15742.6	
				19.65139											

For the Year 2018 - 2019

Sl No	Month	Fly Ash						Bottom ash					Total ash(Fly ash+Bottom ash)				
		Fly Ash Generation(Tonnes)	Fly Ash Disposal(Tonnes)				% of fly ash utilization	Bottom Ash Generation(Tonnes)	Bottm Ash			% of bottom ash utilization	Pond ash Disposal MT	Total Ash Generation(Tonnes)	Total Ash Disposal(Tonnes)			% of total ash utilization
			Cement plant	Brick manufacturer	Fly ash in Silo MT	Ash pond			Cement plant (Mine Filling)	Brick manufacturer	Ash pond				Cement plant	Brick manufacturer	Ash pond	
					50													
1	April	0	0	0	0	0	#DIV/0!	0	0	0	0	#DIV/0!		0	0	0	0	#DIV/0!
2	May	9181.2	6885.2	2109	94	133	96.94%	1768	112	0	1656	6.33%		10949.2	9106.2	2109	1789	102.43%
3	June	3711	2636	1115	0	0	103.61%	928	56	0	871	6.03%		4639	3807	1115	871	106.10%
4	July	5126.61	4010.61	1116	0	0	100.00%	1281.65	58	0	1223.65	4.53%		6408.26	5184.61	1116	1223.65	98.32%
5	August	7224.44	5338.44	1591	110	180	94.39%	1687.36	84	0	1603.36	4.98%		8911.8	7013.44	1591	1783.36	96.55%
6	Septembe	3194.08	2614.45	563.63	126	0	99.00%	798.52	84	0	714.52	10.52%		3992.6	3262.08	563.63	714.52	95.82%
7	October	9546.02	8496.61	606.41	52	517	96.13%	2386.5	308	0	2078.5	12.91%		11932.5	9411.02	606.41	2595.5	83.95%
8	Novembe	10097.3	6211.52	430.82	317	3190	63.16%	2524.34	224	0	2300	8.87%		12621.7	6866.34	430.82	5490	57.81%
9	Decembe	8692.84	6617.93	1196.91	135	1060	91.99%	2173.21	308	0	1865.21	14.17%		10866.1	8122.84	1196.91	2925.21	85.77%
10	January	5712.39	4375.92	571.47	38	862	88.31%	1428	196	0	1232	13.73%		7140.39	5143.39	571.47	2094	80.04%
11	February	8369	5048.25	1311.6	185	1862	74.24%	2092	0	0	2092	0.00%		10461	6359.85	1311.6	3954	73.33%
12	March	8413	6684	1742	172	0	100.31%	2103	28	0	2075	1.33%		10516	8454	1742	2075	96.96%
Total		79267.9	58918.9	12353.8		7804	90.13%	19170.6	1458		17711.2	7.61		98438.5	72730.8	12353.8	25515.2	86.43%
				20.96752														

Internet

TAQA

For the Year 2019 - 2020

Sl No	Month	Fly Ash						Bottom ash					Total ash(Fly ash+Bottom ash)					
		Fly Ash Generation(Tonnes)	Fly Ash Disposal(Tonnes)				% of fly ash utilization	Bottom Ash Generation(Tonnes)	Bottm Ash			% of bottom ash utilization	Pond ash Disposal MT	Total Ash Generation(Tonnes)	Total Ash Disposal(Tonnes)			% of total ash utilization
			Cement plant	Brick manufacturer	Fly ash in Silo MT	Ash pond			Cement plant (Mine Filling)	Brick manufacturer	Ash pond				Cement plant	Brick manufacturer	Ash pond	
					172													
1	April	9352	7770	1741.8	12	0	103.42%	2338	224	0	2114	9.58%	1120.00	11689	7994	1741.8	2114	92.87%
2	May	6686.59	5938.84	707.75	120	0	97.79%	1671.64	280	0	1391.64	16.75%	352.00	8358.23	6219	707.75	1391.64	87.08%
3	June	5176.5	4339.64	701.86	135	0	97.10%	1294.125	168	0	1126.12	12.98%	208.00	6470.63	4508	701.86	1126.12	83.72%
4	July	1780	1495.24	285.56	0	0	107.63%	445.2	28	0	417.2	6.29%	768.00	2225.2	1523	285.56	417.2	115.80%
5	August	4827.33	3772.87	1004.46	50	0	97.93%	1206.83	28	0	1178.83	2.32%	192.00	6034.16	3801	1004.46	1178.83	82.82%
6	September						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
7	October						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
8	November						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
9	December						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
10	January						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
11	February						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
12	March						#DIV/0!			0		#DIV/0!		0	0	0	0	#DIV/0!
Total		27822	23316.4	4441.43		0	99.77%	6955.69	728		6227.68	10.47	2640	34777.7	24044.4	4441.43	6227.68	89.50%

19.04856

Implement

Remove Watermark Now

FLY ASH UTILISATION ACTION PLAN

S.N. 21

Remove Watermark Now

1- Name of Unit: Harduaganj Thermal Power Plant, Kasimpur, Aligarh, Uttar Pradesh.

2- Power Generation Capacity: 2X250MW +1X110 MW= 610 MW

3- Fly Ash Generation and Utilization in Previous 2 Years (2017-018) Details Enclosed

Year	Total Ash Generated	Total Ash Utilized	% Ash Utilization
2017-18	926500 MT	869708 MT	93.87
2018-19	788884 MT	762373 MT	96.64

4 - Fly Ash Utilization action Plan (qtr wise) Year 2019-20

S.No.	Description	Unit	Q1 Actual	Q2 Actual	Q3 Projected	Q4 Projected	Total Fly Ash Utilization in financial year 2019-20
A	Total Ash Generation	MT	232251	230050	180000	145000	787301
B	Total Ash Utilization						
1	Brick Manufacturing	MT	19067	12221	12000	12000	55288
2	Ready Mix Concrete	MT	-	-	-	-	-
3	Low lying area Filling /area development	MT	114058	101301	110000	110000	435359
4	Road Construction	MT	-	-	-	-	-
5	Filling of abandoned stone quary	MT	-	-	-	-	-
6	Mines void filling	MT	-	-	-	-	-
7	Agriculture utilization	MT	-	-	-	-	-
8	If any other area specified (Cement manufacturing)	MT	95185	61715	67000	73000	296900
	Total Ash Utilization	MT	228310	175237	189000	195000	787547
C	Ash utilization percentage	%	98.30	76.17	105.00	134.48	100.03

Harduaganj Thermal Power Plant trying to increase ash utilization by taking following steps-

1- We have agreement with cements factories. They are insisted to lift maximum dry fly ash From silo.03 nos silos are install at above 3 nos. units for collection of dry fly ash.

2. More Brick Manufacturers are ~~also~~ being contacted to lift 20% dry fly ash for their brick/ fly ash Based products free of cost as per MOEF guide line.

3- Firms /Persons are contacted to use pond ash in law lying areas and filling in constructions Such as colony development.

4- Public Notice is given in News paper to lift pond ash free of cost.

1- Name of authorized person: Er, R.K.Wahi, Chief Engineer, Harduaganj Thermal Power Plant, UPRVUNL Kasimpur Aligarh.

2- Signature:

3- Email Id: gm.harduaganj@uprvunl.org

Phone No: 9415900245

pdfelement

S.N.22

Format for Ash Utilisation Action Plan

1. Name of the Unit: Bakreswar Thermal Power Station
2. Power Generation Capacity: 1050 MW (5X210)
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

Year	Fly ash Generation (MT)	Fly ash utilization (MT)
2017-18	1699633	1689087 (99.38%)
2018-19	1605671	1878295 (116.98%)

4. Fly Ash Utilisation Action Plan(quarter wise)*:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	441226	400000	450000	400000	1691226
B	Ash Utilisation	MT	709323	548000	663750	628000	2549073
i)	Brick Manufacturing	MT	11106	8000	11250	8000	38356
ii)	Ready Mix Concrete	MT	0	0	0	0	0
iii)	Low Lying area filling/ Area Development	MT	410386	300000	360000	340000	1410386
iv)	Road Construction	MT	0	0	0	0	0
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (specify)- a. To cement manufacturing industries b. To traders supplying to cement industries	MT	287831	240000	292500	280000	1100331
	Total Ash Utilisation	MT	709323	548000	663750	628000	2549073
C	Ash Utilisation percentage	%	160.76	137.00	147.50	157.00	150.72

Name of the Authorised Person: A.K. Mondal, DGM (GES)

Signature: 17/09/19

E-mail id : akmondal@wbpdcl.co.in

Phone no. : 8336903946

***Note :**

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

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Format for Ash Utilisation Action Plan

1. Name of the Unit: Bakreswar Thermal Power Station
2. Power Generation Capacity: 1050 MW (5X210)
3. Fly ash generation and utilisation in previous two years (2017-18 and 2018-19):

Year	Fly ash Generation (MT)	Fly ash utilization (MT)
2017-18	1699633	1689087(99.38%)
2018-19	1605671	1878295(116.98%)

4. Fly Ash Utilisation Action Plan(quarter wise)*:

S.N.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20
A	Ash Generation (Fly Ash + Bed Ash)	MT	441226	400000	450000	400000	1691226
B	Ash Utilisation	MT	709323	548000	663750	628000	2549073
i)	Brick Manufacturing	MT	11106	8000	11250	8000	38356
ii)	Ready Mix Concrete	MT	0	0	0	0	0
iii)	Low Lying area filling/ Area Development	MT	410386	300000	360000	340000	1410386
iv)	Road Construction	MT	0	0	0	0	0
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (specify)- a. To cement manufacturing industries b. To traders supplying to cement industries	MT	287831	240000	292500	280000	1100331
	Total Ash Utilisation	MT	709323	548000	663750	628000	2549073
C	Ash Utilisation percentage	%	160.76	137.00	147.50	157.00	150.72

Name of the Authorised Person:...Mr A.K.Mondal, DGM(E&S)

Signature: 17/07/19

E-mail id : akmondal@wbpdcl.co.in

Phone no. : 8336903966

***Note :**

TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

pdfelement

S.N.24

Ash Utilisation Action Plan

1. Name of the Unit: Rayalaseema Thermal Power Project, Kalamalla (V) , Yerraguntala (M), Kadapa (D), Andhra Pradesh -516 312.

2. Power Generation Capacity: 5 x 210 MW and 1 x 600 MW.

3. Fly Ash Generation and utilization in previous two years (2017-18 and 2018-19):

Sl No.	Financial Year	Ash Generated (MT)	Ash Utilised (MT)	Percentage Utilisation
1	2017-18	2077696	1541584	74.20
2	2018-19	1923957	1617229	84.06

4. Fly Ash Utilisation Action Plan (quarter wise) *:

S. No.	Description	Unit	Q1	Q2	Q3	Q4	Total Fly Ash Utilisation in FY 2019-20.
A	Ash Generation (Fly Ash + Bed Ash)	MT	862500	862500	862500	862500	3450000
B	Ash Utilisation	MT					
i)	Brick Manufacturing	MT	275000	275000	275000	275000	1100000
ii)	Ready Mix Concrete	MT	495000	495000	495000	495000	1980000
iii)	Low Lying area filling/ Area Development	MT	0.0	0.0	0.0	0.0	0.0
iv)	Road Construction	MT	7500	7500	7500	7500	30000
v)	Filling of abandoned stone quarry	MT	0.0	0.0	0.0	0.0	0.0
vi)	Mines void filling	MT	0.0	0.0	0.0	0.0	0.0
vii)	Agriculture Utilisation	MT	0.0	0.0	0.0	0.0	0.0
viii)	If any other area (Specify)	MT	0.0	0.0	0.0	0.0	0.0
	Total Ash Utilisation	MT	777500	777500	777500	777500	3110000
C	Ash Utilisation percentage	%	90.14	90.14	90.14	90.14	90.14

Name of the Authorised Person: M.S.V.Subramanyam , Chief Engineer/O&M/RTPP.

17/7/19

Signature :

Chief Engineer/O&M
R.T.P.P., Y.V. Reddy Nagar

E-mail Id : rtpp.ce@apgenco.gov.in, rtppdeep@apgenco.gov.in, rtpp.detech@apgenco.gov.in.

Phone no. : 9440907113, 9440907120, 9440907145

***Note :**
TPPs having fly ash utilization less than 85% will be given two years time period and TPPs having utilization more than 85% will be given one year time period to achieve 100% fly ash utilization.

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(21)

S.N.25

(25)

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FORMAT FOR FLY ASH UTILISATION ACTION PLAN

1. Name of the Unit: Sri Damodaram Sanjeevaiah Thermal Power Station (SDSTPS)

2. Power Generation Capacity: 1600 MW (2 x 800 MW)

3. Fly ash generation and utilisation during the previous two years (2017-18 & 2018-19):

	2017-18	2018-19
Ash generation	827295	1213636
Ash utilisation	622567	792655
% of Ash Utilisation	75.25%	65.31%

Details of utilization for the FY- 2018-19

S.NO	Description	Unit	Q1	Q2	Q3	Q4	TOTAL
A	Ash Generation (Fly Ash + Bed Ash)	MT	372059	277456	298761	265360	1213636
B	Ash Utilisation	MT	165438	210756	201255	215206	792655
i)	Brick Manufacturing	MT	28247	33939	47533	30269	139988
ii)	Ready Mix Concrete	MT	5000	0	1000	11950	17950
iii)	Low Lying area filling/ Area Development	MT	48625	49200	8600	30000	136425
iv)	Road Construction	MT	0	0	0	0	0
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0

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viii)	If any other area (Cement, AC Sheet & others)	MT	83566	127617	144122	142987	
	Total Ash Utilisation	MT	165438	210756	201255	215206	792
C	Ash Utilisation percentage	%	44.47	75.96	67.36	81.10	65.

4. **Details of utilization for the FY- 2019-20 (quarter wise)*:**

S.NO	Description	Unit	Q1	Q2	Q3	Q4	Total
A	Ash Generation (Fly Ash + Bed Ash)	MT	413917	400949	276345	388552	1479763
B	Ash Utilisation	MT	138823	219060	359576	543071	1260530
i)	Brick Manufacturing	MT	31732	32142	20726	29141	113742
ii)	Ready Mix Concrete	MT	2700	8723	4318	11657	27397
iii)	Low Lying area filling/ Area Development	MT	1200	7100	38000	75000	121300
iv)	Road Construction	MT	0.00	2000	110000	165000	277000
v)	Filling of abandoned stone quarry	MT	0		0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (Cement, AC Sheet & others)	MT	103191	169095	186533	262273	721092
	Total Ash Utilisation	MT	138823	219060	359576	543071	1260530
C	Ash Utilisation percentage	%	33.54	54.64	130.12	139.77	85.18

parliament

Fly Ash Utilisation Action Plan FOR THE YEAR 2020-21 (quarter wise)*:

S.NO	Description	Unit	Q1	Q2	Q3	Q4	TOTAL
A	Ash Generation (Fly Ash + Bed Ash)	MT	393704	403903	276345	388552	1462504
B	Ash Utilisation	MT	393704	403903	276345	388552	1462504
i)	Brick Manufacturing	MT	29528	30293	20726	29141	109688
ii)	Ready Mix Concrete	MT	0	0	0	0	0
iii)	Low Lying area filling/ Area Development	MT	9843	10098	6909	9714	36563
iv)	Road Construction	MT	88583	90878	62178	87424	329063
v)	Filling of abandoned stone quarry	MT	0	0	0	0	0
vi)	Mines void filling	MT	0	0	0	0	0
vii)	Agriculture Utilisation	MT	0	0	0	0	0
viii)	If any other area (Cement, AC Sheet & others)	MT	265750	272634	186533	262273	987190
	Total Ash Utilisation	MT	393704	403903	276345	388552	1462504
C	Ash Utilisation percentage	%	100.00	100.00	100.00	100.00	100.00

Name of the Authorised Person: CH.KRISHNA PRASAD

Signature:.....

E-mail id : appdcl.office@gmail.com, appdcl.office@apgenco.gov.in

Phone no. : 9493122798

*Note :
TPPs having fly ash utilisation less than 85 % will be given two years time period and TPPs having utilisation more than 85% will be given one year time period to achieve 100 % fly ash utilisation.

17/9/19

CHIEF GENERAL MANAGER
APPDCL

pdfelement

ADITYA BIRLA
GRASIM

Received by hand.
On - 01.02.2021

Appendix- XLII

GIL/ENV/20-21/316 **30th January 2021**

To,
The Chairman
Oversight Committee,
National Green Tribunal
Lucknow – 226010 (U. P.)

Through/Kind attention – Dr. Namita

Ref: Compliance of the order of Hon'ble NGT in OA No. 164/2018 (Earlier OA No. 276/2013) in re: Ashwani Kumar Dubey Vs. Union of India & Others.

Sub: Submission of documents as desired by Oversight committee

Respected Sir,

With reference to review meeting conducted by Oversight committee on 29th January 2021, we, Grasim Industries Ltd. Chemical Division Renukoot (Grasim), submit as under –

1. We, vide our letter to CPCB Zonal office dated 15th September 2018, explained our concern and requesting to advise action to be taken by us in view of Orders of NGT, since no guideline is available for opening the capped SLF. The photocopy of said letter is enclosed as **Annexure-1** for your kind reference.

2. Getting no reply of our aforesaid letter, we, vide our letter dated 14th November 2018, requested Hon'ble Chairman Oversight Committee, Allahabad for conducting a technical feasibility study by a reputed independent agency like IIT/NEERI etc. for safe storage, packing, transporting and disposing the mercury brine sludge. The photocopy of said letter is enclosed as **Annexure-2** for your kind reference.

3. Getting no advice on our aforesaid letters, we engaged esteemed CSIR-National Environment Engineering Research Institute (NEERI) in 2019 under intimation to Pollution Board for Environmental Risk Assessment for Hazardous Waste Disposal in SLF of our unit.

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ADITYA BIRLA

GRASIM

4. We also requested Central Pollution Control Board vide our letter dated 22nd August 2019 to provide us copy of report prepared by them in relation to mercurial content in the Dongia Nallah, but we did not get the reply or said Report. The photocopy of said letter is enclosed as **Annexure-3** for your kind reference.

5. NEERI by its Report in September 2019 has concluded that "**In conclusion the Mercury is not leaching from the Secured Land Fill and not contaminating the ground water. This is evident from the comprehensive analysis. In view of the above facts and figures, it is not recommended decommission the stabilized SLF for shifting the mercury contaminated sludge disposed in the closed SLF. Decommissioning the capped, stabilized, and compacted not only unnecessary but also pose some safety risks. As a precautionary measure storm water drainage may be constructed around the SLF. This water may be treated in the existing ETP, even though the possibility of mercury leaching is not evident.**" The photocopy of said Report of NEERI is enclosed as **Annexure-4** for your kind reference.

6. The aforesaid Report by NEERI was submitted by us vide our letter dated 17th September 2019 to UP Pollution Control Board. The photocopy of said letter is enclosed as **Annexure-5** for your kind reference.

7. On the basis of aforesaid Report of NEERI, Hon'ble Supreme Court vide Order dated 4th November 2019 has pleased to grant us stay against the proceeding of our matter in NGT. The copy of said Order is enclosed as **Annexure-6** for your kind reference.

8. In terms of letter no. H52509/C-2/NGT cell dated 2nd September 2020 by UP Pollution Control Board, we have engaged esteemed NEERI to conduct study in the vicinity of Mercury Bearing Sludge secured landfill site to collect samples of soil, waste, groundwater, sediments and analyze chemicals of concern with general parameters and heavy metals. The photocopy of said letter is enclosed as **Annexure-7** for your kind reference.

9. Based on your advice in the VC meeting of 25th Sept 2020 water sample from Dongia Nallah was collected by RO-UPPCB, Sonebhadra on 29 Sept 2020 and the mercury level was found BDL (Below Detectable Limit). The copy of Test report is enclosed for your kind reference as **Annexure – 8**

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ADITYA BIRLA

GRASIM

10. NEERI has completed the detailed study in October 2020, for which the Report is expected to receive by end of February 2021. We will submit the said Report as soon as we get the same for your perusal and record.

We assure our continuous commitment towards compliances of environmental laws and your advices.

With kind regards

Yours faithfully,

For Grasim Industries Limited

Chemical Division Renukoot

(H.K. Panda)

Asst. Vice President (F & C)

Encl: Annexure 1 to 8, as above

c.c.: The Regional Officer
U.P. Pollution Control Board
H. No. – 162, Uttar Mohal, Near Chandi Hotel,
Robertsganj, Sonebhadra – 231216

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Annexure-1

ADITYA BIRLA
GRASIM

GIL/ENV/2018-19/56

Dt 15.09.18

To,

Zonal Officer
Central Pollution Control Board
PICUP Bhawan
Vibhuti Khand
Luccknow

Sub.: Hazardous waste earth capped in premises.

Dear Sir,

As you are kindly aware that we have earth capped mercury bearing brine sludge and Lindane sludge in our premises in view of your direction dt 8th May'2003 as per guidelines of CPCB published in the Hazardous Waste Management Series HAZWAMS/17/2000-01. We have also been getting the water samples collected from borewell nearby sludge disposal yard and analyzed by IITR, Lucknow. Few latest analytical reports of Dec'2017 & Feb'2018 of ground water (borewell) of IITR, Lucknow are enclosed for your kind reference confirming that the parameters found in the samples are within permissible limit.

We would also like to inform that various Govt. Agencies have been visiting our site since 2003, and has always found that all compliances in regard to maintaining the earth capped hazardous waste site are being complied by us. Moreover, the earth capped was continued to store also in view of provisions given in Hazardous Waste Rules'2016 i.e. "Captive treatment, storage and disposal facility".

Further, we have been receiving indications that we will have to shift the earth capped hazardous waste stored in our premises to TSDF. We are positive in the matter but need your technical guidance i.e. disposal method and mechanism of hazardous waste in view of the quantum of earth capped hazardous waste. As you are kindly aware, as soon as the earth capped site will be opened and hazardous waste is exposed, it will definitely create nuisance in environment since shifting will require very long period.

In view of above, you are requested to advise action to be taken by us in the matter.

Thanking you.

Yours faithfully,
for GRASIM INDUSTRIES LIMITED

(R.K. Sitani)
President & Unit-head

Enclosure

प्राप्त किया
20...12/9/18

C.C. Chief Engineer (Circle-I)
UPPCB, Lucknow

for necessary action

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Unit Division - Renukoot
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Annexure-2

ADITYA BIRLA
GRASIM

Dt. 14.11.18

Hon'ble Chairman,
Oversight Committee,
Allahabad

Sub: **The minutes of meeting of Oversight Committee under Chairmanship of Hon'ble Justice (Retd.) Shri Rajesh Kumar, Allahabad High Court held on dated 25/10/2018 at Collectorate Meeting Hall, Sonebhadra in compliance of Hon'ble NGT order dated 28/8/2018 in O.A. No. 164/2018, Ashwani Kumar Dubey vs. Union Bank of India and others.**

Respected Sir,

We are in receipt of the minutes of the captioned meeting (MOM), forwarded by the Regional Officer, UPPCB, Sonebhadra vide their letter no. 112032 dt. 3.11.18. We received the MOM on 5.11.18.

In this regard, we would like to make our humble submissions to your goodself, as under:

We stopped production of Caustic Soda by mercury cell from Nov'2011, much before the prescribed timeline of Dec'12 issued by Govt. of India. We confirm that no fresh mercury brine sludge is being generated since Nov'2011.

The mercury brine sludge has been stored in the capped secured land fill (Captive SLF), strictly in accordance with the erstwhile Hazardous Rules' 2008 as also the Hazardous Rules'2016 and in compliance with the directions received from UPPCB/ CPCB. The Core Committee constituted by the Hon'ble NGT has also noted that the land fill is secured. We confirm that Captive SLF is being regularly and continuously monitored by IITR to ensure that there is no leakage whatsoever. **The latest test report of Oct'18 are attached for your ready reference.**

During the captioned Committee Meeting, we expressed our commitment to deal with the mercury brine sludge stored in our premises, as per the guidelines issued by UPPCB/CPCB and in accordance with the applicable guidelines of Hazardous Rule'2016;

However, we did not propose or commit the timeline of 3 months to remove and shift the mercury brine sludge from the premises to a common TSDF without carrying out a suitable technical and safety viability study. This appears to have been inadvertently mentioned in the MOM;

The Committee's direction in Para 7 of the MOM to remove the mercury brine sludge from the premises, within a period of 3 months, is not feasible due to following key reasons:

- Opening the capped secure land fill (SLF) without any technical/safety standards in place, may lead to unprecedented and widespread health hazard, which is best to be avoided

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ADITYA BIRLA

GRASIM

- Even assuming that the mercury brine sludge can be transported/ shifted without any technical/safety standards in place, the period of 3 months is grossly inadequate, considering the substantial quantity stored in secured land

- We trust that the common TDSF will also store the mercury brine sludge at their end in a similar manner (ie. in capped secured land fill). As such, from environmental point of view there is no apparent benefit of shifting the mercury brine sludge from our premises to common TDSF.

In view of our above submissions, we humbly request the Hon'ble Committee to amend the MOM in the following terms:

Conducting a technical feasibility study by a reputed independent agency like IIT, NEERI etc. for safe storage, packing, transporting and disposing the mercury brine sludge. Such a study will be helpful in setting standards for safe storage and disposal of mercury brine sludge, by various industries, across the country within a period of 6 months as it requires comprehensive sampling and analysis

- If the independent agency recommends removal of the brine sludge from the plant, allow us to submit the detailed action plan within a period of one month from the date of the report of the agency under guidance and supervision of the CPCB and UPPCB, in terms of the recommendation of the Core Committee, as this has no precedence of such activity so far.
- If the independent agency recommends against removal of brine sludge from the plant, recommend to the Core Committee to reconsider its recommendation for removal of the brine sludge or any revised directions from appropriate authorities.

We again express our commitment in this regard and undertake to take necessary and prompt action(s), as may be recommended in the technical study conducted by the said Agency for which, it is kindly requested to grant minimum 7 months time as mentioned above.

Thanking you,

Yours faithfully,
for Grasim Industries Limited-Chemical Division Renukoot

(Ravi Uppal)
Asst. Vice President (Technical)

Encl.:-a/a.

C.C.	District Magistrate, Sonebhadra	-	for necessary action.
	Zonal Officer, CPCB, Lucknow	-	-do-
	Regional Officer, UPPCB, Sonebhadra	-	-do-

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Annexure-3

ADITYA BIRLA
GRASIM

O/C

Ref: GIL/LKO/33/28 dt. 22.08.19

To,

Zonal Officer,
Central Pollution Control Board,
PICUP Bhawan, Ground Floor
Vibhuti Khand, Gomti Nagar,
Lucknow

Ref: The MOM of Oversight Committee under Chairmanship of Hon'ble Justice (Retd.) Shri. Rajesh Kumar, Allahabad High Court held on 07.06.19 at Circuit House, Prayagraj in compliance of Hon'ble NGT order dt. 28.08.18 in O.A. No. 164/2018, Ashwani Kumar Dubey vs. Union of India and others (enclosed with this letter).

Sub: Request for report prepared by Central Pollution Control Board ("CPCB") in relation to mercurial content in the Dongia Nallah as referred to in the above referred Minutes of Meeting of Oversight Committee.

Dear Sir

Kindly refer our attached letter dt. 3rd July'19 requesting your goodself to provide us a copy of analys s report wherein the mercury content was found to be on higher side.

In view of above, you are again requested to provide copy of the analysis report at the earliest possible.

Thanking you,

Yours faithfully,
for Grasim Industries Limited, Chemical Division Renukoot

(Avinash Rai)
General Manager

Encl -a/a

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FOREWORD

Grasim Industries Limited is having a Chloro-alkali plant at Renukoot, District, Sonebhadra, Uttar Pradesh, which was previously operated by M/s Kanoria Chemicals & Industries Ltd. The mercury brine sludge was produced during the manufacturing of caustic soda was disposed in a secured landfill. From May 2011 onwards Caustic soda production by mercury cell was stopped, as per the directives of Govt. of India. Recently based on the NGT directives Uttar Pradesh State Pollution Control Board has issued a notice to remove the capped secured land fill and shift to the TSDF at Kanpur.

In this regard, the Grasim Industry contacted CSIR NEERI to undertake a comprehensive study on technicalities or feasibility study for transfer of the capped secured land fill waste. A detailed site assessment study was conducted which includes soil and groundwater quality assessment and hydrogeological status of the area to assess the probable contamination due to the landfill containing mercury sludge.

The cooperation and assistance rendered by the staff of Grasim Industries Ltd. in the preparation of this report is gratefully acknowledged.

Rakesh

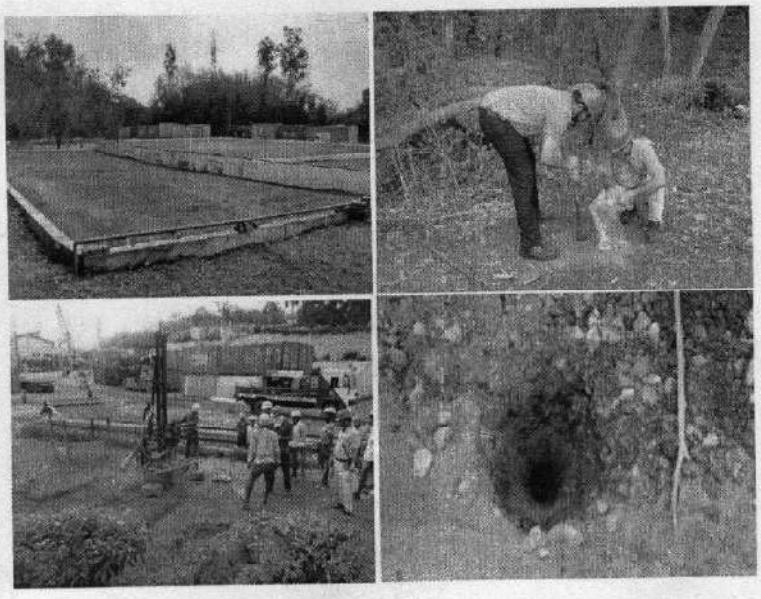
(Rakesh Kumar)
Director, CSIR-NEERI

Nagpur
September, 2019

Annexure-4

Final Report

Environmental Risk Assessment for Hazardous Waste Disposal in Abandoned Secured Landfill at Chlor-Alkali Plant, Renukoot, Sonebhadra, UP



Sponsor

ADITYA BIRLA GRASIM

Grasim Industries Ltd., Renukoot, Sonebhadra, UP

CSIR- National Environmental Engineering Research Institute
Nagpur – 440 020

NEERI

September 2019

Project Personnel

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Ms. Rakhi Nikhade
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Dr. M. Suresh Kumar
Dr. Nidheesh, P.V.

Project Co-ordinator

Dr. Rakesh Kumar
Director, CSIR-NEERI

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1.0 Introduction

Grasim Industries Limited is having a Chloro-alkali plant at Renukoot, District, Sonebhadra, Uttar Pradesh. This plant previously operated by M/s Kanoria Chemicals & Industries Ltd. (KCIL). Then the main products of KCIL were Caustic soda with Liquid chlorine, Hydrochloric acid and Hydrogen as by products and Stable Bleaching Powder, Lindane and its formulations, Aluminium Chloride, Trichlorobenzene and Poly Aluminium Chloride as co-products. Kanoria stopped the production of Lindane and its formulations, Tri Chloro Benzene in the year 2007. Later the plant was acquired by Aditya Birla Group. In last few years the Caustic Soda business has grown multi-fold through both organic and inorganic routes. Grasim is the largest Caustic Soda producer in India. The mercury brine sludge was produced during the manufacturing of caustic soda and the same was disposed in a secured landfill with in their premises. From May 2011 onwards Caustic soda production by mercury cell was stopped, as per the directives of Govt. of India.

The mercury brine sludge has been stored in the secured landfill and was capped and closed according to the then existing Hazardous Rules 2008 as also the Hazardous Rules 2016 and compliance with the directions received from UPPCB/CPCB. Recently based on the NGT directives UPSPCB has issued a notice to remove the capped SLF and shift to the TSDF at Kanpur. In this regard, the industry contacted CSIR NEERI to undertake a comprehensive study on technicalities or feasibility study for transfer of the capped SLF waste. Accordingly, the proposal is prepared with the following objectives, scope and detailed work plan.

2.0 Scope of Work

The scope of work includes the detailed site investigation programme will comprise of subsoil investigation, ground water/hydrogeological investigation, hydrological investigation, topographical investigation and geological investigation. Collection of primary/secondary data for area within 2-5 km radius from the secured landfill site boundary.

- Identification of potential impacts due to the existing SLF on the major environmental components if any
- Preparation of environmental impact statement based on identification, prediction and evaluation of impacts
- Delineation of environmental management plant (EMP) outlining preventive and control strategies for impacts if any, incorporating cost effective measures to be adopted for mitigation of anticipated adverse impacts and thereby, enhance the positive impacts

3.0 Reconnaissance

Grasim Industries Limited is having a Chloro-alkali plant at Renukoot, District, Sonebhadra, Uttar Pradesh. This plant previously operated by M/s Kanoria Chemicals & Industries Ltd. (KCIL) since 1964 at Renukoot. Then the main products of KCIL was caustic soda with liquid chlorine, hydrochloric acid and Hydrogen as by products and stable bleaching power, Lindane and its formulations, Aluminium Chloride, Trichlorobenzene and Poly Aluminium Chlorides as co-products. The plant was established at Renukoot in a remote part of eastern UP, due to availability of water and continuous cheap power. Even with the establishment of its own coal based 25 x 2 MW captive power plant within KCIL complex, the true potential of the location is still realized due to availability of cheap coal in close proximity of the Renukoot.

KCIL then operated mercury cell plant for Caustic Soda (NaOH). Then those plants were almost 40 years old, had a higher power cost and generation of mercury containing waste. The mercury brine sludge was produced during the manufacturing of caustic soda and the same was disposed in a landfill with in their premises. Due to that KCIL has changed over to modern membrane cell technology which will minimize power cost and eliminate completely mercury containing waste. Being India's leading manufacturer of chemical intermediates with a focus on sustainability and transparency, KCIL has achieved sustainable development goal by taking care of environment through Zero Discharge in manufacturing facilities.

Renukoot plant of KCIL – currently Grasim Industries is located at approximately $24^0$12'14" N and $83^0$03'11" E at an elevation of nearly 305 m above mean sea level. The plant is located at an aerial distance of nearly 1.2 km approximately eastern direction from the Renukoot railway station. Renukoot lies on Chopan-Garwa Road section of broad gauge railway line connecting Chunar to Ranchi. The plant was established in 1964 and water obtained from Gobind Ballabh Pant Sagar by a captive water line through a pumping station located at an aerial distance of nearly 1.1 km south of the plant. Renukoot plant of KCIL also has a residential colony fairly close to the plant for its officers and workers. Residential colony occupies nearly 26.51 ha area and consists of 810 houses, school, temple, club, guest house, hospital, shopping Centre, play grounds etc. The plant area is part of the Songhati division lying south of Son river. Though this division is covered with mountain ranges but still remains fertile. Rihind river, a tributary of river Son, is the major perennial river in western part of the area and flows from south to north direction, originating from Gobind Ballabh Pant Sagar and merging with river Son. A large portion of the area is covered with forest.

Later the plant was acquired by Aditya Birla Group. In last few years the Caustic Soda business has grown multi-fold through both organic and inorganic routes. Grasim is the largest Caustic Soda producer in India. The mercury brine sludge was produced during the manufacturing of caustic soda and the same was disposed in a secured landfill with in their premises. From May 2011 onwards stopped the production of Caustic soda by mercury cell route as per the directives of Govt. of India.

4.0 Process Description

4.1 Caustic Soda

The installed production capacity for caustic soda is 353 TPD. The main raw materials for the caustic soda manufacture are power and common salt. The power is received by us through 132 KV transmission line directly from Rihand Power Station and also from our 2 x 25 MW CPP and salt is procured from Salt works in Gujarat. The solution of salt in water is prepared and is purified by addition of sodium carbonate, Barium Carbonate, caustic soda etc. The impurities of calcium and magnesium are precipitated and removed from the process fluid by setting and filtration. The clarified brine is made ultrapure by passing through polish brine filter and Ion exchange column before being fed to the electrolysers which consists of and anode segment and cathode segment separated by a high performance membrane. D.C. current coming from Rectiformer then flows from anode to Cathode and after electrolysis of Ultrapure brine it decomposing into sodium and chlorine ions. Sodium ions pass through the membrane and goes to cathode side and combine with water to form Caustic soda (NaOH) and Hydrogen is liberated. The chloride ion which remain in the anode side combine to form chlorine gas which is then sent out for drying and liquefaction. The installed capacity of the products are presented in **Table 1**. The reaction is as follows:

$$NaCl + H_2O = NaOH + 1/2\ H_2 + 1/2Cl_2$$

Table 1: Capacities of the Products at Grasim Industries, Renukoot

Sr. No.	Product	UOM	Consent Capacity
1	Caustic Soda Lye	TPM	10950
2	Liquid Chlorine	TPM	8630
3	Hydrochloric acid	TPM	2107
4	Stable Bleaching Powder	TPM	5400
5	Aluminium Chloride	TPM	1500
6	Poly Aluminium Chloride	TPM	6000
7	Chlorinated paraffin	TPM	1800
8	Hydrogen	TPM	275

The hydrogen so produced is used as fuel in Hydrogen fired boiler, caustic concentration plant, in the synthesis of Hydrochloric acid, and bottling in cylinders. Hydrogen is highly inflammable; therefore, proper care is taken to keep it away from the fire. No other chemical reactions of dangerous nature occur during caustic soda manufacture. The depleted brine from the electrolysers again made saturated by dissolution of common salt. The product caustic soda is collected in production tank and then transferred to main storage tank.

4.2 Liquid Chlorine

The chlorine is a by-product of caustic soda plant. After its dissociation from common salt in the electrolyser it is taken to the liquefaction section where it is first scrubbed with water to remove impurities of Sodium Chloride in scrubbing towers. So washed chlorine gas, which is saturated with water vapours, is dried in contact with sulphuric acid in drying towers. The dried chlorine is non-corrosive, but, if wet, it becomes very corrosive. In the liquefaction operation of chlorine no chemical reaction takes place as such, but care is taken to ensure that chlorine is absolutely dry after the drying operation. This is being done by constant monitoring of the concentration of sulphuric acid in the drying towers and the chlorine compressors, which are checked at every two hour interval and proper operating record maintained.

After compressing the gas to 3 kg/cm^2, it is liquefied in refrigeration system by cooling it to about minus 10° C. The liquefied product is taken to the main storage tank. Grasim is having capacity of storing 500 MT of liquid chlorine in five number storage tanks, with 100 MT capacity of each which are properly insulated and dyked. The process flow diagram of Chlorine plant is depicted in **Figure 1**. All rules regulations of department of Explosive are observed for safe storage of Liquid Chlorine.

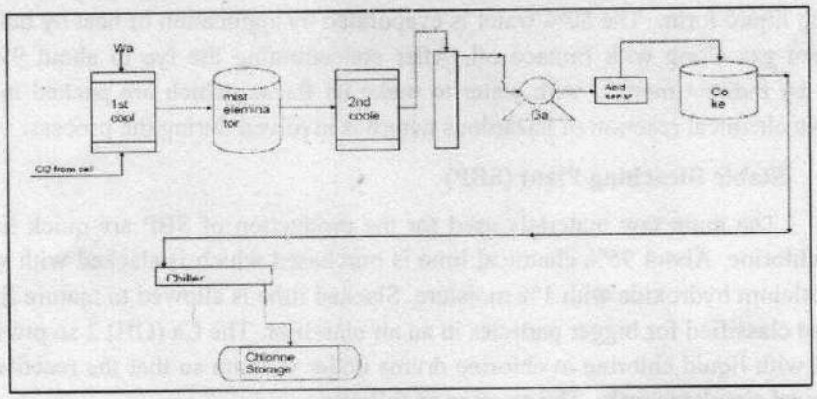


Figure 1: Process Flow Diagram of Chlorine Plant Hydrochloric Acid

Hydrochloric acid is also a by-product of caustic soda manufacturing plant. The scrubbed chlorine from scrubbing tower is burned in the atmosphere of hydrogen which is also a by-product of caustic soda unit, to form hydrochloric acid vapours which after absorbing in water make 33% of Hydrochloric Acid. Hydrochloric Acid so produced is stored in storage tanks. Hydrochloric acid is also produced as a byproduct in the CPW plant where unreacted chlorine is absorbed in a graphite absorber where water is circulated to from HCL. The process flow diagram of Hydrochloric Acid plant is depicted in **Figure 2**.

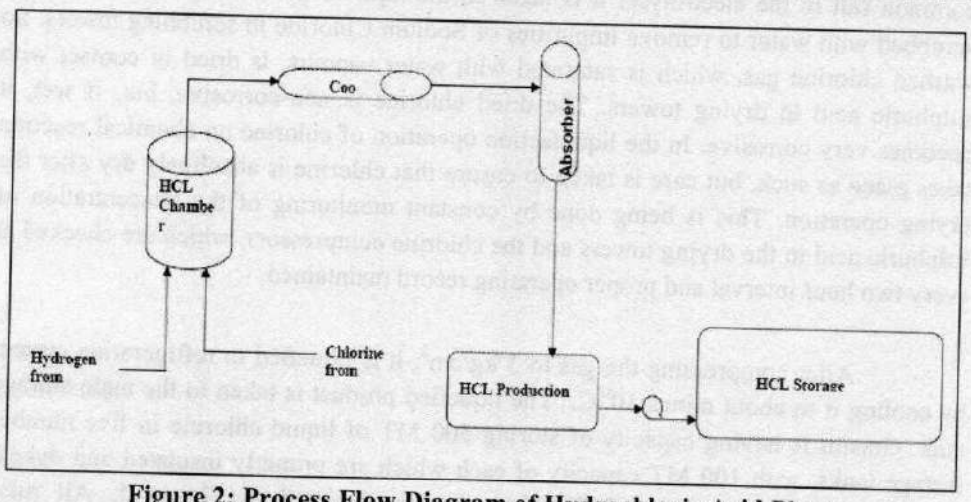


Figure 2: Process Flow Diagram of Hydrochloric Acid Plant

4.3 Caustic Soda Flakes

Caustic Soda produced in caustic soda unit has concentration of 50% only and is in liquid form. The 50% water is evaporated by application of heat by burning of hydrogen gas along with furnace oil. After concentrating the lye to about 99% it is cooled by indirect method with water to make its flakes, which are packed in HDPE bags. No chemical reaction of hazardous nature is involved during the process.

4.4 Stable Bleaching Plant (SBP)

The main raw materials used for the production of SBP are quick lime and liquid chlorine. About 95% chemical lime is purchased which is slacked with water to make calcium hydroxide with 1% moisture. Slacked lime is allowed to mature for some time and classified for bigger particles in an air classifier. The Ca (OH) 2 so produced is reacted with liquid chlorine in chlorine drums under vacuum so that the reaction water is removed simultaneously. The reaction as follows:

$$Ca(OH)_2 + Cl_2 \longrightarrow CaOCl_2 + H_2O$$

After complete chlorination of hydrated lime, which is donc on measured quantity basis, the product is packed in HDPE bags/Airtight containers. There is no hazardous chemical reaction involved in the process. The process flow diagram of Stable Bleachign plant is depicted in **Figure 3**.

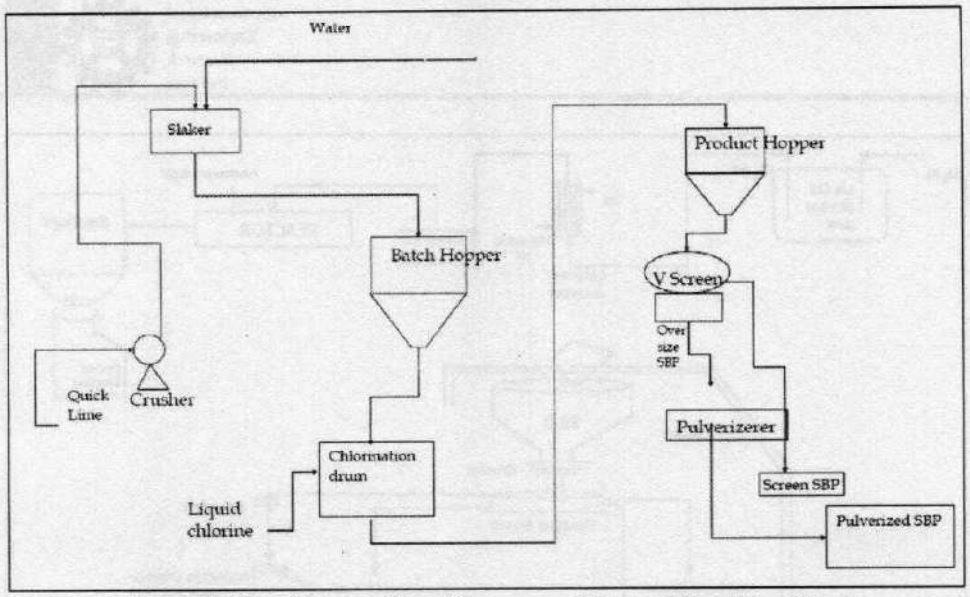


Figure 3: The Process Flow Diagram of Stable Bleaching Plant

4.5 Aluminum Chloride

Aluminium Chloride is manufactured by passing Chlorine Gas over molten Aluminium metal. Aluminium ingots are charged in brick lined MS vessel, called reactor and melted by means of gas or any other heat source. Chlorine gas is then passed over it. Aluminium Chloride vapours come out and condense in M.S. hollow chamber called condenser. It is discharged from the condenser at a regular interval in a specially made container and transferred to the main silo. The reaction being exothermic, initially metal is heated but later on reaction is auto thermal and melting of aluminium ingot is self-sustaining. Excess heat is removed by means of cooling water spread over the reactor. Suction blowers continuously suck un-reacted Chlorine through series of scrubbing towers having water, lime and caustic solutions.

The product is then crushed and screened and packed in PVC lined HDPE bags and/or 200 Litres open mouth M.S. Drums. The process flow diagram of Aluminium Chloride plant is depicted in **Figure 4.**

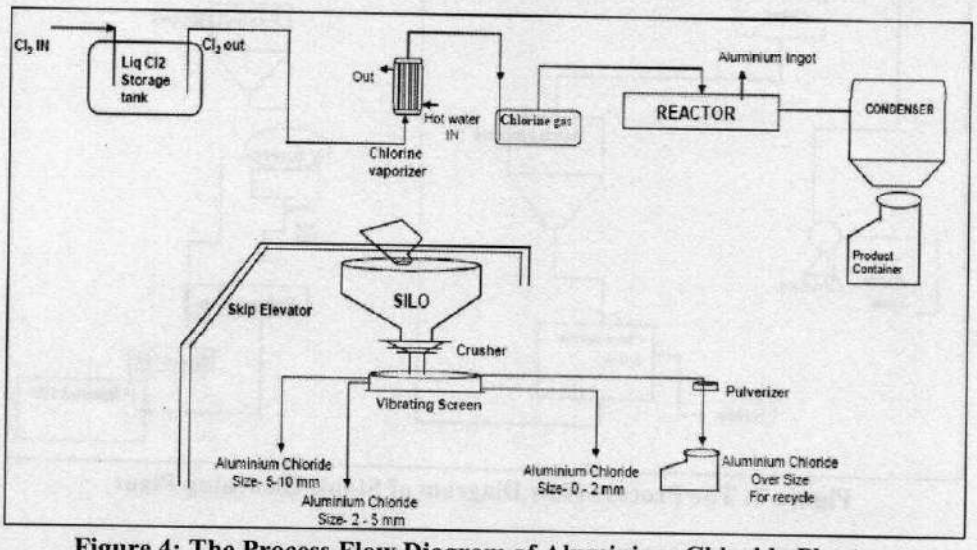


Figure 4: The Process Flow Diagram of Aluminium Chloride Plant

4.6 Hydrogen Bottling

The hydrogen so purified by cooling and filtration is fed to hydrogen bottling plant. The before bottling is further purified make it Caustic soda free by using water spray. The hydrogen, so purified is compressed in hydrogen compressors to about 150 Kg/cm2 pressure and bottled in hydrogen bottles approved by CCE.

4.7 Poly – Aluminum Chloride

Poly-aluminium Chloride is produced by high temperature (160 Degree C) and high pressure (5 to 6 bar) reaction between Hydrochloric Acid (32% approx) and Hydrated Alumina (62% Al2O3 approx) as shown below:

$$HCL + Al_2O_3.nH_2O \longrightarrow [Al_n (OH)_m Cl_{3n-m}] y$$

HCL is charged in a glass-lined reactor at room temperature and then hydrated Alumina is charged in the reactor. Reactor is then closed and contents of the reactor are heated by steam to initiate the reaction. Reaction is exothermic and reactor temperature is maintained at 160°C for 4 to 6 hours depending on acid strength and active alumina content in reactor feed material to form Poly-Aluminium Chloride (PAC) slurry. PAC slurry is cooled to 110°C and is discharged from the reactor and cooled to nearly 70°C in a heat exchanger. PAC slurry is filtered through a filter press at a temperature not less than 50°C for easier filtration to obtain PAC product. The process flow diagram of Poly Aluminium Chloride plant is depicted in **Figure 5**.

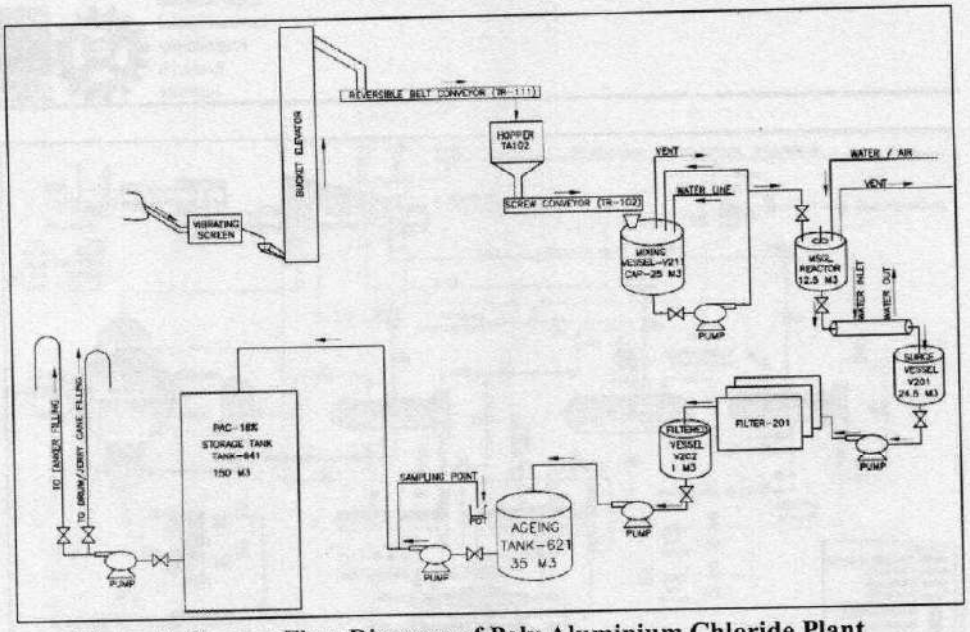


Figure 5: Process Flow Diagram of Poly Aluminium Chloride Plant

4.8 Chlorinated Paraffin Wax

Chlorinated Paraffin wax is produced by chlorination of liquid paraffin wax. The chlorination is carried out in a lead lined reactor where chlorine is passed through a sparger at the bottom of the reactor. HCl is produced as a by-product. During reaction un-reacted chlorine is led to graphite absorber where water is circulated to form HCl.

4.9 Electricity Generation

Thermal Power is generated by burning coal in IRCFC boiler generating high pressure steam and passing through the turbo generator of 2 x 25 MW capacities. The generated electricity is at 11 KV where from it is distributed to our Chemical plant for various uses. The process flow diagram of power generation plant and steam generation plant is depicted in **Figures 6 & 7**.

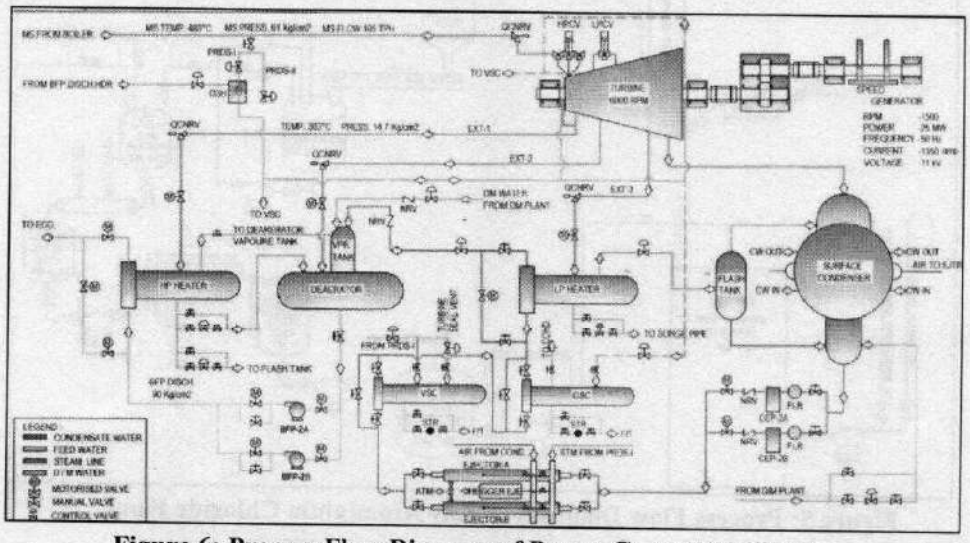


Figure 6: Process Flow Diagram of Power Generation Plant

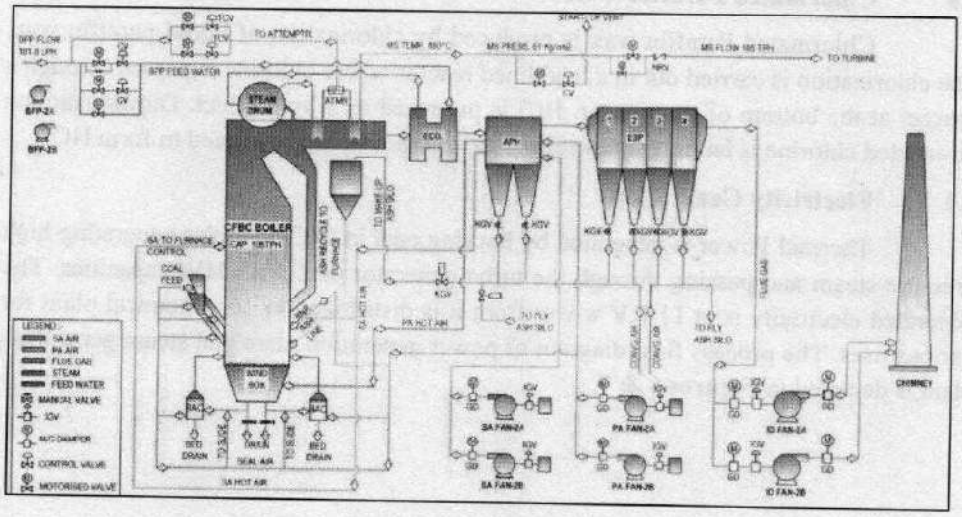


Figure 7: Process Flow Diagram of Steam Generation (Boiler) Plant

5.0 Waste Generation in Caustic Soda Manufacturing

There three (3) major routes in the production of caustic soda viz.

I. Membrane cell process
II. Diaphragm cell process
III. Mercury cell

While the mercury cell method produces chlorine-free sodium hydroxide, the use of several tonnes of mercury leads to serious environmental problems. In a normal production cycle a few hundred pounds of mercury per year are emitted, which accumulate in the environment. Additionally, the chlorine and sodium hydroxide produced via the mercury-cell chloro-alkali process are themselves contaminated with trace amounts of mercury. The membrane and diaphragm method use no mercury, but the sodium hydroxide contains chlorine, which must be removed Saturated brine is passed into the first chamber of the cell where the chloride ions are oxidised at the anode, losing electrons to become chlorine gas:

$$2Cl^- \rightarrow Cl_2 + 2e^-$$

At the cathode, positive hydrogen ions pulled from water molecules are reduced by the electrons provided by the electrolytic current, to hydrogen gas, releasing hydroxide ions into the solution:

$$2H_2O + 2e^- \rightarrow H_2 + 2OH^-$$

The ion-permeable ion exchange membrane at the center of the cell allows the sodium ions (Na^+) to pass to the second chamber where they react with the hydroxide ions to produce caustic soda (NaOH). The overall reaction for the electrolysis of brine is thus:

$$2NaCl + 2H_2O \rightarrow Cl_2 + H_2 + 2NaOH$$

A membrane cell is used to prevent the reaction between the chlorine and hydroxide ions. If this reaction were to occur the chlorine would be disproportionated to form chloride and hypochlorite ions:

$$Cl_2 + 2OH^- \rightarrow Cl^- + ClO^- + H_2O$$

Above about 60 °C, chlorate can be formed:

$$3Cl9 + 6OH^- \rightarrow 5Cl^- + ClO3^- + 3H_2O$$

Because of the corrosive nature of chlorine production, the anode (where the chlorine is formed) must be made from a non-reactive metal such as titanium, whereas the cathode (where hydroxide forms) can be made from a more easily oxidized metal such as nickel.

5.1 Mercury Cell

In the mercury-cell process, also known as the Castner-Kellner process, a saturated brine solution floats on top of the cathode which is a thin layer of mercury. Chlorine is produced at the anode, and sodium is produced at the cathode where it forms a sodium-mercury amalgam with the mercury. The amalgam is continuously drawn out of the cell and reacted with water which decomposes the amalgam into

sodium hydroxide and mercury. The mercury is recycled into the electrolytic cell (**Figure 8**). Mercury cells are being phased out due to concerns about mercury poisoning from mercury cell pollution such as occurred in Canada.

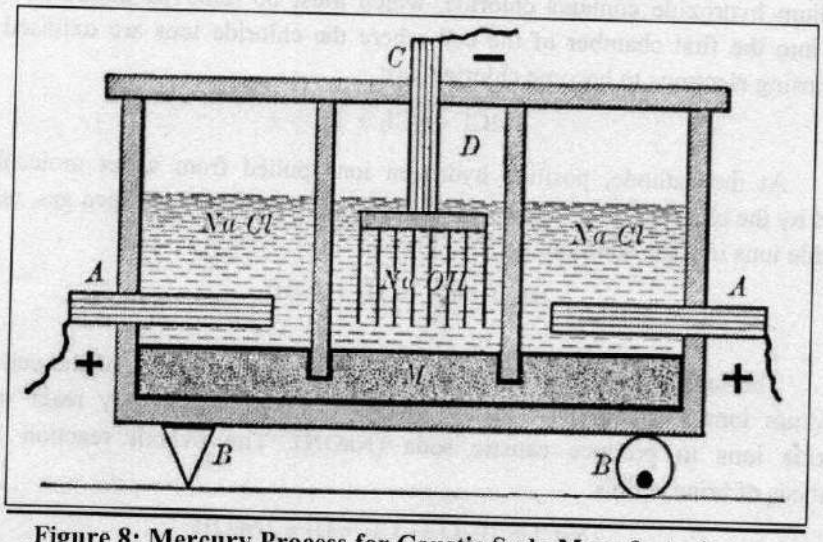


Figure 8: Mercury Process for Caustic Soda Manufacturing

M/s Grasim Chloro-alkali Plant at Renukoot, Sonebhadra District, in U.P the mercury brine sludge was produced during the manufacturing of caustic soda and the same was disposed in a secured landfill with in their premises. From 2011 onwards stopped the production of Caustic soda by mercury cell route as per the directives of Govt. of India. The mercury brine sludge has been stored in the secured landfill was capped and closed according to the then existing Hazardous Rules 2008 as also the Hazardous Rules 2016 and compliance with the directions received from UPPCB/CPCB.

6.0 Pathways of Mercury Release to the Environment

Disposal of mercury-containing waste creates many pathways by which mercury may be released into the environment. Mercury is a persistent, mobile and bio-accumulative element in the environment and retained in organisms. Most of the mercury found in the environment is inorganic since mercury is never broken down into other chemical and harmless form. Once mercury enters into the environment, mercury permanently exists in the environment by changing its chemical forms depending on the environment. The possible behaviour of mercury in the environment is depicted in **Figure 9.**

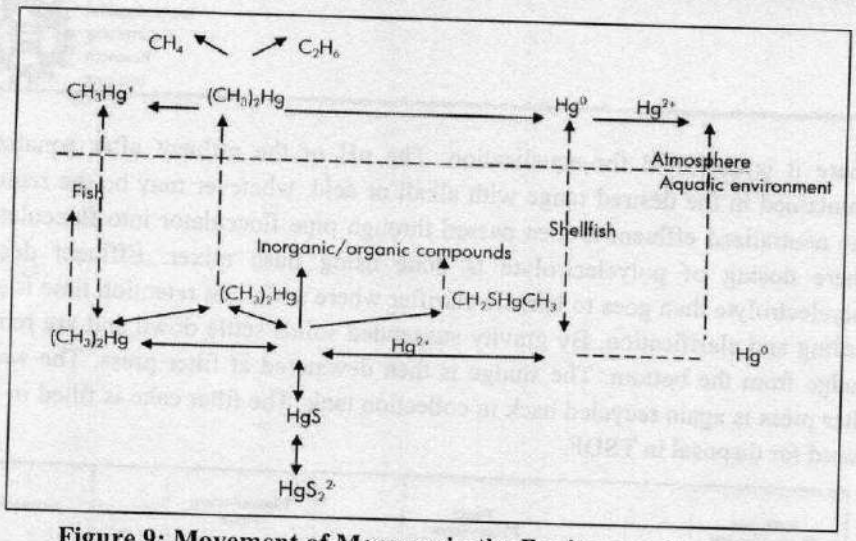


Figure 9: Movement of Mercury in the Environment

Mercury vapours are colourless and odourless, therefore, at high levels, are very toxic. Mercury is a potent neurotoxin, a global priority pollutant and a persistent bio-accumulative (meaning that it is a process by which a toxic gets accumulated in animal tissues). It persists in the environment for a long time, and it is extremely toxic in small amounts. Exposure to mercury impacts the central and peripheral nervous system and it can damage the brain, spinal cord, kidneys, eyes and liver. Mercury easily crosses the placenta, passing from mother to unborn child, where it can impact neurological development of the fetus. Human exposure to mercury can occur through inhalation, ingestion, or skin contact. The clinical symptoms of acute inhalation of high levels of mercury vapor include gastroenteritis (stomach upset), chills, nausea, malaise, chest pains, shortness of breath, coughing, gingivitis, excessive salivation, anuria (urine production stops), uraemia (urine products appearing in the blood), nephritis (kidney disease leading to kidney failure), anorexia (lack of appetite), ataxia (difficulty in moving) and diarrhea. Symptoms of chronic exposure to mercury include weakness, weight loss, gastrointestinal disturbances; a tremor that begins with the fingers, eyelids, and lips and progresses to generalized trembling of the body and violent spasms of the extremities; and behavioural and personality changes including increased excitability, memory loss, insomnia, and depression. Additionally, there may be a painful scaling or peeling of the skin of the hands and feet (*Environmentally Sound Management of Mercury waste in Health Care Facilities CPCB Report 2010*).

7.0 Existing Waste Management Practices

Each section of the plant has a dedicated effluent collection pit in the section. Maximum reduction, reuse and recycle of effluent is done in the section itself. The unused effluent from the sections is sent to effluent treatment plant for treatment (**Figure 10**). The effluent from various sections is collected in effluent collection pit

where it is collected for equalization. The pH of the effluent after equalization is maintained in the desired range with alkali or acid, whatever may be the requirement. The neutralized effluent is then passed through pipe flocculator into flocculation tank where dosing of polyelectrolyte is done using flash mixer. Effluent dosed with polyelectrolyte then goes to lamella clarifier where sufficient retention time is given for settling and clarification. By gravity suspended solids settle down and are removed as sludge from the bottom. The sludge is then dewatered at filter press. The water from filter press is again recycled back in collection tank. The filter cake is filled in bags and stored for disposal in TSDF.

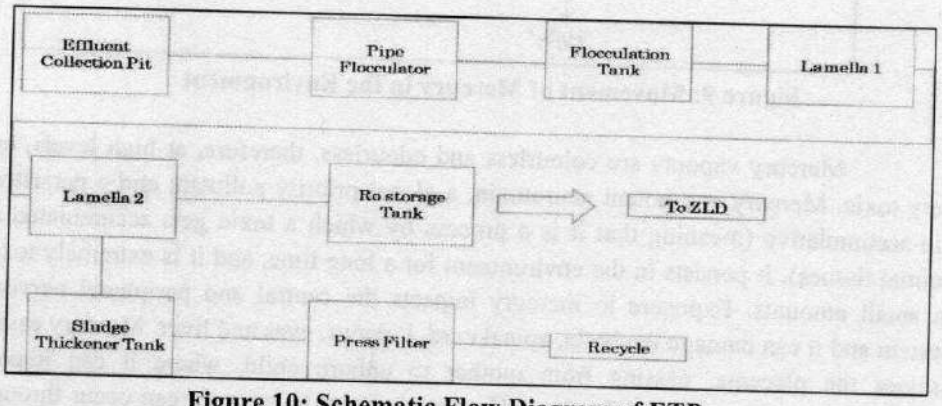


Figure 10: Schematic Flow Diagram of ETP

Clarifier overflow is stored in treated water tank and then passed through multi-grade filter (MGF) followed by ACF. The filtered water is stored in ultra-filter tank. Then it is pumped through bag filter into UF unit. UF permeate is fed to RO unit. RO unit is installed in 2 stages. RO-1 which is Brackish water RO to treat effluent with TDS 2500 ppm. Reject from BW RO is fed to Sea Water RO which treats effluent upto TDS 10000 ppm. Reject of SW RO goes to MEE feed tank. The permeate of RO stages is used for cooling tower make up. The Schematic diagram is presented in **Figure 11**.

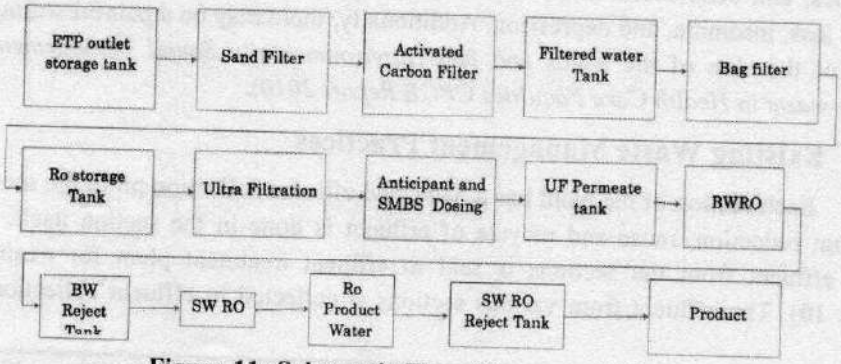


Figure 11: Schematic Flow Diagram of Filters

Multiple Effective Evaporator (MEE) permeate is used for cooling tower make and the reject is sent to ATFD (Agitated Thin Film Drier). Semi solid salt is generated at this stage. Condensate is sent to ETP collection tank. The salt is collected in bags, stored and finally disposed in TSDF. No water is left for discharge. Hence completing the ZLD process requirements. The schematic diagram is presented hereunder in **Figure 12**.

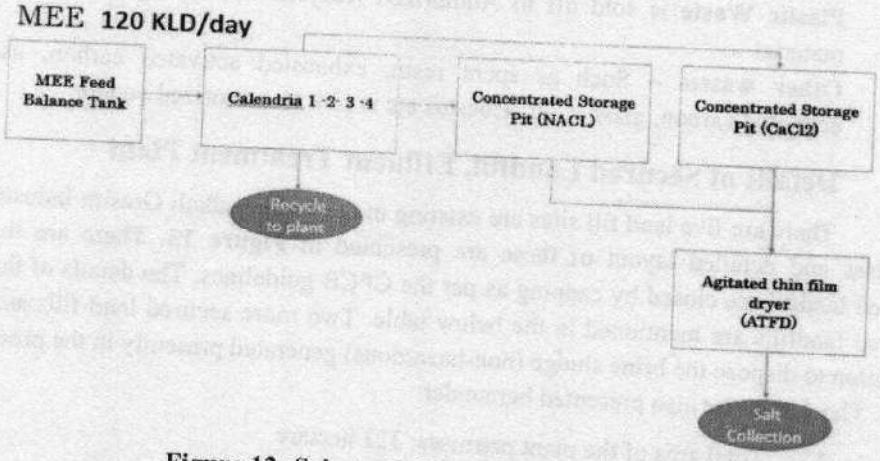


Figure 12: Schematic Flow Diagram of MEE

1. **Waste details which are generated from our process and disposal practice of units:**
   - **Brine Sludge** – Generated from the brine purification process is Non Hazardous. Brine sludge in semi solid brine mud cake form is stored in HDPE lines secured landfill within plant premises.
   - **MEE & ATFD Salts/ETP Sludge** – The salt sludge is generated from the ATFD section of ETP and ETP sludge is generated filter press. Both the sludge is stored in separate bags at an isolated location in plant and disposed to authorized TSDF.
2. **E-Waste:** Generated from various sections of the plant consists of electronic and instrument obsolete equipments. The waste generated is collected and is sent to Authorized Recycler
3. **Acid-Battery Waste :** Used battery is sent to Authorized Recycler or buyback agreement is done with the supplier. Used battery is disposed within 6 month.
4. **Bio-Medical waste** is send to common disposal facility (Incineration), The waste is stored in colored coding bags/container.
5. **Used Oil** is collected in adequate storage facilities such as barrels, drums and kept at an isolated location in the plant maintained under lock and key with all safety and environment protection measures. Used oil stored is then sold ff to authorized recycler.

6. **Fly Ash & Bed Ash** It is non-hazardous waste and is utilized 100% for ash based product (bricks and other building materials-Cement), road construction
7. **Plastic Waste** is sold off to Authorized Recycler for new product or raw material
8. **Other wastes** – Such as spent resin, exhausted activated carbon, used activated carbon, glass wool, asbestos etc is sent to authorized vendor

8.0 Details of Secured Landfill, Effluent Treatment Plant

There are five land fill sites are existing in the Chloro-alkali Grasim Industrial premises and detailed layout of these are presented in **Figure 13**. There are three secured landfill are closed by capping as per the CPCB guidelines. The details of these secured landfills are mentioned in the below table. Two more secured land fills are in operation to dispose the brine sludge (non-hazardous) generated presently in the process plant. The details are also presented hereunder:

1. Total area of the plant premises: 323 hectare
2. Details of Capped Secured Landfill site:

Ref	Area (Sq.M)	Quantity (MT)
Pit no-1	856	6134
Pit no-2	1071	7808
Pit no-3	950	5883
Total	**2877**	**19825**

3. Details of Site for Storage of Non hazardous brine sludge:

Ref	Area (Sq.M)
Pit no-1	1350
Pit no-2	2850
Total	**4200**

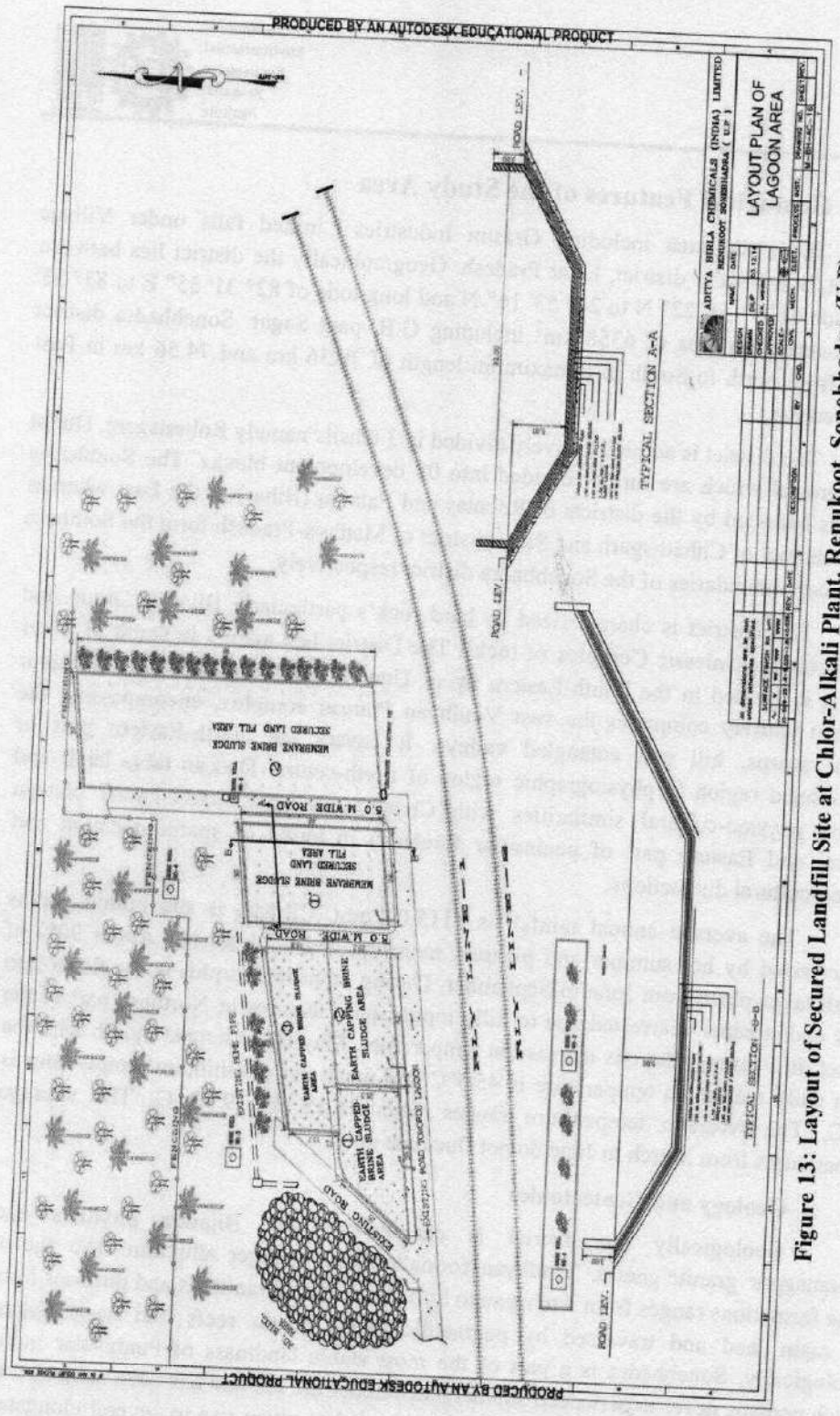


Figure 13: Layout of Secured Landfill Site at Chlor-Alkali Plant, Renukoot, Sonebhadra (U.P)

9.0 Geological Features of the Study Area

The study area including Grasim Industries Limited falls under Village Renukoot, Sonebhadra district, Uttar Pradesh. Geographically the district lies between the latitude of 23° 51' 22" N to 24° 53' 16" N and longitude of 82° 31' 55" E to 83° 33' 45" E covering an area of 6358 km^2 including G.B. pant Sagar. Sonebhadra district extends from north to South to a maximum length of 79.36 km and 74.56 km in East West direction.

The district is administratively divided in 3 tehsils namely Robertsganj, Dudhi and Ghorawal which are further divided into 08 development blocks. The Sonbhadra district is bounded by the districts of Rohatas and Palamu (Bihar) in the East whereas Sarguja district of Chhattisgarh and Sidhi district of Madhya-Pradesh form the Southern and Western boundaries of the Sonebhadra district respectively.

The District is characterized by hard rock's particularly Bijawar Group and Chhota Nagpur Gniessic Complex of rocks. The District lies mainly in south of River Son and is located in the South-Eastern tip of Uttar Pradesh together with Mirzapur district it entirely comprises the vast Vindhyan Plateau complex, encompassing the Kaimur scarps, hill and entangled valleys. It covers the North-Eastern part of Baghelkhand region (a physiographic region of north-central Deccan table land) and exhibits physico-cultural similarities with Chotanagpur and Siddhi-Panna plateau (Central and Eastern part of peninsular foreland) in terms of spatial location and physico-cultural distinctions.

The average annual rainfall is 1115.00 mm. Climate is sub humid and is characterized by hot summer and pleasant monsoon and cold season. About 90% of rainfall takes place from June to September. During monsoon surplus water flows into rivers and streams unarrested due to hilly topographic features in Northern part of the district. In February there is increase in temperature, May is the hottest month with the mean daily maximum temperature is 45.5°C and mean daily minimum temperature is 2.5°C. The Average temperature ranges from 16.15 to 39.80 C. The average temperatures from March to June do not fluctuate much.

9.1 Geology and Geotectonics

Geologically the district is characterized by Bijawar phyllites and Chotanagpur granite/gneiss, Vindhyan formation and younger alluvium. The age of these formations ranges from Archaean to Sub recent. The Granitoids and gneisses form the main land and traversed by pegmatitic veins, quartz reefs and basic dykes. Geologically, Sonebhadra is a part of the most stable landmass of Peninsular India, which perhaps never experienced submergence under the sea and has been subjected to extensive process of erosion since its formation. It has given rise to several elongated and semi-circular dome shaped hillocks. The complex geological structure of the region is exemplified by rock exposure of almost all the important periods from the Pre-

Cambrian to Mesozoic. The rocks in the region belong to Archaeans or Basement Rock Supergroup, Bijawar group, Vindhyan Supergroup and Gondwana Supergroup **(Figure 14)**.

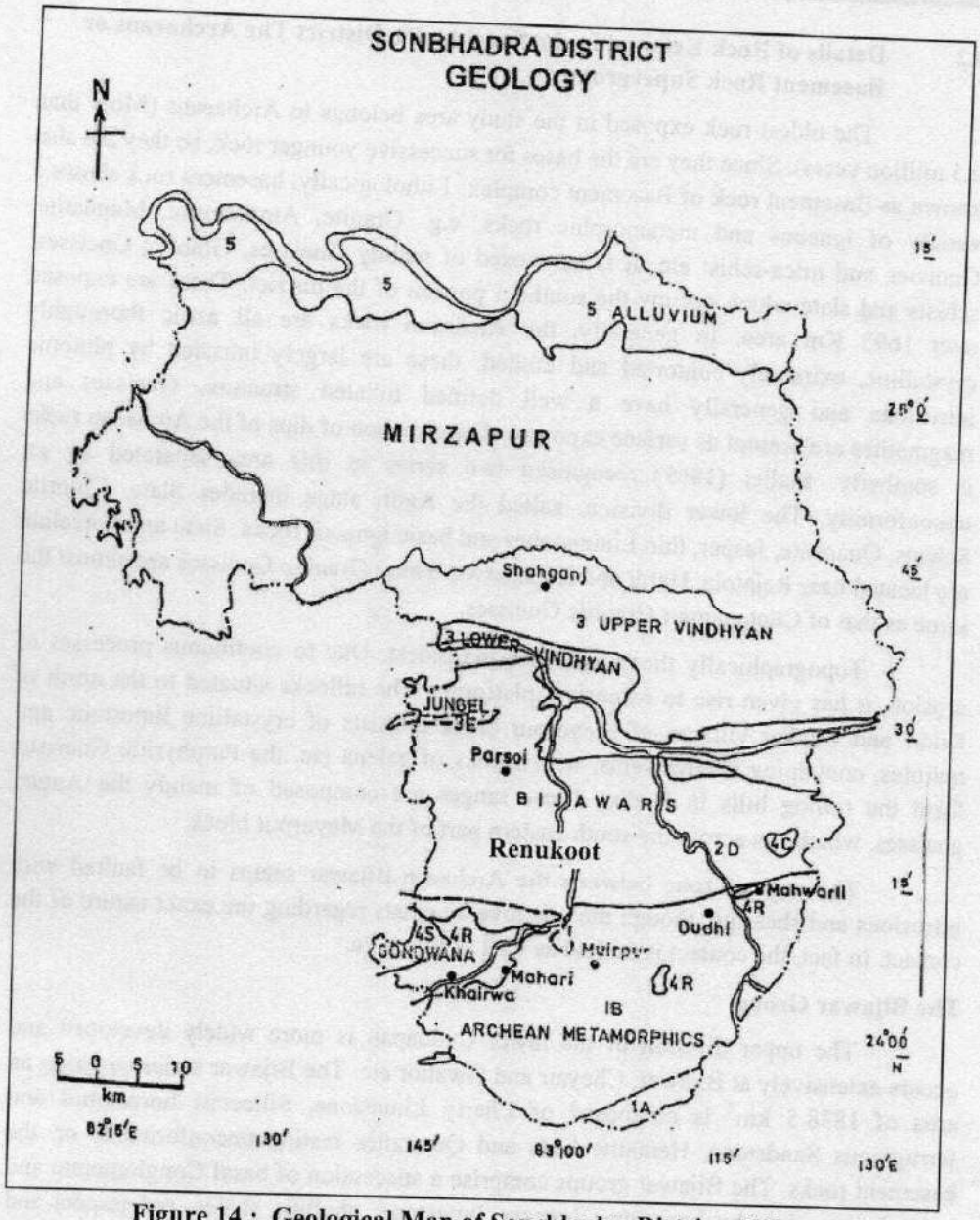


Figure 14 : Geological Map of Sonebhadra District, U.P.
(Ref. Shodhgandha_08 Chapter 1)

9.2 Details of Rock Exposed in the Sonebhadra District The Archaeans or Basement Rock Supergroup

The oldest rock exposed in the study area belongs to Archaeans (More than 2.5 million years). Since they are the bases for successive younger rock, so they are also known as Basement rock of Basement complex. Lithologically, basement rock shows a variety of igneous and metamorphic rocks, e.g. Granite, Amphitotite, Magnatite, Gneisses and mica-schist etc. It is composed of mainly Gneisses, Granitic Gneisses, schists and slate which occupy the southern portion of the district. These are exposed over 1695 Km area. In generally, the Archaean rocks are all azoic thoroughly crystalline, extremely contorted and faulted; these are largely intruded by plutonic intrusions and generally have a well defined foliated structure. Gneisses and magmatites are present as surface exposure. The direction of dips of the Archaean rocks is southerly. Mallet (1869) recognised two series in this area separated by an unconformity. The lower division, called the Agori stage includes Slate, Chlortic Schists, Quartzite, Jasper, thin Lime-stones and basic igneous rocks. Slate and Porcelain are located near Rajatola, Hardi and Kachnarwa. These Granitic Gneisses are almost the same as that of Chotanagpur Granitic Gneisses.

Topographically these rocks are the oldest. Due to continuous processes of erosion, it has given rise to extensive, platforms. The hillocks situated to the north of Kudri and Deohar villages of Meyorpur block consists of crystalline limestone and marbles, containing Quartz veins, with specks of galena etc. the Parphyritic Gneisses form the rolling hills in Dudhi. These ranges are composed of mainly the Augen gneisses, which run across the south-eastern part of the Meyorpur block.

The contact zone between the Archaean-Bijawar seems to be faulted with intrusions and shearing, though the controversy exists regarding the exact nature of the contact. In fact, the contact is faulted as well as intrusive.

The Bijawar Group

The upper division of the lower Cuddapah is more widely developed and occurs extensively at Bijawar, Cheyair and Gwalior etc. The Bijawar series covering an area of 1838.5 km^2 is composed of Cherty Limestone, Siliceous hornstones and ferruginous Sandstone, Hematite beds and Quartzites resting unconformable on the basement rocks. The Bijawar groups comprise a succession of basal Conglomerate and quartzite, overlain by hornstone, breccia, limestone, phyllitic shales, red jaspers and dioritic traps. These rocks are again well exposed along the South Eastern edges of the Vindhyan syncline where they dip under the Semri group of the Vindhyan super group.

In the District area, the Bijawar overlying the basement Complex form a thick sequence of metamorphosed sedimentary rocks. Later, lower grade metamorphic rocks were intruded by post Bijawar granite and pegmatite, whereas the Bijawar represent slate, Phyllite schist and Quartzite and basic dykes. Most of the central portion of the

District area (east-west) is covered by Bijawar rocks. These outcrops continue upto the Son valley, where they are covered by the lower Vindhyan formation, known as the Semri series (Vindhyan supergroup).

The Vindhyan Supergroup

The Vindhyan supergroup comprises stratified, unmetamorphosed group of rocks mainly represented by Sandstones, shales and limestones- porecllanite, etc. The rocks of this supergroup attain a maximum thickness of about 5250 m. The basement rocks for the Vindhyan sediments belong to different age (i) The AravalliBundelkhand rocks of Archaean age and (ii) Bijawar, Delhi and Gwalior rocks referred to Alongkin age. The age of the Vindhyan Supergroup is thus uncertain though it is probable that the top most part of the system may represent a basal Cambrian horizon.

The Vindhyan sedimentary sequence has been divided into two lithostratigraphic groups, viz, the lower Vindhyan and the upper Vindhyan, separated by a well marked erosional unconformity which tends to disappear from east towards west.

Lower Vindhyan

The lower Vindhyan rocks mainly consist of limestone, shales, and glauconitic sandstone and parcellanite beds. In the District area, these outcrops are situated in the Son valley, occupying about 653 km^2 area. The lower limit of the lower Vindhyan groups is demarcated by a persistent conglomerate horizon over the eroded surface of Bundelkhand granites. The thickness of these outcrops is about 600m. The basal conglomerate horizon consists of probable quartzites and jaspar. These conglomerates are glacial tillites found in association with 'Varvites' in Kon valley area. The basal conglomerate is overlain conformably by Kajarahat member, consisting of shales and limestone. The thickness of this unit is 335 m. The porcelain members overlie conformably the Kajarahat limestone. It is composed of thinly bedded, fine grained siliceous rocks, the acid volcanic tuffs, shales and sandstones. It attains a maximum thickness of 555m. The Rohtas formation conformably overlies the glauconitic sandstone. It occurs in isolated outcrops and comprises limestone and shale. The limestone a rock of this series is high grade containing more than 80 percent of calcium carbonates. In the Son valley area, the Semri have faulted contact with the Bijawar in the South. The maximum width of this series is found near the Chopan Billi-Markundi. Thus, the lower Vindhyan shows tectonic deformation by folding movement. The lower Vindhyan (Semri) shows structural folding. The semri shows gentle dip towards the north, which increases southwards and becomes vertical towards its contact with the Bijawar.

The faults and fracture along with minor anticlines and synclines have their appreciable influence on topography of the area. The Kaimur scarp, the saucer shaped depressions, the gorge, on one hand and the valley flats on the other are two characteristically distinct features of the regional geomorphology of the area.

The Gondwana Super group

The Gondwana super group overlies the Vindhyan rocks. This is divided into two subgroups, viz., (i) the lower Gondwana and (ii) the Upper Gondwana. But in the area only a continuous patch of the pre-carboniferous formation is encountered in Singrauli basin, which is known as the lower Gondwana. The Barakar and Talchir formations of the lower Gondwana are noted in Singrauli basin. The lowest beds of the lower Gondwana are known as Talchir series. It consists of carbonaceous shales and seams of coal. Coal seams accounts for accumulation of large amounts of debris of terrestrial plants and it has accumulated under quiescent in the Barakar strata. Fossils of plants are found in a few localities while fossils of animals seem to be rare in these deposits. The thickness of Barakar and Talchir are 325m to 600m and 75 m to 130 m respectively. On the whole the lower Gondwana in the present study area is spread over about 259.6 km^2 and is of very little importance in the development of topography. Further, it is worthwhile to mention that more than 90 percent of this outcrop forms the bottom of the G.B. Pant Sagar Reservoir.

Geologically the study area including Grasim Industries Limited, Renukoot is located in the southern part of Sonebhadra District; U.P. Geologically the study area is comprised of Precambrian rocks of central India belonging to Mahakoshal Group and Chotanagpur Granite Gneiss Complex (CGGC). The Mahakoshal Group is represented chiefly by slate and phyllites while the CGGC is formed of granites and gneisses with subordinated schists. The Son-Narmada-South Fault (SNSF) of the SonNarmada Lineament Zone passes from the study area. The area is structurally very complex and tectonically active.

Stratigraphy

The stratigraphic succession of rocks in Sonebhadra district is illustrated in given below **Table 2.**

Table 2: Stratigraphic Sequence in Sonebhadra District, U.P.

Period	Groups & Lithology	Formation
Recent	Quaternary Alluvium	Clay, Sand and Kankar
Lower Cretaceous-Jurassic	Gondwana	Shale, Sandstone and Clay
----------Unconformity----------		
Cambrian	Vindhyan	Shale, Sandstone, Limestone and pyroclastic rocks.
----------Unconformity----------		
Proterozoic	Bijawar	Phyllites, Quartzites, Basic and Ultrabasic rocks
Archaean	Granitoids Complex	Granite Gneiss, Schist and Pegmatite

9.3 Structural Geology

The Sonebhadra District area shows very little structural variation excepting some folding contortion and local warping. Folding is tighter in southern part of the Vindhyan formation. The lower Vindhyan in the Son valley presents crumpling and it is probably due to eroded bed of the upper Vindhyan. The folds are seen south of Billi station along the railway line and along the road to Obra, give resemblance of local folding of simple type. Faulting has been reported previously by different authors but there is no authentic evidence on the surface with which it may be said to be present in the area under investigation. But adjacent to the present area, the following fault zone has been accounted in the Vindhyan i.e. (i) Rajkhar - Singrauli fault zone and (ii) The Son valley fault zone .Both indicates rather the weak zones between the Archaeans and the Bijawar and between the Bijawar and Vindhyan. It provides evidence that the northern block has been the down thrown side. The Singrauli Rajkhar fault may be much older than the Son valley fault. In the Son valley the two fault lines tending East-West may be accounted as (i) the Jamul-Markundi fault and (ii) Billi -Kajarhat -Hardi fault. These two have guided the Son River and are reserved in nature with Bijawar being thrust over the Vindhyan. It is a normal vertical type of fault that has caused the abrupt truncation in the rocks of Rohatas and lower Kaimur stage. These are also noted as the 'boundary fault'. Apart from these two major faults, the Son valley is also traversed by cross faults such as (i) Agori -Ghathila fault (ii) Mangeshar fault, and (iii) Reverse fault in Kheinjua, which are observed near the Kota, Khattai, Mangeshar hill and East of Deora respectively. These faults have brought out remarkable changes in the surface of the area in the general. The JamulMarkundi fault along with Mangeshar fault may be responsible for the fault scarp of western Agari uplands, Markundi scarp, the great gorge of Mangeshar as well as the diversion of the river Ghaghar to join the Son. The relative horizontal displacements have also probably changed the confluence of the River Ghaghar and Rihand with the Son and formation of the Soucer shaped depression opposite to Chopan in the Son valley. The Billi-Hardi alignment has assisted the consequent undercutting of the Kaimur and consequent slip-off slope of the river Son which has resulted further steepening of the scarp the limestone shows different joint pattern but generally most of these are vertical. The dolomitic limestone and parcellanite also show more or less the same pattern of joints. The strike of different rock formation generally tends in east -west direction and the rock beds show variable dips in different directions.

9.4 Physiography and Drainage

The district is characterized with hard rock undulating and hilly topographic features, table land topographic features. Along the courses of river and stream, very limited valley fill deposits are observed. River Son divides the district into two distinct topographic divisions. The thickness of alluvium or weathered zone is more in North of river Son while it is negligible in south of river Son. Geomorphologically, the district can be divided into three distinct units;

1 Residual hills / Table lands

2 River and hills and

3 Valleys and ravines.

Dendritic drainage pattern is common and trellis drainage pattern is observed in hard rock area. The elevation of the area varies from 150-400 mamsl. The general slope of the tract is from North to South. The topography is influenced or modified by the existing rivers and streams.

The study -region is drained by the River Son, which itself forms a part of the Ganga River System. It forms a dendritic pattern of drainage .The main tributaries of the river Son are the Kanhar, Rihand, Pandu and Bijul **(Figure 15)**. The slope varies from place to place largely due to the erosion of the Rihand and the Kanhar, the two important tributaries of the Son. On the basis of the variations in drainage pattern and water divides, there are five well marked drainage sub-systems (i) The southern Son (ii) The Bijul (iii) The Rihand (iv) The Kanhar and (v) The Pandu. The southern valley plain of the Son valley is associated with a Perennial Nadi called the Charkighaghiya and a narrow elongated flood plain of the river Son. The Rihand River has one left bank tributary i.e. the Deohar and two right bank tributaries namely, Ajhir and Laira. The river Rihand divides the Rihand valley into the eastern and the western parts. The eastern part is wider than the western part. The notable left bank tributaries of the Kanhar are Pangan, Thema, Louwa and the Hathinala. The important right bank tributaries are Malia and Goitha .Almost parallel East-West lines of hillocks are identified in its valley. Before passing through the gorge, the Kanhar forms two typical basins namely, the Singrauli and Dudhi which are agriculturally most fertile. Tributaries of these major rivers follow the direction of maximum gradient, east or west, the Pandu flowing in easterly direction forms a dissected saucer shaped depression in the north-eastern part of the region.

9.5 Hydrogeology Hydrogeological Set-up

Exploratory drilling data of CGWB (2012-2013) and state tube well department show that there are fractures which create secondary porosity in hard rock area and porous formation in alluvial formations. The depth of these fractures differs from place to place. The ground water conditions in the area are greatly influenced by the occurrence of two distinct litho-units.

a] Unconsolidated sediments in Valley Filled area (Alluvium)

b] Hard Rock Formation: Comprising Vindhyan and Precambrian Formation

9.6 Ground Water Condition

Ground water is mainly controlled by drainage, topography and lithological behaviour, it occurs under phreatic condition at shallow depths and fractures & granular zones under at deeper depths. Depth to water in Pre-monsoon ranges between

4.00 to 22.00 mbgl **(Figure 16)**. Post-monsoon water level varies between 2.10 to 20.50 mbgl **(Figure 17)**. Water level fluctuation is minimum in Ghorawal and maximum in Chatrah block. After the study of long term water level trend, it is inferred that the well show the decline trend during pre-monsoon period. The yields of the wells vary from 30 to 500 lpm. The shallow fractures and phreatic ground water has poor sustainability.

References:

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- Shodhgandha_08 Chapter 1
- C. K. Singh & Vaibhava Srivastava, Morphotectonics of the Area Around Renukoot, District Sonebhadra, U.P. Using Remote Sensing and GIS Techniques

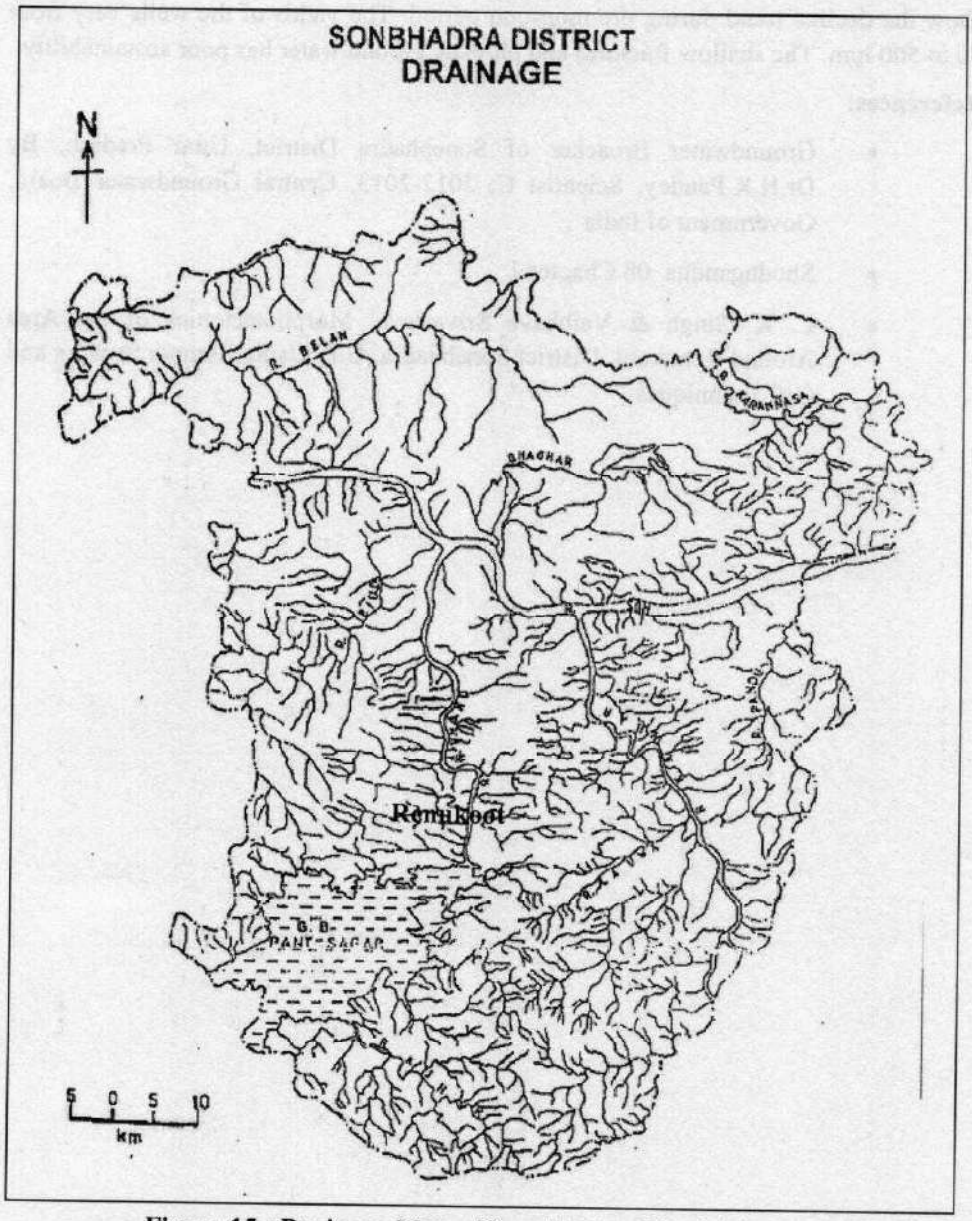


Figure 15 : Drainage Map of Sonebhadra District, U.P.
(Ref. Shodhgandha_08 Chapter 1)

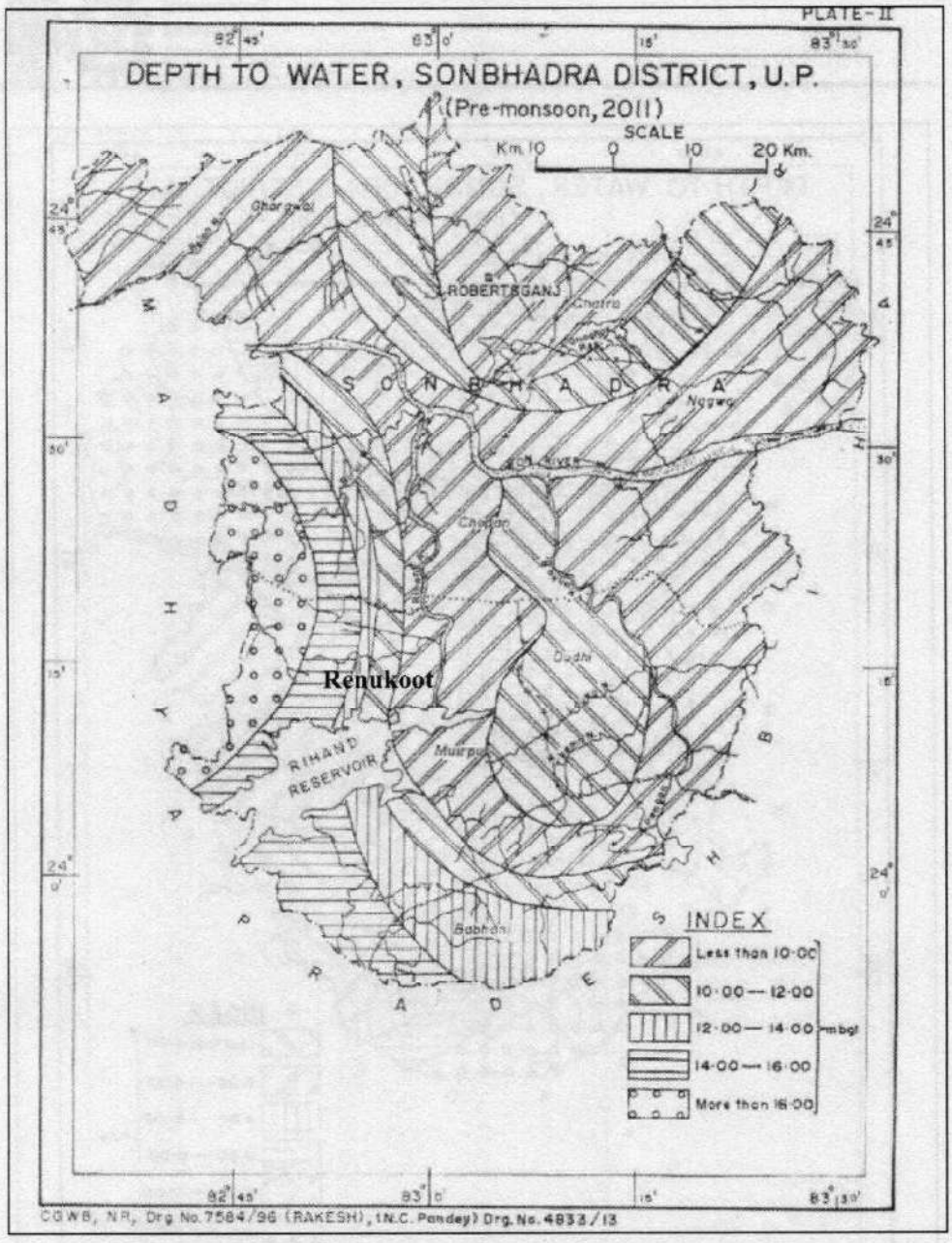


Figure 16 : Depth to Water Table Map of Sonebhadra District, U.P. (Pre Monsoon)

(Ref. Groundwater Information Booklet, Sonebhadra District-2012-13)

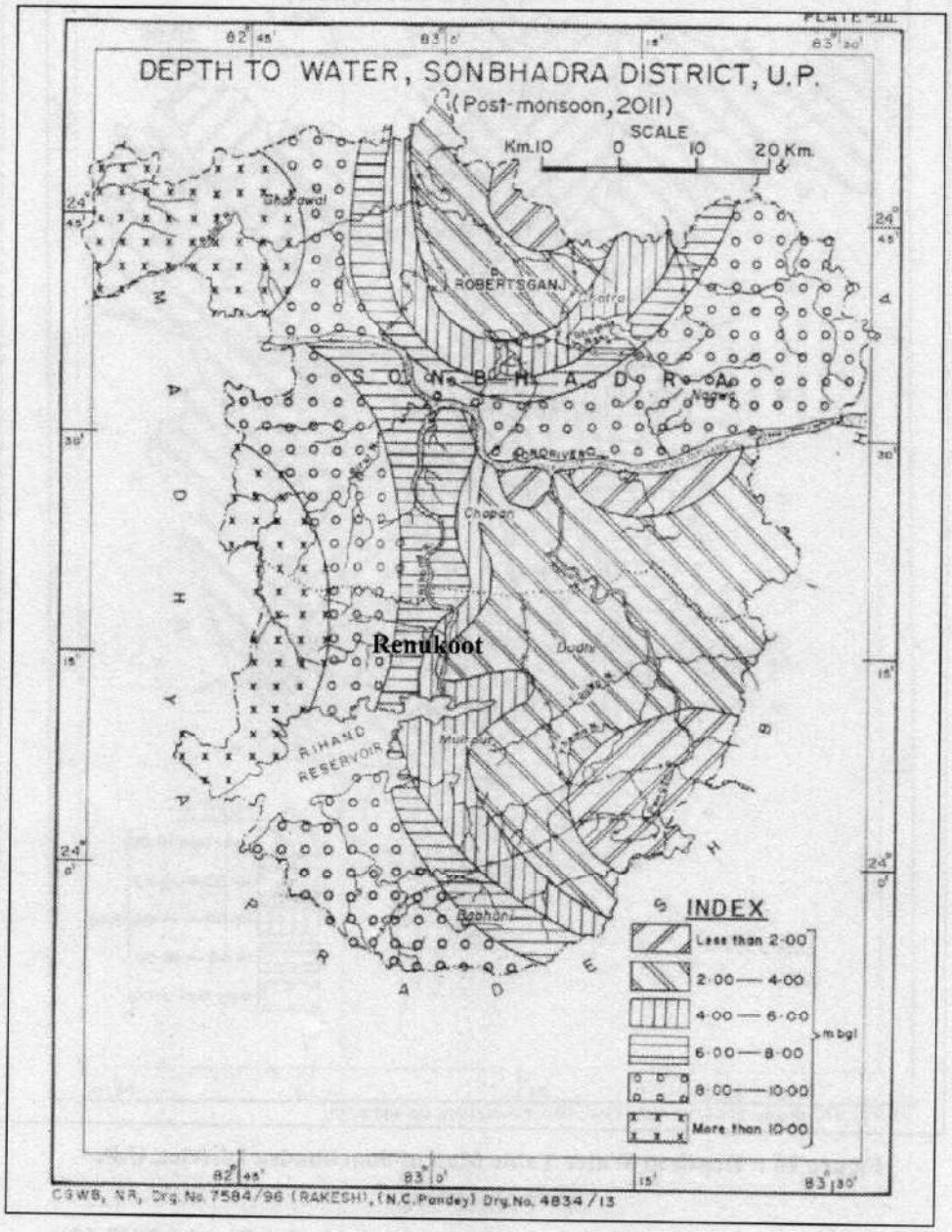


Figure 17 : Depth to Water Table Map of Sonebhadra District, U.P. (Post-monsoon)

(Ref. Groundwater Information Booklet, Sonebhadra District-2012-13)

10.0 Water Quality Assessment

10.1 Methodology

Based on the reconnaissance, the type of water bodies and their relative importance with the project site; grab water sample were collected in summer season May 2019. Surface water samples were collected from 2 locations within Govind Ballabh Pant Sagar reservoir. Ground water samples were collected form monitoring wells around the SFL site at 12 different locations; which also includes one sample from a monitoring well which is freshly drilled at the site in presence of sampling team. Apart from monitoring well samples, ground water samples were also collected from nearby villages around the industry within 3 km radius area. It includes 1 dug well, 1 bore well and 5 hand pump water samples.

Sampling, preservation and transport of water samples from the field was done as per of guidance manual ISO (ISO 5667-1; 1980 water quality sampling part I: ISO 5667-11: 1993 part II) for surface and groundwater sources. Samples were analyzed for physico-chemical characteristics including physical, inorganic, organic, nutrient and heavy metals as presented in **Table 3**.

Table 3: Water Quality Monitoring Parameters and Analytical Methods

Sr. No.	Parameter	Method of analysis (APHA/ IS Standard)
1.	pH	APHA-4500-H^+ B, 22ND Edition 2012
2.	Temperature (°C)	APHA - 2550 B, 22ND Edition 2012
3.	Turbidity (NTU)	APHA-2130 B, 22ND Edition 2012
4.	TSS (mg/L)	APHA-2540 D, 22ND Edition 2012
5.	TDS (mg/L)	APHA 2540 C, 22ND Edition 2012
6.	EC (µS/cm)	APHA 2510 B, 22ND Edition 2012
7.	Total Alkalinity as $CaCO_3$ (mg/L)	IS 3025-23 (1986)
8.	Total Hardness as $CaCO_3$ (mg/L)	APHA - 2340 C, 22ND Edition 2012
9.	Calcium Hardness as $CaCO_3$ (mg/L)	APHA - 2340 C, 22ND Edition 2012
10.	Chlorides (mg/L)	APHA -4500 B, 22ND Edition 2012
11.	Sulphates (mg/L)	IS 3025-24 (1986)
12.	Sodium (mg/L)	APHA - 3500 B, 22ND Edition 2012
13.	Potassium (mg/L)	APHA - 3500 B, 22ND Edition 2012
14.	Nitrates as NO3 (mg/L)	APHA - 4500 B, 22ND Edition 2012
15.	Total Phosphates (mg/L)	IS 3025-31 (1988)
16.	DO (mg/L)	APHA - 4500 C, 22ND Edition 2012
17.	COD (mg/L)	IS 3025-58 (2006)
18.	BOD (mg/L)	IS 30256-44 (1993)
19.	TKN	APHA 4500 – N_{org} B/ IS 3025-34
20.	Oil & Grease (mg/L)	APHA - 5520 B, 22ND Edition 2012
21.	Fluoride (mg/l)	APHA -4500 C, 22ND Edition 2012

Sr. No.	Parameter	Method of analysis (APHA/ IS Standard)
22.	Heavy Metals (mg/L)	APHA - 3030 E, 22ND Edition 2012 using ICP-OES
23.	Total Coliform (CFU/100 ml)	APHA – 9222 B, 22ND Edition 2012 using Membrane Filtration Technique
24.	Feacal Coliform (CFU/100 ml)	APHA – 9222 B, 22ND Edition 2012 using Membrane Filtration Technique

The locations of water quality monitoring stations for surface and groundwater sources are depicted in **Figure 18 & 19** and listed in **Table 4.** Photographs taken during sampling are shown in **Plates 1.**

Physico-chemical parameters have been identified for monitoring of water environment within study area. To assess the water quality, standard methods (APHA, AWWA 22nd edition 2012 and IS 3025) were followed for sample collection, preservation and analysis in the laboratory.



Figure 18: Water Sampling Locations Inside and Outside Grasim Industries, Renukoot



Figure 19: Water Sampling Locations Around Secured Land Fill Site

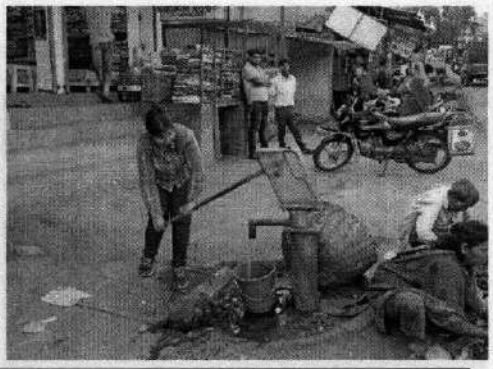
Table 4: Water Quality- Sampling Location Details

Sr. No.	Sample code	Sampling Locations	Geographical Position	
			Latitude	Longitude
Surface water				
1	RNT/II/ 17	Rihand reservoir, in front of Pump House	N 24^{0}11'40.2"	E 83^{0}03'03.2"
2	RNT/II/18	Rihand reservoir, near old discharge point	N 24^{0}11'57.0"	E 83^{0}02'36.4"
Ground Water				
Monitoring Wells Within the Industry Premises				
3	RNT/II/D	New drilling site, near secured land fill	N 24^{0}12'15.7"	E83^{0}03'16.5"
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	N 24^{0}12'16.0"	E 83^{0}03'16.7"
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	N 24^{0}12'18.3"	E 83^{0}03'16.3"
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	N 24^{0}12'19.4"	E 83^{0}03'17.5"
7	RNT/II/9	Leachate collection well, near Secured Land Fill	N 24^{0}12'19.2"	E 83^{0}03'19.4"

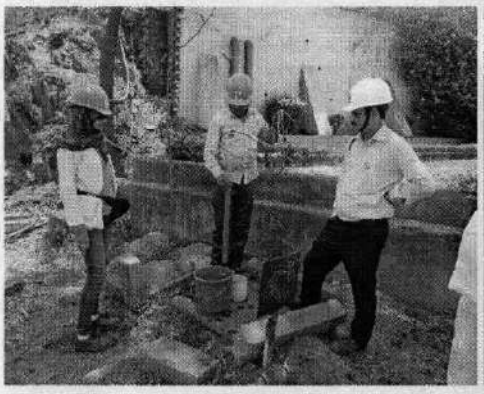
Sr. No.	Sample code	Sampling Locations	Geographical Position	
			Latitude	Longitude
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	N 24°12'19.8"	E 83°03'19.0"
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	N 24°12'16.7"	E 83°03'16.0"
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	N 24°12'16.9"	E 83°03'17.3"
11	RNT/II/13	Monitoring well near brick construction plant	N 24°12'10.4"	E 83°03'23.0"
12	RNT/II/14	Monitoring well near STP	N 24°12'11.1"	E 83°03'00.3"
13	RNT/II/15	Monitoring well near Truck parking area	N 24°12'25.4"	E 83°03'11.5"
14	RNT/II/16	Monitoring well near Lal Bangla	N 24°12'32.8"	E 83°03'08.6"
Dug Well				
15	RNT/II/19	Village Renukoot	N 24°12'57.3"	E 83°02'05.5"
Bore Well				
16	RNT/II/20	Near Railway police chowki, Renukoot	N 24°12'14.9"	E 83°02'21.3"
Hand Pump				
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	N 24°11'54.3"	E 83°02'28.6"
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	N 24°12'04.1"	E 83°01'20.5"
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	N 24°11'56.9"	E 83°01'42.0"
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	N 24°13'12.4"	E 83°02'07.8"
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	N 24°12'27.6"	E 83°01'21.4"



RNT/II/4



RNT/II/5



RNT/II/6



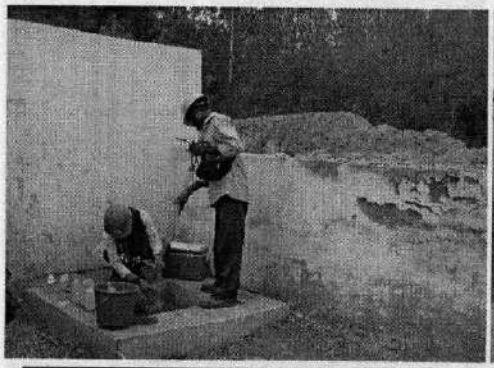
RNT/II/7



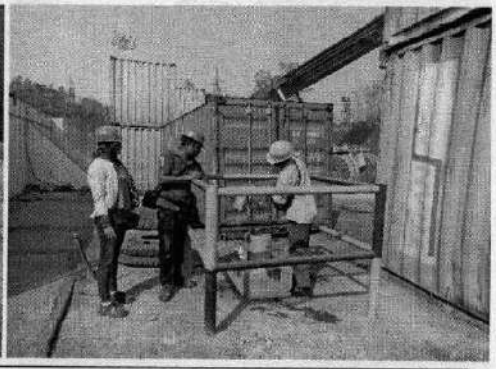
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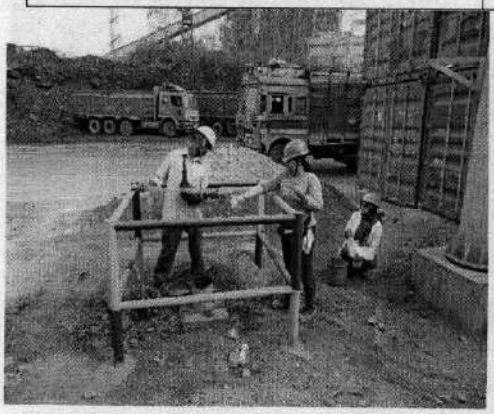
RNT/II/9



RNT/II/10



RNT/II/11



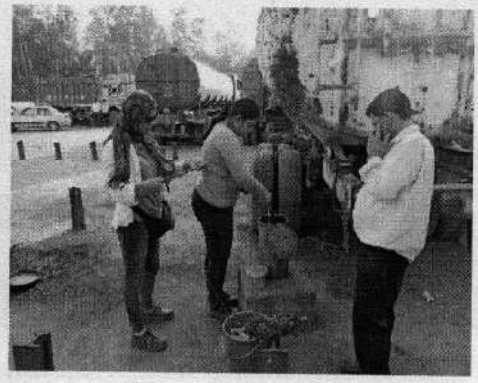
RNT/II/12



RNT/II/13



RNT/II/14



RNT/II/15



RNT/II/16



RNT/II/17



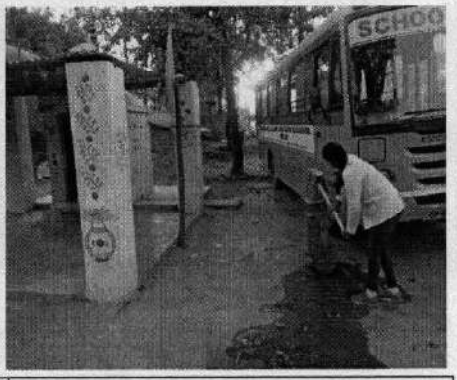
RNT/II/18



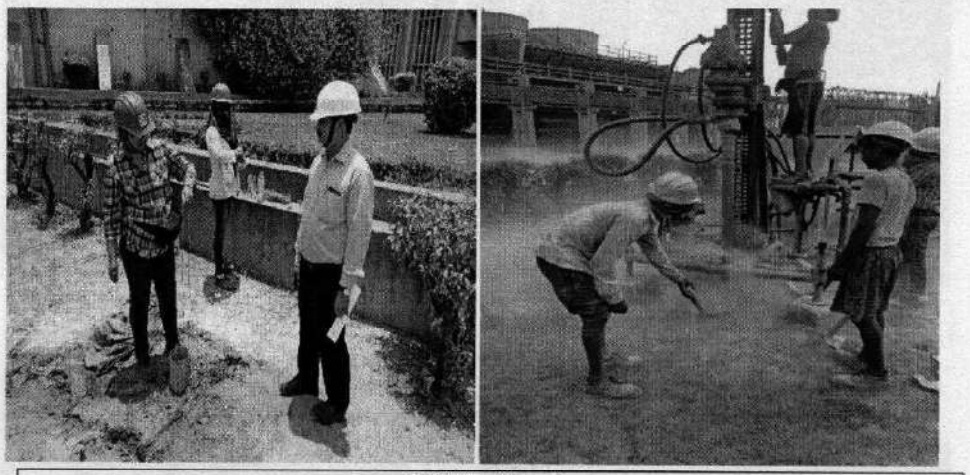
RNT/II/19



RNT/II/20



RNT/II/21



RNT/II/Drilling site



Plate 1: Water Sampling in the Study Area

10.2 Physico-chemical Characteristics Surface water

The physico-chemical characteristics of surface water samples from Govind Ballabh Pant Sagar reservoir in summer season May 2019 are summarized in the **Tables 5** to **7**. The pH was observed as 6.7-8.0; whereas Total alkalinity as $CaCO_3$ was 90-172 mg/l. Turbidity was recorded as 1-5 NTU and TSS was in the range of 628 mg/l. The Total Dissolved Solids and Chlorides were observed as 135-3554 and 24 - 1942 mg/l respectively and sulphate was found to be 1-100 mg/l.

Nutrients in terms of nitrates as NO_3 and total phosphate were found to be 0.99-2.65 mg/l and 1.37-1.76 mg/l respectively. Demand parameters i.e. DO, COD and BOD were found to be 5.6-6.2, 105-640 and <3 mg/l respectively. Oil & grease and Fluoride was found to be 0.30-0.53 and 0.17-0.29 mg/l respectively. Heavy metals concentrations (**Table 8 & 9**) were found as Cobalt: ND-0.002 mg/l, Copper: ND-0.003 mg/l, Iron: ND-0.197 mg/l, Manganese: ND-0.860 mg/l, Molybdenum: 0.002-0.004 mg/l, Vanadium: ND-0.045 mg/l, Zinc: ND-0.034 mg/l and Mercury: 0.001-0.002 mg/l; whereas Arsenic, Cadmium, Chromium, Nickel, Lead and Selenium were found to be not detectable.

10.3 Physico-chemical Characteristics of Monitoring Wells Around SLF site

Twelve samples were collected from monitoring wells around the SLF site of Grasim Industries in summer season May 2019. Their physico-chemical characteristics are summarized in the **Tables 5** to **7**. The variation in different parameters was observed as; pH: 6.3-7.8, Turbidity: 2-496 NTU, Total Dissolved Solids: 160-9508 mg/l, Chlorides: 42-5341 mg/l, Sulphate: 8-158 mg/l, Total Alkalinity: 58-224 mg/l, Total Hardness: 90-1508 mg/l and Sodium: 18-3418 mg/l. Nutrients as Nitrate NO_3 and Phosphates were found to be 0.12-7.35 and 0.59-5.58 mg/l respectively. Oil & grease and Fluoride was found to be ND-1.46 and 0.10-0.43 mg/l respectively.

The concentration of heavy metals was in the range of Arsenic: ND-0.894 mg/l, Cadmium: ND-0.015, Cobalt: ND-0.024 mg/l, Chromium: ND-0.022 mg/l, Copper: ND-0.115 mg/l, Iron: ND-10.145 mg/l, Manganese: ND-2.492 mg/l, Molybdenum: ND-0.032 mg/l, Nickel: ND-0.033 mg/l, Lead: ND-0.316 mg/l, Selenium: ND-0.016 mg/l, Vanadium: ND-0.060 mg/l, Zinc: ND-0.227 mg/l and Mercury: ND-0.003 mg/l (**Table 8 & 9**).

10.4 Physico-chemical characteristics of Ground Water

Ground water samples were collected from one dug well, one bore well and five hand pumps from different villages within study area in summer season May 2019. The range in various parameters were observed as; pH: 7.3-9.9, Turbidity: 3-255 NTU, Total Dissolved Solids: 246-526 mg/l, Total Alkalinity: 88-300 mg/l, Total Hardness: 80-346 mg/l and Chlorides: 34-155 mg/l. Nitrate as NO_3 and total phosphates were 0.28-6.87 mg/l and 0.79-2.42 mg/l respectively. Oil & grease and Fluoride were between 0.001-1.21 and 0.15-0.65 mg/l respectively.

Heavy metals were found in the range of Arsenic: ND-0.090 mg/l, Cadmium: ND-0.002 mg/l, Cobalt: ND-0.001 mg/l, Chromium: ND-0.007 mg/l, Copper: ND-0.047 mg/l, Iron: ND-20.982 mg/l, Manganese: 0.017-0.619 mg/l, Molybdenum: ND-0.136 mg/l, Nickel: ND-0.006 mg/l, Selenium: ND-0.102 mg/l, Vanadium: ND-0.026 mg/l, Zinc: ND-20.672 mg/l and Mercury: ND-0.005 mg/l; and Lead was found to be not detectable (**Tables 5** to **9**).

10.5 Bacteriological Characteristics

The coliform group of bacteria are significant as a principal indicator of degree of pollution of water and thus of the sanitary quality of water. The coliform density is now a criterion to assess the suitability of water for domestic and recreational uses. The coliform group belongs to the family of *Enterobacteriaceae* and includes all aerobic and facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas and acid formation within 48 hrs at 35°C.

The standard test for the coliform group was carried out by the membrane filter (MF) technique. The MF technique involves direct plating for detection and estimation of total coliform and fecal coliform densities.

Surface water samples were collected from 2 locations from Govind Ballabh Pant Sagar reservoir. Ground water samples were collected form monitoring wells around the SFL site at 12 different locations and from 7 ground water sources from different villages which includes 1 dug well, 1 bore well and 5 hand pump water samples.

A microbiological laboratory was set up at the project site in Grasim industries' ETP laboratory. Bacteriological analysis was done at the filed laboratory itself. The results of bacteriological analysis are presented in **Table 10**. During study period in summer season May 2019, surface water samples showed total coliform counts varying from 84-101 CFU/100 ml and faecal coliforms in the range of 59-65 CFU/100 ml. In monitoring well samples, the range of total and feacal coliforms vary from ND-35 and ND-1 CFU/100 ml. In ground water samples the total as well as fecal coliforms were found to be not detectable.

Table 5: Water Quality - Physical Parameters

Sr. No.	Sample Code	Sampling Locations	pH	Temp (^{0}C)	Turbidity (NTU)	Total suspended solids (mg/l)	Total Dissolved Solids (mg/l)	Conductivity (□S/cm)
Surface water								
1	RNT/II/17	Rihand reservoir, in front of Pump House	8.0	43.2	1	6	135	227
2	**RNT/II/18**	**Rihand reservoir, near old discharge point**	**6.7**	**35.4**	**5**	**28**	**3554**	**6010**
Ground Water								
Monitoring wells within the Industry premises								
3	**RNT/II/D**	**New drilling site, near secured land fill**	**6.5**	**41.7**	**496**	**660**	**9508**	**15240**
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	7.8	32.6	15	13	3034	5180
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	7.5	35.0	2	2	181	308
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	6.9	35.2	<1	<1	160	276
7	RNT/II/9	Leachate collection well, near SecuredLand Fill	7.7	35.5	3	22	2658	4460
8	RNT/II/10	Monitoring well -4, near S	7.4	36.7	9	59	260	461
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	7.4	36.7	17	38	2250	3760
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	7.1	34.9	13	20	6442	10930
11	RNT/II/13	Monitoring well near brick construction plant	6.3	36.4	88	196	2580	4400
12	RNT/II/14	Monitoring well near STP	7.1	35.0	<1	10	1626	2700
13	RNT/II/15	Monitoring well near Truck parking area	6.5	34.6	169	388	464	715
14	RNT/II/16	Monitoring well near Lal Bangla	6.3	30.9	42	86	720	1270
Dug Well								
15	RNT/II/19	Village Renukoot	7.8	32.8	<1	5	256	445
Bore Well								
16	RNT/II/20	Near Railway police chowki, Renukoot	7.3	33.8	<1	2	260	468
Hand Pump								
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	9.9	33.3	3	4	412	732
18	RNT/II/3	In front of Govt. Inter College (GIC),	7.7	32.2	13	18	378	687
19	RNT/II/4	Renukoot Shiv Mandir at Turra, Gram-Govindpur	7.5	33.7	255	396	258	455
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	7.7	33.2	19	31	526	878
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	7.3	34.0	199	205	246	421

Table 6: Water Quality- Inorganic Parameters

Sr. No.	Sample Code	Sampling Locations	Total Alkalinity	Total Hardness	Calcium Hardness	Chloride	Sulphate	Sodium	Potassium
			(as CaCO3)						
			mg/l						
Surface water									
1	RNT/II/17	Rihand reservoir, in front of Pump House	90	108	54	24	1	10	2
2	RNT/II/18	Rihand reservoir, near old discharge point	172	868	799	1942	100	911	19
Ground Water									
Monitoring wells within the Industry Premises									
3	RNT/II/D	New drilling site, near secured land fill	140	608	349	5341	158	3418	16
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	224	292	212	1491	61	1078	5
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	92	140	72	44	8	18	1
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	58	104	54	42	16	188	1
7	RNT/II/9	Leachate collection well, near Secured Land Fill	176	198	191	1232	86	915	13
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	80	90	68	74	29	58	2
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	204	507	331	1133	111	568	15
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	144	670	378	3419	117	2077	16
11	RNT/II/13	Monitoring well near brick construction plant	132	1508	484	1345	154	310	60

Sr. No.	Sample Code	Sampling Locations	Total Alkalinity	Total Hardness	Calcium Hardness	Chloride	Sulphate	Sodium	Potassium
			(as CaCO3)						
			mg/l						
12	RNT/II/14	Monitoring well near STP	152	954	576	795	49	224	14
13	RNT/II/15	Monitoring well near Truck parking area	148	302	266	176	10	42	1
14	RNT/II/16	Monitoring well near Lal Bangla	132	349	256	317	20	137	4
Dug Well									
15	RNT/II/19	Village Renukoot	114	148	76	36	50	33	1
Bore Well									
16	RNT/II/20	Near Railway police chowki, Renukoot	168	191	104	45	14	24	1
Hand Pump									
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	88	80	158	125	61	57	3
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	300	346	101	34	12	24	1
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	132	162	115	52	15	30	1
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	158	230	97	155	61	111	2
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	176	184	79	34	6	29	2

Table 7 : Water Quality Parameters

Sr. No.	Sample Code	Sampling Locations	Nitrate as No_3	Total Phosphates	DO	COD	BOD	TKN	Oil & Grease	Fluoride
			mg/l							
Surface water										
1	RNT/II/ 17	Rihand reservoir, in front of Pump House	2.65	1.37	5.6	10	<3	50	0.53	0.17
2	RNT/II/ 18	Rihand reservoir, near old discharge point	0.99	1.76	6.2	40	<3	90	0.30	0.29
Ground Water										
Monitoring Wells within the Industry Premises										
3	RNT/II/D	New drilling site, near secured land fill	4.60	1.74	-	166	<3	90	1.46	0.18
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	0.14	1.16	-	60	<3	101	0.01	0.22
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	0.99	1.72	-	19	<3	106	0.01	0.23
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	3.8	0.59	-	57	<3	42	ND	0.28
7	RNT/II/9	Leachate collection well, near Secured Land Fill	5.12	0.91	-	35	<3	81	ND	0.28
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	7.35	1.03	-	16	<3	48	ND	0.43
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	0.12	0.85	-	35	<3	115	0.01	0.26
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	1.38	0.94	-	83	<3	98	0.01	0.17
11	RNT/II/13	Monitoring well near brick construction plant	6.78	5.58	-	80	<3	87	0.05	0.10
12	RNT/II/14	Monitoring well near STP	3.29	1	-	9	<3	78	0.82	0.18
13	RNT/II/15	Monitoring well near Truck parking area	1.59	1.29	-	22	<3	45	0.61	0.13
14	RNT/II/16	Monitoring well near Lal Bangla	0.66	1.08	-	400	<3	39	0.24	0.11
Dug Well										
15	RNT/II/19	Village Renukoot	3.84	2.42	-	400	<3	95	0.26	0.44
Bore Well										
16	RNT/II/20	Near Railway police chowki, Renukoot	0.57	0.99	-	70	<3	54	0.06	0.21

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Sr. No.	Sample Code	Sampling Locations	Nitrate as No_3	Total Phosphates	DO	COD	BOD	TKN	Oil & Grease	Fluoride
			mg/l							
Hand Pump										
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	6.87	1.24	-	16	<3	118	0.02	0.25
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	0.28	0.88	-	16	<3	60	0.02	0.46
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	3.73	1.06	-	160	<3	53	0.01	0.37
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	0.95	0.79	-	640	<3	132	0.01	0.65
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	1.16	2.41	-	125	<3	65	1.21	0.15

Table 8: Water Quality-Heavy Metals

Sr. No.	Sample Code	Sampling Locations	As	Cd	Co	Cr	Cu	Fe	Mn	Mo
			mg/l							
Surface water										
1	RNT/II/ 17	Rihand reservoir, in front of Pump House	ND	ND	ND	ND	0.003	ND	ND	0.002
2	RNT/II/ 18	Rihand reservoir, near old discharge point	ND	ND	0.002	ND	ND	0.197	0.860	0.004
Ground Water										
Monitoring Wells within the Industry Premises										
3	RNT/II/D	New drilling site, near secured land fill	ND	0.002	0.014	0.022	0.115	10.145	1.420	ND
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	ND	ND	0.001	ND	0.016	ND	ND	ND
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	0.032	ND	0.001	ND	ND	ND	0.636	0.032
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	0.001	ND	0.001	ND	0.039	ND	0.010	0.007
7	RNT/II/9	Leachate collection well, near Secured Land Fill	ND	ND	ND	ND	ND	ND	0.007	ND
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	0.016	ND	0.001	ND	0.019	0.790	0.130	0.015
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	0.894	0.015	0.002	ND	0.007	2.417	0.665	0.005
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	0.021	ND	0.024	ND	0.006	1.561	1.465	ND
11	RNT/II/13	Monitoring well near brick construction plant	ND	ND	0.021	ND	0.013	1.521	2.492	ND
12	RNT/II/14	Monitoring well near STP	ND	ND	0.002	ND	0.034	ND	0.853	0.005
13	RNT/II/15	Monitoring well near Truck parking area	ND	ND	0.001	0.008	0.009	4.129	0.046	ND
14	RNT/II/16	Monitoring well near Lal Bangla	ND	ND	0.015	ND	0.020	1.337	0.203	ND

Sr. No.	Sample Code	Sampling Locations	As	Cd	Co	Cr	Cu	Fe	Mn	Mo
			mg/l							
Dug Well										
15	RNT/II/19	Village Renukoot	ND	ND	ND	ND	ND	ND	0.017	0.001
Bore Well										
16	RNT/II/20	Near Railway police chowki, Renukoot	ND	ND	ND	0.007	0.038	ND	0.310	ND
Hand Pump										
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	0.090	0.002	ND	ND	ND	3.592	0.062	0.136
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	0.058	0.001	ND	0.002	ND	3.243	0.619	0.067
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	0.035	ND	0.001	0.003	0.024	17.904	0.502	0.036
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	0.024	ND	0.001	ND	0.041	3.195	0.051	0.040
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	ND	ND	0.001	ND	0.047	20.982	0.342	0.056

ND- Not Detectable

Table 9: Water Quality-Heavy Metals

Sr. No.	Sample Code	Sampling Locations	Ni	Pb	Se	V	Zn	Hg
						mg/l		
Surface water								
1	RNT/II/ 17	Rihand reservoir, in front of Pump House	ND	ND	ND	ND	ND	0.001
2	RNT/II/ 18	Rihand reservoir, near old discharge point	ND	ND	ND	0.045	0.034	0.002
Ground Water								
Monitoring Wells within the Industry Premises								
3	RNT/II/D	New drilling site, near secured land fill	0.030	0.316	ND	ND	0.227	0.001
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	ND	ND	0.001	0.018	0.013	0.003
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	ND	0.053	0.016	ND	0.002	0.002
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	ND	0.008	0.004	ND	0.038	0.001
7	RNT/II/9	Leachate collection well, near Secured Land Fill	ND	ND	ND	0.007	0.004	0.001
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	ND	0.205	0.008	ND	0.060	0.002
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	ND	0.017	0.004	ND	ND	0.003
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	0.010	0.179	0.001	0.007	0.009	ND
11	RNT/II/13	Monitoring well near brick construction plant	0.022	0.012	ND	ND	0.039	0.002
12	RNT/II/14	Monitoring well near STP	ND	ND	ND	0.060	0.086	0.001
13	RNT/II/15	Monitoring well near Truck parking area	ND	0.008	ND	ND	0.033	0.001
14	RNT/II/16	Monitoring well near Lal Bangla	0.033	0.057	ND	ND	0.075	ND
Dug Well								
15	RNT/II/19	Village Renukoot	ND	ND	ND	ND	0.005	ND

Sr. No.	Sample Code	Sampling Locations	Ni	Pb	Se	V	Zn	Hg
						mg/l		
Bore Well								
16	RNT/II/20	Near Railway police chowki, Renukoot	ND	ND	ND	0.002	0.174	0.001
Hand Pump								
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	0.005	ND	0.102	0.020	0.182	0.001
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	ND	ND	0.050	0.026	1.059	0.001
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	0.006	ND	0.026	0.018	1.591	0.005
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	ND	ND	0.017	0.012	0.202	0.001
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	ND	ND	ND	0.002	20.672	0.001

Table 10: Water Quality – Bacteriological Parameters

Sr. No.	Sample Code	Sampling Locations	Total Coliform	Fecal Coliform
			CFU/ 100 ml	
Surface water				
1	RNT/II/ 17	Rihand reservoir, in front of Pump House	84	59
2	RNT/II/ 18	Rihand reservoir, near old discharge point	101	65
Ground Water				
Monitoring Wells within the Industry Premises				
3	RNT/II/D	New drilling site, near secured land fill	ND	ND
4	RNT/II/6	Monitoring well-1, near Secured Land Fill	ND	ND
5	RNT/II/7	Monitoring well-2, near Secured Land Fill	9	ND
6	RNT/II/8	Monitoring well-3, near Secured Land Fill	35	ND
7	RNT/II/9	Leachate collection well, near Secured Land Fill	ND	ND
8	RNT/II/10	Monitoring well-4, near Secured Land Fill	1	1
9	RNT/II/11	Monitoring well-5, near Secured Land Fill	ND	ND
10	RNT/II/12	Monitoring well-6, near Secured Land Fill	1	ND
11	RNT/II/13	Monitoring well near brick construction plant	1	1
12	RNT/II/14	Monitoring well near STP	ND	ND
13	RNT/II/15	Monitoring well near Truck parking area	5	ND
14	RNT/II/16	Monitoring well near Lal Bangla	1	1
Dug Well				
15	RNT/II/19	Village Renukoot	ND	ND
Bore Well				
16	RNT/II/20	Near Railway police chowki, Renukoot	ND	ND
Hand Pump				
17	RNT/II/2	Katal No. 1, Dongiya Nala, Renukoot	ND	ND
18	RNT/II/3	In front of Govt. Inter College (GIC), Renukoot	ND	ND
19	RNT/II/4	Shiv Mandir, At: Turra, Gram-Govindpur	ND	ND
20	RNT/II/5	Near Shiva Park, Shiv Mandir, Renukoot	ND	ND
21	RNT/II/21	Hand Pump, near shiv Mandir, Murligadhi	ND	ND

CFU: Colony Forming Unit
ND- Not Detectable

11.0 Soil Quality Assessment

The impact of any project on land environment primarily depends on type/category of project. The impacts on the land environment would be in the form of permanent change in land use pattern as well as direct and indirect impacts on surrounding land due to the discharge of wastes on the land and unscientific means of disposal. The waste from the industry has potential to contaminate soil, reduce agricultural productivity and delink the delicate microbial food-web in topsoil. In major perspective, long-term implications would be change in land use pattern. The solid and hazardous wastes generated from industry, if not properly stored/disposed of, cause contamination of soils and groundwater resources. In order to assess the impacts of industrial activity, initially, the quality of soils such as physical, chemical, microbiological parameters on land need to be determined and then it would be possible to assess the impact of industry-specific pollutants on the soil quality. By considering the importance of these soil related issues, the soil quality reference to fertility and productivity are evaluated as per the standard procedures. The land use and land cover (LULC) pattern in the study area were studied using Remote Sensing and GIS in the study area i.e. 5 km radial distance from the secured landfill site boundary.

11.1 Soil Quality

Sonbhadra district along with Mirzapur district of Uttar Pradesh are the Vindhyan sub-zone of the Middle Gangetic Plain zone categorized under the Agro-climatic zone IV. Rainfall in this zone is adequate at about 1,134 mm; the climate is similar to the other parts of the eastern plains of Uttar Pradesh. However, the region has a very high forest cover of about 40% of the land. Less than a third of this land is cultivated and only a third of this is irrigated.

The soils in the region falling under Agro-climatic zone IV are alluvium-derived soils mostly khaddar (recent alluvium) and hangar (old alluvium). In some area the soil is highly calcareous. The soils are loamy and high in organic matter content. Rice, maize, pigeon pea, moong bean crops are common in kharif season. In post-rainy (rabi) season wheat, lentil, Bengal gram, pea, and sesame and at some places groundnut is grown on residual soil moisture with one or two supplemental irrigation. The important cash crops of the region are sugarcane, potato, tobacco, chillies, turmeric and coriander with supplemental irrigation. Rice–wheat cropping system is more predominant.

11.2 Soil Sampling and Analysis

With the objective of Environmental Risk Assessment for hazardous waste disposal in abandoned secured landfill at Chlor-Alkali Plant, Renukoot, field survey has been done. Monitoring was carried out near Secured Land Fill in the premises of Grasim Industries Limited were identified for subsoil investigation. Stratified soil sampling was carried out, wherein, representative soil samples from ~15cm and ~3 ft.

depth were collected from each location. Location of soil sampling is depicted in **Figure 20** and summarized in **Table 11.** Representative soil samples from different depth were collected from each location for estimation of the physicochemical characteristics and to find out metal concentration of the soil. Soil sampling done by NEERI Team during site investigation are depicted in **Plate 2A and 2B.** The activities around the sampling sites were taken into consideration to learn the sources of contamination or the factors governing the physico-chemical properties of the soil samples.



Figure 20: Soil Sampling Locations

Table 11: Sampling Locations

Sr. No.	Sample Code	Location/ Village	Coordinates	Colour	Soil Sample Depth
Top Soil sampling locations near secured land fill site					
1	RNT/1A	Near Secured Land Fill, Grasim Industries Limited	N 24012.319' E 083003.285'	Light black	~15cm

Sr. No.	Sample Code	Location/ Village	Coordinates	Colour	Soil Sample Depth
2	RNT/2A	Near Secured Land Fill, Grasim Industries Limited	N 24012.265' E 083003.279'	Light black	~15cm
3	RNT/3A	Near Secured Land Fill, Grasim Industries Limited	N 24012.317' E 083003.336'	Light black	~15cm
4	RNT/II/S2/A	Near Secured Land Fill, (near monitoring well no.2)	N 24°12'19.1" E83°03'17.0"	Yellow brown	~15cm
Soil Profile sampling from different depths					
5	RNT/D/I/1	Drilling site- I. near secured land fill	N 24°12'15.5" E83°03'16.2"	Brown	~5 ft
6	RNT/D/I/2			Light brown	~11 ft
7	RNT/D/I/3				~16 ft
8	RNT/D/I/4			Brown	~22 ft
9	RNT/D/II/1	Drilling site- II. near secured land fill	N 24°12'15.7" E83°03'16.5"	Brown	~5 ft
10	RNT/D/II/2			Brown	~11 ft
11	RNT/D/II/3			Light brown	~17 ft
12	RNT/D/II/4			Light brown	~22 ft
13	RNT/D/II/5			Light brown	~28 ft
14	RNT/D/II/6			Light brown	~34 ft
15	RNT/D/II/7			Light brown	~40 ft
16	RNT/D/II/8			Light brown	~45 ft
17	RNT/D/II/9			Light brown	~51 ft
18	RNT/D/II/10			Grey	~57 ft
19	RNT/D/II/11			Grayish black	~63 ft
20	RNT/D/II/12			Grey	~69 ft
21	RNT/D/II/13			Black	~75 ft
22	RNT/D/II/14			Grey	~80 ft



Plate 2A : Soil Sampling in the Study Area

A: Secured landfill
B: Soil sampling Location: RNT/1
C: Soil sampling
Location: RNT/2 **D:**
Soil sampling
Location: RNT/3

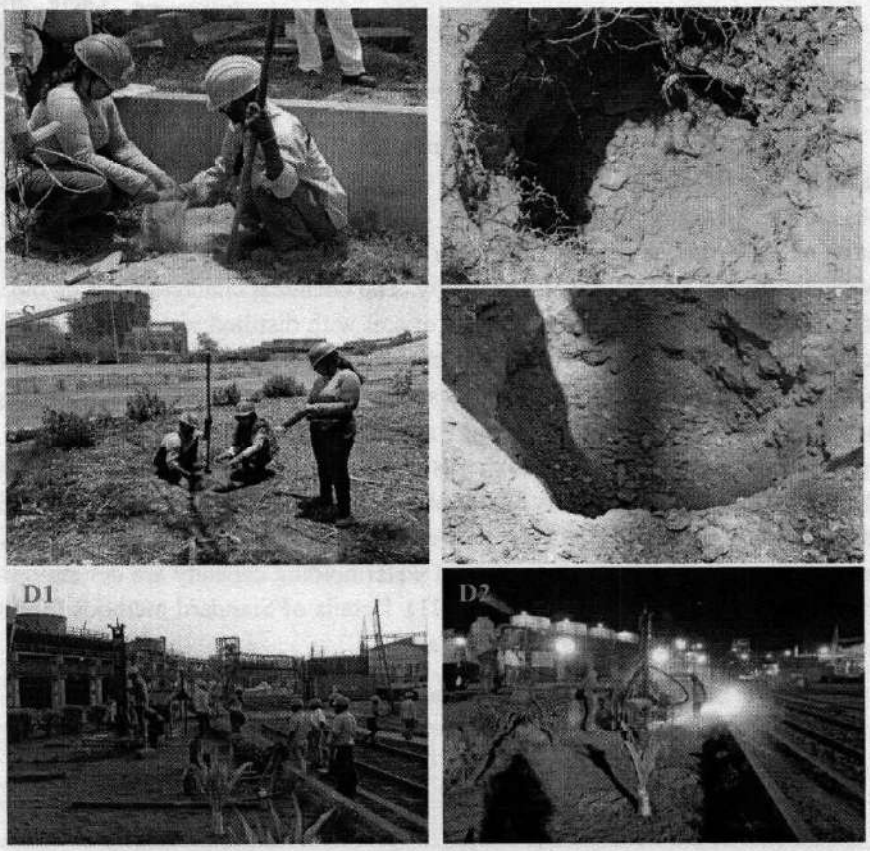


Plate 2B : Soil Sampling in the Study Area

S1: Soil sampling Location: **RNT/II/S1 (**New Secured Land Fill)
S2: Soil sampling Location: **RNT/II/S2 (**New Secured Land Fill)
D1: Soil sampling Location: **Site D/I (Drilling Site)**
D2: Soil sampling Location: **Site/D/II (Drilling Site)**

GARMIN GPS (Model: Ertex-10) instrument were used during survey in study area. Sampling has been done with the help of soil auger during first monitoring and machines dry drilling was adopted during second monitoring as the depth of soil sampling was about 80 ft. Samples were collected in Ziplock Plastic bags. For estimation of mercury concentration, a small portion of homogenized soil sample has been collected separately and preserved it at low temperature in Icebox during transportation. The collected soil samples have been labeled properly with sample code, date, time and location to avoid mixing of samples and for accurate record keeping. The different soil quality parameters and related analysis methodology are depicted in **Table 12**. In order to carry out physical and chemical characteristics of the soil, the samples were air dried and then passed through a sieve of 2 mm and stored in Ziplock airtight polythene bags for further analysis.

Heavy metals in the soil are determines by extracting soil with acid mixture nitric acid and perchloric acid (1:3, v/v), and the extracted soil samples analyze on ICP (APHA, 2012). Mercury concentration is estimated by three methods i.e. Direct estimation of Hg by Direct Mercury Analyser 80 (USEPA, Method 7473), ICP-MS and Cold Vapour Atomic Absorption Spectroscopy. The chemical characteristics of the soil are determine by preparing saturated extract of soil with distilled water in 1:2 ratio (as per Jackson procedure, 1967). Organic matter is determine in terms of organic carbon by Walkely& Black method (1972). Fertility status of soil in terms of available nitrogen is determine by the Kjeldahl method, available phosphorus is determine by chlorostannous reduced molybdo phosphorus blue color (Olsen's method, 1954)), and available potassium is determine by flame photometer method (Jackson M. L. 1967). For determination of particle size analysis we adopt Hydrometer Method and Physical parameters such as bulk density, porosity and water holding capacity are determines by KR Box Method (Keen and Raczkowski, 1921). Details of Standard methods followed for the analysis of soil samples are given in **Table 12.**

Table 12: Soil Quality Analysis: Standard Methods and Procedures

Sr. No.	Specific Tests or Types of Tests Performed	Specification, Standard (Method), or Technique used
1	pH	IS:2720 (Pt–26)
2	Electrical Conductivity (EC), dS/cm	IS: 14767
3	Ammonical Nitrogen, kg/ha	IS: 14684
4	Available Phosphorous, kg/ha	Olsen Method
5	Available Potassium, kg/ha	Ammonium Acetate Method
6	Organic Carbon, %	IS:2720 (Pt-22) Walky and Black Method
7	Particle Size Distribution (PSD) A.Total Sand, % B.Silt, % C.Clay, %	IS: 2720 (Pt-4) Hydrometer Method
8	Bulk Density (BD), gm/cm^3	K.R. Box Method
9	Porosity, %	K.R. Box Method
10	Water Holding Capacity (WHC), %	K.R. Box Method
11	**Soluble cations (meq/L)**	
	A. Calcium (Ca)	USDA Titrimetric Method
	B. Magnesium (Mg)	
	C. Sodium (Na)	Flame Photometric Method
	D. Potassium (K)	
12	**Soluble anions (meq/L)**	
	A. Carbonates (CO_3^{-2})	Titrimetric Method
	B. Bicarbonates (HCO_3^-)	Titrimetric Method

Sr. No.	Specific Tests or Types of Tests Performed	Specification, Standard (Method), or Technique used
	C. Chloride (Cl)	Titrimetric Method
	D. Sulfate ($SO4^{-2}$)	Spectrometric Method
12	Cation Exchange Capacity (CEC), meq/100g	IS: 2720 (Pt-24) Ammonium Acetate Method
13	Heavy Metals	Acid Digestion, USEPA Manual 3050b
14	Mercury	(Direct mercury analyser), USEPA Method 7473, ICP-MS, CVAAS

11.3 Soil Characteristics

11.3.1 Physical Properties

Particle size distribution of soil samples collected during second monitoring shows; most of the soil is silt loam in texture. While sample code RNT/II/S1/A and RNT/II/S1/B near monitoring well no. 1 shows sandy loam in texture at 1.5 ft as well as at 3 ft depth. The percent distribution of sand, silt and clay are presented in **Table 13** and textural diagram is depicted in **Figure 21.**

The bulk density was observed to be varying from 1.0–2.0 g/cm³, which is considered moderate to high. (**Table 14**) The porosity and water holding capacity of soils are in the range of 37.3 – 64.7 % and 21.8–37 % respectively. (**Table 14**).

Table 13: Textural Class of Soil

Sr. No.	Sample Code	Sampling Location	Particle Size Distribution (%)			Textural Class
			Sand	Clay	Silt	
Top Soil sampling locations near secured land fill site						
1	RNT/1A	Near Secured Land Fill	26.25	2.73	71.02	Silt loam
2	RNT/1B	Near Secured Land Fill	30.96	3.68	65.36	Silt loam
3	RNT/2A	Near Secured Land Fill	74.12	0.54	25.34	Loamy sand
4	RNT/II/S2/B	Near Secured Land Fill	32.85	0.43	66.72	Silt loam
Soil Profile sampling from different depths						
5	RNT/D/I/1	Drilling site- I. near secured land fill	42.32	1.81	55.87	Silt loam
6	RNT/D/I/2		15.67	0.42	83.91	Silt
7	RNT/D/I/3		41.13	1.62	57.25	Silt loam
8	RNT/D/I/4		56.28	1.81	41.90	Sandy loam
9	RNT/D/II/1	Drilling site- II. near secured land fill	39.84	4.91	55.25	Silt loam
10	RNT/D/II/2		34.1	2.22	63.68	Silt loam
11	RNT/D/II/3		41.11	2.91	55.98	Silt loam

Sr. No.	Sample Code	Sampling Location	Particle Size Distribution (%)			Textural Class
			Sand	Clay	Silt	
12	RNT/D/II/4		14.5	0.41	85.09	Silt
13	RNT/D/II/5		21.08	0.42	78.5	Silt loam
14	RNT/D/II/6		20.92	2.7	76.38	Silt loam
15	RNT/D/II/7		20.61	2.51	76.88	Silt loam
16	RNT/D/II/8		74.12	0.54	23.54	Silt loam
17	RNT/D/II/9		34.04	1.36	64.6	Silt loam
18	RNT/D/II/10		34.26	1.14	64.60	Silt loam
19	RNT/D/II/11		16.15	2.73	81.12	Silt loam
20	RNT/D/II/12		28.79	0.42	70.79	Silt loam
21	RNT/D/II/13		45.3	1.71	52.99	Silt loam
22	RNT/D/II/14		40.76	1.14	58.10	Silt loam

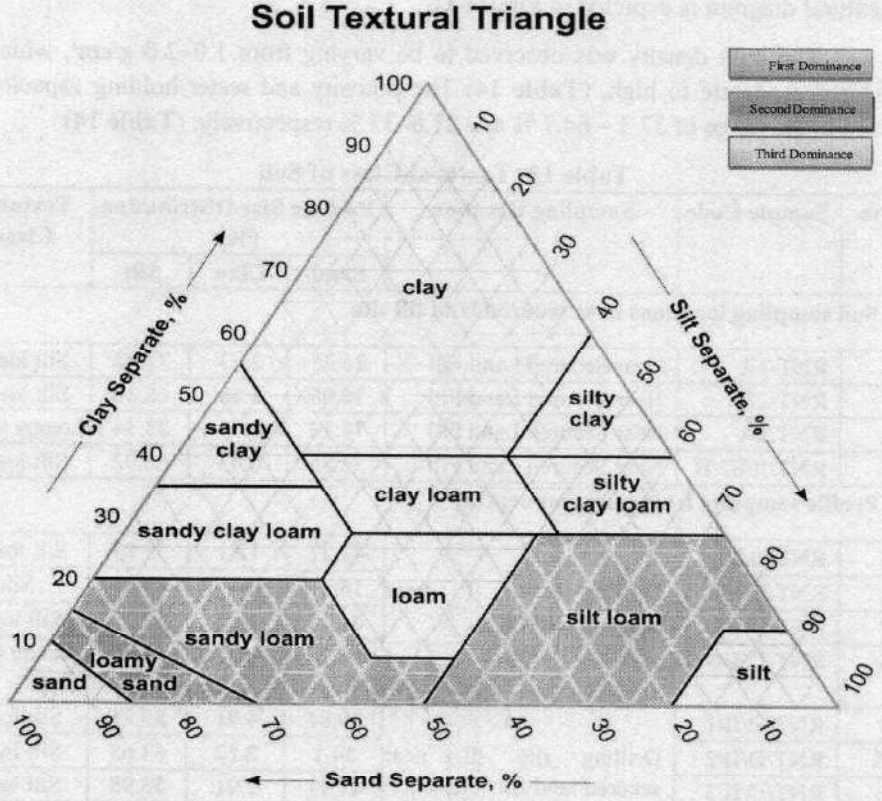


Figure 21: Soil Texture Class

Table 14: Physical Characteristic of Soil

Sr. No.	Sample Code	Sampling Location	Bulk Density (gm/cm^3)	Porosity %	Water Holding capacity %
Top Soil sampling locations near secured land fill site					
1	RNT/1A	Near Secured Land Fill	1.20	75.1	47.1
2	RNT/2A	Near Secured Land Fill	1.35	47.8	35
3	RNT/2B	Near Secured Land Fill	1.66	48.9	29
4	RNT/II/S1/B	Near Secured Land Fill	1.0	37.3	32.3
Soil Profile sampling from different depths					
5	RNT/D/I/1	Drilling site- I. near secured land fill	1.5	56.8	23.7
6	RNT/D/I/2		1.4	55.5	23.9
7	RNT/D/I/3		1.5	41.8	26.3
8	RNT/D/I/4		1.6	51.9	22.6
9	RNT/D/II/1	Drilling site- II. near secured land fill	1.5	48.4	32.5
10	RNT/D/II/2		1.4	46.9	33.2
11	RNT/D/II/3		1.5	48.4	32.5
12	RNT/D/II/4		1.5	44.1	29.3
13	RNT/D/II/5		1.6	47.1	29.1
14	RNT/D/II/6		1.5	46.9	30.2
15	RNT/D/II/7		1.6	60.2	37.0
16	RNT/D/II/8		2.0	51.2	35.6
17	RNT/D/II/9		1.5	53.3	35.4
18	RNT/D/II/10		1.4	48.7	33.2
19	RNT/D/II/11		1.3	52.1	39.5
20	RNT/D/II/12		1.4	42.5	29.3
21	RNT/D/II/13		1.3	49.4	24.6
22	RNT/D/II/14		1.2	48.1	24.9

11.3.2 Chemical Properties

Variations in the pH of the soil samples of second monitoring was found to be slightly acidic to strongly alkaline (6.3 to 12) in reaction. Electrical conductivity in study area was observed in the range of 0.2-2.5 dS/m. **(Table 15)**

It was observed that calcium and magnesium are in the range of 01-8.4 meq/l and 0.1 – 4.2 meq/l respectively. The sodium and potassium are in the range of 0.3 -5.1 meq/l and 0.1-1.3 meq/l respectively. Concentration of Chloride varied between 3-25 meq/l. Presence of carbonate in soil was not detected in any of the soil sampling locations; whereas, bicarbonate and sulphate varied between 1.2-3.6 meq/l and 1.4-11.6 meq/l, respectively. Sodium Adsorption Ratio is a widely accepted index for characterizing soil sodicity, which describes the proportion of sodium to calcium and

magnesium in soil solution. Based on the concentration of Calcium, Magnesium and Sodium in soil, SAR has been calculated and found in range of 0.2 – 10.2. **(Table 16)**

In general, the soil in the region has low to very high adsorption capacity as evident from the cations exchange capacity to be in the range of 9.8-34.8 cmol(p+) kg-1. Amongst the exchangeable cations, Ca+2 and Mg+2 were observed in the range of 1.4-18.6 and 1.2-14.6 cmol (p+) kg-1 whereas sodium and potassium are in the range of 0.5-4.9 and 0.1-2.6 cmol(p+) kg-1 respectively.**(Table 17)**

The classification of soil and their relationship between productivity and absorptivity based on cations exchange capacity which indicates very low to moderate productivity and low to very high adsorptivity in the study area (**Tables 18).**

Exchangeable Sodium Percentage (ESP) is also an index that characterizes soil sodicity. Exchangeable sodium percentage ranged from 2.3 – 32.9% indicating that the soil in the study area is non-sodic to sodic in nature. Significantly, higher ESP is observed in sample RNT/II/ S1/ A and RNT/II/ S1/ B , which is near to monitoring well no. 1 at both the depth (1.5 ft and 3 ft.) **(Table 13)**

Organic carbon is present in the range of 0.1-1.8 % indicating the soil in the study area are poor to high in organic carbon content. Available nitrogen, phosphorus and potassium recorded in the concentration of 12.5-100.4 kg/ha, 12.5-100.4 kg/ha, and 12.951.7 kg/ha respectively signifies poor in terms of available Nitrogen and available potassium. Whereas soil is medium fertile to fertile in nature in terms of available phosphorous. **(Table 17).**

11.3.3 Mercury Analysis

Mercury concentration is estimated by Direct estimation of Hg by Direct Mercury Analyser 80 (USEPA, Method 7473), ICP-MS, Cold Vapour Atomic Absorption Spectroscopy and Atomic Fluorescent Spectrometer. Analysis on Direct Mercury Analyser 80 and on ICP-MS has been done in CSIR- NEERI laboratory and for Cold Vapour Atomic Absorption Spectroscopy digested samples has been sent to the BARC. Concentration of Mercury are presented in **Table 19.**

Table 15: Chemical Characteristics of Soil Extract

Sr. No.	Sample Code	Sampling Location	pH (1:2)	EC µs/cm	SAL ppt	Ca	Mg	Na	K	Cl	HCO_3^-	$SO4^{-2}$	SAR
						meq/l							
Top Soil sampling locations near secured land fill site													
1	RNT/1A	Near Secured Land Fill	7.6	0.4	0.3	1.8	0.6	1.0	0.2	1.6	3.6	7.6	1.0
2	RNT/1B	Near Secured Land Fill	7.5	0.5	0.2	0.4	1	0.9	0.1	1.3	2.4	7.5	0.9
3	RNT/2A	Near Secured Land Fill	7.7	0.4	0.3	0.4	0.8	1.6	0.1	2.7	1.6	7.6	1.2
4	RNT/2B	Near Secured Land Fill	8.1	0.6	0.1	0.2	0.2	3.5	0.1	4.8	1.2	8.1	1.9
Soil Profile sampling from different depths													
5	RNT/D/I/1	Drilling site- I. near secured land fill	8.1	0.6	0.2	2.2	0.4	0.5	0.2	5	2	8.8	0.4
6	RNT/D/I/2		9.1	0.5	0.2	0.6	0.4	0.9	0.4	4	2.8	2.4	1.3
7	RNT/D/I/3		12	1.9	0.9	1.4	1.2	0.7	0.2	8	2.8	4.0	0.6
8	RNT/D/I/4		10	0.6	0.3	0.6	0.8	2.5	1.1	3	2.4	10.4	3.0
9	RNT/D/II/1	Drilling site- II. near secured land fill	8.5	0.4	0.2	0.5	0.2	1.8	0.2	5	3.6	4.1	3.0
10	RNT/D/II/2		8.3	0.4	0.2	0.6	0.4	1.6	0.3	4	3.2	3.0	2.3
11	RNT/D/II/3		7.0	0.3	0.1	0.4	0.3	1.9	0.2	8	1.2	2.1	3.2
12	RNT/D/II/4		6.3	0.3	0.1	0.4	0.2	0.9	0.2	5	2	1.6	1.6
13	RNT/D/II/5		7	0.2	0.1	0.1	0.4	1.7	0.1	4	2.8	3.3	3.4
14	RNT/D/II/6		7.5	0.3	0.1	0.2	0.5	2.0	0.7	5	2.4	2.0	3.4
15	RNT/D/II/7		7.3	0.2	0.1	0.2	0.3	3.4	0.1	25	2.8	1.8	6.8
16	RNT/D/II/8		6.7	0.4	0.1	0.3	0.5	2.6	0.2	7	3.2	1.4	4.1
17	RNT/D/II/9		7.6	0.3	0.1	0.5	0.2	2.5	0.1	5	1.6	1.5	4.2
18	RNT/D/II/10		7.8	0.3	0.1	0.4	0.1	3.1	1.2	6	2	1.9	6.2
19	RNT/D/II/11		7.8	0.4	0.2	0.2	0.5	2.6	1.3	3	1.6	4.1	4.4
20	RNT/D/II/12		7.3	0.5	0.2	0.3	0.2	5.1	0.1	7	1.6	2.2	10.2
21	RNT/D/II/13		7.7	1.4	0.6	0.1	0.3	0.4	0.2	14	2	4.7	0.9
22	RNT/D/II/14		7.6	2.5	0.4	0.2	0.4	1.8	0.2	7	3.6	3.8	3.3

Table 16: Cation Exchange Capacity of Soil

Sr. No.	Sample Code	Sampling Location	Ca++	Mg++	Na+	K+	CEC	ESP
			Cmole(p^+) Kg^{-1}					
Top Soil sampling locations near secured land fill site								
1	**RNT/II/S1/A**	**Near Secured Land Fill**	5	8.6	4.7	0.1	14.4	32.8
2	**RNT/II/S1/B**	**Near Secured Land Fill**	3.4	4.8	4.9	0.2	15	32.9
3	**RNT/II/S2/A**	**Near Secured Land Fill**	17.2	6	0.8	0.1	34.8	2.3
4	**RNT/II/S1/A**	**Near Secured Land Fill**	18.6	8.2	1.1	0.1	22.7	5.0
Soil Profile sampling from different depths								
5	RNT/D/I/1	Drilling site- I. near secured land fill	12.8	1.2	0.5	0.1	15.8	2.5
6	RNT/D/I/2		5.2	5.8	1.4	0.5	13.2	10.8
7	RNT/D/I/3		6.4	14.6	0.8	0.5	12.4	6.3
8	RNT/D/I/4		6.8	5.2	1.2	0.1	11.7	10
9	RNT/D/II/1	Drilling site- II. near secured land fill	5.8	2	1.0	0.1	16.9	6.2
10	RNT/D/II/2		4.6	3.6	1.5	0.1	10.3	14.1
11	RNT/D/II/3		1.4	3	1.5	1.1	13.4	11.1
12	RNT/D/II/4		2.4	2.8	1.9	0.3	13.3	14.2
13	RNT/D/II/5		1.6	2.8	1.4	1.7	9.9	14.6
14	RNT/D/II/6		2.2	3.4	2.0	0.7	12.9	15.8
15	RNT/D/II/7		2	2.8	1.6	0.1	19.4	8.1
16	RNT/D/II/8		3	3.4	1.7	0.	22.2	7.4
17	RNT/D/II/9		3.2	2	1.5	2.6	26.2	5.9
18	RNT/D/II/10		3.	1.8	1.6	2.3	9.8	16.5
19	RNT/D/II/11		2.2	3.2	2.7	0.2	15.4	17.4
20	RNT/D/II/12		2.6	.3.8	2.8	1.3	15.7	17.8
21	RNT/D/II/13		4.6	3	4.3	0.6	13.2	32.5
22	RNT/D/II/14		3.2	2.6	4.7	1.8	19.8	24.0

Table 17: Fertility Status of Soil in Study Area

Sr. No.	Sample Code	Sampling Location	Organic Carbon (%)	Available N	Available P_2O_5 Kg/ha	Available K_2O
Top Soil sampling locations near secured land fill site						
1	**RNT/II/S1/A**	**Near Secured Land Fill**	1.8	62.7	97.7	40.9
2	**RNT/II/S1/B**	**Near Secured Land Fill**	0.6	100.4	79.9	27.8
3	**RNT/II/S2/A**	**Near Secured Land Fill**	2.7	100.4	86.0	51.7
4	**RNT/II/S1/A**	**Near Secured Land Fill**	1	75.3	42.5	38.9
Soil Profile sampling from different depths						
5	RNT/D/I/1	Drilling site- I. near secured land fill	0.2	37.6	196.8	35.2
6	RNT/D/I/2		0.7	100.4	126.7	22.2
7	RNT/D/I/3		0.6	75.3	136.5	30.1
8	RNT/D/I/4		1.8	25.1	152.4	18.8
9	RNT/D/II/1	Drilling site- II. near secured land fill	0.4	37.6	58.4	17.8
10	RNT/D/II/2		1.2	25.1	55.6	12.9
11	RNT/D/II/3		0.8	25.1	57.5	13.2
12	RNT/D/II/4		0.2	12.5	63.1	21.1
13	RNT/D/II/5		0.3	65.8	60.8	15.1
14	RNT/D/II/6		0.1	12.5	58.9	14.4
15	RNT/D/II/7		0.1	37.6	58.0	13.3
16	RNT/D/II/8		1.2	25.1	72.0	25.3
17	RNT/D/II/9		0.1	12.5	116.4	13.4
18	RNT/D/II/10		0.2	25.1	129.4	15.6
19	RNT/D/II/11		0.2	25.1	112.2	14.8
20	RNT/D/II/12		0.2	37.6	71.0	24.6
21	RNT/D/II/13		0.3	12.5	85.5	18.0
22	RNT/D/II/14		0.1	25.1	43.9	16.6
Level in poor soil			<0.5	>280	<23	<133
Level of medium soil			0.5-0.75	>280-560	23-57	133-337
Level of fertile soil			>0.75	>560	>57.0	>337.0

Table 18: Heavy Metals in Soil

Sr. No.	Sample Code	Sampling Location	As	Cu	Cr	Co	Cd	Mn	Pb	Ni
			mg/kg							
Top Soil sampling locations near secured land fill site										
1	**RNT/II/S1/A**	**Near Secured Land Fill**	0.8	10.7	28.2	7.9	ND	503.9	6.4	27.9
2	**RNT/II/S1/B**	**Near Secured Land Fill**	3.6	16.4	28.3	11.5	0.01	483.9	10.8	27.0
3	**RNT/II/S2/A**	**Near Secured Land Fill**	33.2	29.4	26.9	12.7	0.04	313.9	26.6	27.4
4	**RNT/II/S1/A**	**Near Secured Land Fill**	35.4	19.7	20.3	10.3	0.56	290.7	16.6	20.9
Soil Profile sampling from different depths										
5	RNT/D/I/1	Drilling site- I. near secured land fill	22.0	28.3	29.4	13.1	0.13	4.7.9	19.6	28.2
6	RNT/D/I/2		28.5	28.0	31.8	19.2	0.13	7.7.9	24.9	35.2
7	RNT/D/I/3		6.3	9.3	12.8	4.7	ND	184.7	6.5	22.9
8	RNT/D/I/4		21.6	30.4	21.6	15.0	0.05	699.9	14.1	25.6
9	RNT/D/II/1	Drilling site- II. near secured land fill	58.5	56.6	29.2	25.1	0.07	699.9	35.6	37.1
10	RNT/D/II/2		27.8	43.3	25.5	19.1	ND	419.9	22.2	31.2
11	RNT/D/II/3		ND	ND	24.2	ND	ND	463.9	5.40	2.4
12	RNT/D/II/4		21.5	22.2	20.6	14.5	ND	407.9	26.1	31.2
13	RNT/D/II/5		53.1	44.5	90.6	22.3	ND	579.9	98.4	62.0
14	RNT/D/II/6		16.1	15.8	16.4	11.5	ND	294.3	41.2	25.1
15	RNT/D/II/7		48.7	2.4	41.0	22.8	ND	503.9	33.4	52.0
16	RNT/D/II/8		13.2	24.4	19.2	15.0	ND	263.5	8.7	24.9
17	RNT/D/II/9		13.6	36.2	42.6	24.6	ND	423.9	17.0	47.6
18	RNT/D/II/10		11.2	5.5	25.2	19.5	0.14	651.9	26.4	36.2
19	RNT/D/II/11		11.8	3.0	20.9	14.1	0.17	415.9	15.0	28.1
20	RNT/D/II/12		17.2	12.7	24.3	17.5	0.20	595.9	14.9	31.9
21	RNT/D/II/13		10.1	8.2	16.5	9.8	0.11	301.9	12.3	18.4
22	RNT/D/II/14		20.5	9.6	22.5	16.8	0.17	663.9	25.8	29.7

Table 19: Heavy Metals (Mercury) in Soil

Sr. No.	Sample Code	Location Name	Mercury (mg/kg)
Top Soil sampling locations near secured land fill site			
1	**RNT/II/S1/A**	**Near Secured Land Fill (near monitoring well no.1)**	**1.0**
2	**RNT/II/S1/B**		**2.9**
3	**RNT/II/S2/A**	**Near Secured Land Fill, (near monitoring well no.2)**	**6.5**
4	**RNT/II/S2/B**		**5.6**
Soil Profile sampling from different depths			
5	RNT/D/I/1	Drilling site- I. near secured land fill	4.3
6	RNT/D/I/2		0.7
7	RNT/D/I/3		0.2
8	RNT/D/I/4		0.3
9	RNT/D/II/1	Drilling site- II. near secured land fill	1.7
10	RNT/D/II/2		1.4
11	RNT/D/II/3		0.2
12	RNT/D/II/4		0.1
13	RNT/D/II/5		0.2
14	RNT/D/II/6		0.2
15	RNT/D/II/7		0.1
16	RNT/D/II/8		0.08
17	RNT/D/II/9		0.09
18	RNT/D/II/10		0.06
19	RNT/D/II/11		0.01
20	RNT/D/II/12		0.09
21	RNT/D/II/13		0.04
22	RNT/D/II/14		0.01

12.0 Summary and Conclusion

The Chlor alkali plant of Grasim Industries at Renukoot, U.P was examined systematically by process, site survey and hydrogeological conditions of the site. It was observed that three Secured Landfill site (SLF) were capped and closed as per the prevailing CPCB guidelines. And also two secured landfill sites are in operation by filling non-hazardous waste sludges generated in the process. The three closed SLF were filled with the sludges containing Mercury (Hg), which was generated then the mercury cell, also known as Castener-Kellner process was on use. Three were 12 ground water monitoring wells are existing around the SLF and in the entire plant premises. To assess the lateral or vertical contamination of ground water and soil, ground water samples were collected from all these 12 monitoring wells, two surface waters from the existing Rehan Reservoir and 7 ground water samples were collected from the well exiting in three kilometers radius around the industry. These samples were analyzed for physico-chemical and biological characteristics, total 24 parameters including heavy metals.

Twelve samples were collected from monitoring wells around the SLF site of Grasim Industries in summer season May 2019. Their physico-chemical characteristics are observed as; pH: 6.3-7.8, turbidity: 2-496 NTU, total dissolved solids: 160-9508 mg/l, chlorides: 42-5341 mg/l, sulphate: 8-158 mg/l, total alkalinity: 58-224 mg/l, total hardness: 90-1508 mg/l and sodium: 183418 mg/l. Nutrients as nitrate-NO_3 and Phosphates were found to be 0.12-7.35 and 0.59-5.58 mg/l respectively. Oil & grease and Fluoride was found to be ND-1.46 and 0.10-0.43 mg/l respectively. The concentration of heavy metals was in the range of Arsenic: ND-0.894 mg/l, Cadmium: ND-0.015, Cobalt: ND-0.024 mg/l, Chromium: ND-0.022 mg/l, Copper: ND-0.115 mg/l, Iron: ND10.145 mg/l, Manganese: ND-2.492 mg/l, Molybdenum: ND-0.032 mg/l, Nickel: ND-0.033 mg/l, Lead: ND-0.316 mg/l, Selenium: ND-0.016 mg/l, Vanadium: ND-0.060 mg/l, Zinc: ND-0.227 mg/l and Mercury: ND-0.003 mg/l.

Ground water samples were collected from one dug well, one bore well and five hand pumps from different villages within study area in summer season May 2019. The range in various parameters were observed as; pH: 7.3-9.9, turbidity: 3-255 NTU, total dissolved solids: 246-526 mg/l, total alkalinity: 88-300 mg/l, total hardness: 80-346 mg/l and chlorides: 34-155 mg/l. Nitrate as NO_3 and total phosphates were 0.28-6.87 mg/l and 0.79-2.42 mg/l respectively. Oil & grease and Fluoride were between 0.001-1.21 and 0.15-0.65 mg/l respectively. Heavy metals were found in the range of Arsenic: ND-0.090 mg/l, Cadmium: ND-0.002 mg/l, Cobalt: ND-0.001 mg/l, Chromium: ND-0.007 mg/l, Copper: ND-0.047 mg/l, Iron: ND-20.982 mg/l, Manganese: 0.017-0.619 mg/l, Molybdenum: ND-0.136 mg/l, Nickel: ND-0.006 mg/l, Selenium: ND-0.102 mg/l, Vanadium: ND0.026 mg/l, Zinc: ND-20.672 mg/l and Mercury: ND-0.005 mg/l; and Lead was found to be not detectable.

Results indicated that all the ground water samples from the monitoring wells are turbid, high TDS, Chlorides, hardness, Arsenic (3 samples), Cadmium (only in RNT/11/11), Iron, Nickel (only two samples), Lead (in five samples) and Mercury (only in two samples) are above acceptable limits as per the drinking water standards, IS 10500: 2012. The ground water samples collected around the Industry are also having high turbidity, pH (RTN/11/12), TDS (RTN/11/5), alkalinity (RTN/11/3), hardness (RTN/11/3,11/5), Arsenic, Iron, Manganese, Zinc (RTN/11/21) and Mercury (RTN/11/4). Other parameters are within the acceptable limits.

To reconfirm the ground water quality parameters, a new bore was drilled near to the SLF site and the ground water was obtained at a depth of 105 feet. The ground water sample was collected from this newly drilled bore and analyzed for all the 24 parameters mentioned above. The results showed little bit higher values due to the soil contamination during the drilling. However, the mercury concentration in the ground water is not exceeding the acceptable limits.

From the results it is clear that the mercury containing waste disposed in SLF are stabilized and there is no evidence for leaching of metals especially mercury from this SLF. As far as the hydro-geology of the site is concerned, Geologically the study area including Grasim Industries Limited, Renukoot is located in the southern part of Sonebhadra District; U.P. Geologically the study area is comprised of Precambrian rocks of central India belonging to Mahakoshal Group and Chotanagpur Granite Gneiss Complex (CGGC). The Mahakoshal Group is represented chiefly by slate and phyllites while the CGGC is formed of granites and gneisses with subordinated schists. This clearly indicates that the rock present in this site is very hard rock and have no permeability.

According to the Central Ground Water Board (CGWB), Govt. of Inida, ground water is mainly controlled by drainage, topography and lithological behaviour, it occurs under phreatic condition at shallow depths and fractures & granular zones under at deeper depths. Depth to water in Pre-monsoon ranges between 4.00 to 22.00 mbgl. Post-monsoon water level varies between 2.10 to 20.50 mbgl. Water level fluctuation is minimum in Ghorawal and maximum in Chatrah block. After the study of long term water level trend, it is inferred that the well show the decline trend during pre-monsoon period. Near the SLF site a bore was drilled and found that the ground water table is at around 30 mbgl. Based on these site conditions and the ground water quality data clearly indicates that no contamination due to this SLF situated in the Grasim Industrial premises.

In general, the soil in the region has low to very high adsorption capacity as evident from the cations exchange capacity to be in the range of 9.8-34.8 cmol(p+) kg-1. Amongst the exchangeable cations, Ca+2 and Mg+2 were observed in the range of 1.4-18.6 and 1.2-14.6 cmol (p+) kg-1 whereas sodium and potassium are in the range of 0.5-4.9 and 0.1-2.6 cmol(p+) kg-1 respectively. The classification of soil and their

Annexure

Annexure I

भारतीय मानक

पीने का पानी — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

DRINKING WATER — SPECIFICATION

(Second Revision)

ICS 13.060.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 2012

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TO
IS 10500 : 2012 DRINKING WATER — SPECIFICATION

(Second Revision)

[*Page* 2, *Table* 2, *Sl No.* xii), *col* 3] — Substitute '1.0' *for* '0.3'.

[*Page* 3, *Table* 3, *Sl No.* x) , *col* 4] — Substitute 'No relaxation' *for* '0.05'.

(FAD 14)

Publication Unit, BIS, New Delhi, India

1219

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Drinking Water Sectional Committee had been approved by the Food and Agriculture Division Council.

This standard was originally published in 1983. A report prepared by the World Health Organization in cooperation with the World Bank showed that in 1975, some 1 230 million people were without safe water supplies. These appalling facts were central to the United Nations decision to declare an International Drinking Water Supply and Sanitation decade, beginning in 1981. Further, the VI Five-Year Plan of India had made a special provision for availability of safe drinking water for the masses. Therefore, the standard was formulated with the objective of assessing the quality of water resources, and to check the effectiveness of water treatment and supply by the concerned authorities.

The first revision was undertaken to take into account the up-to-date information available about the nature and effect of various contaminants as also the new techniques for identifying and determining their concentration. Based on experience gained additional requirements for alkalinity; aluminium and boron were incorporated and the permissible limits for dissolved solids, nitrate and pesticides residues modified.

As per the eleventh five year plan document of India (2007-12), there are about 2.17 lakh quality affected habitations in the country with more than half affected with excess iron, followed by fluoride, salinity, nitrate and arsenic in that order. Further, approximately, 10 million cases of diarrhoea, more than 7.2 lakh typhoid cases and 1.5 lakh viral hepatitis cases occur every year a majority of which are contributed by unclean water supply and poor sanitation. The eleventh five year plan document of India (2007-2012) recognizes dealing with the issue of water quality as a major challenge and aims at addressing water quality problems in all quality affected habitations with emphasis on community participation and awareness campaigns as well as on top most priority to water quality surveillance and monitoring by setting up of water quality testing laboratories strengthened with qualified manpower, equipments and chemicals.

The second revision was undertaken to upgrade the requirements of the standard and align with the internationally available specifications on drinking water. In this revision assistance has been derived from the following:

a) EU Directives relating to the quality of water intended for human consumption (80/778/EEC) and Council Directive 98/83/EC.

b) USEPA standard — National Primary Drinking Water Standard. EPA 816-F-02-013 dated July, 2002.

c) WHO Guidelines for Drinking Water Quality. 3rd Edition Vol. 1 Recommendations, 2008.

d) Manual on Water Supply and Treatment, third edition — revised and updated May 1999, Ministry of Urban Development, New Delhi.

This standard specifies the acceptable limits and the permissible limits in the absence of alternate source. It is recommended that the acceptable limit is to be implemented as values in excess of those mentioned under 'Acceptable' render the water not suitable. Such a value may, however, be tolerated in the absence of an alternative source. However, if the value exceeds the limits indicated under 'permissible limit in the absence of alternate source' in col 4 of Tables 1 to 4, the sources will have to be rejected.

Pesticide residues limits and test methods given in Table 5 are based on consumption pattern, persistence and available manufacturing data. The limits have been specified based on WHO guidelines, wherever available. In cases where WHO guidelines are not available, the standards available from other countries have been examined and incorporated, taking in view the Indian conditions.

In this revision, additional requirements for ammonia, chloramines, barium, molybdenum, silver, sulphide, nickel, polychlorinated biphenyls and trihalomethanes have been incorporated while the requirements for colour, turbidity, total hardness, free residual chlorine, iron, magnesium, mineral oil, boron, cadmium, total arsenic, lead, polynuclear aromatic hydrocarbons, pesticides and bacteriological requirements have been modified.

In this revision, requirement and test method for virological examination have been included. Further, requirements and test methods for cryptosporidium and giardia have also been specified.

Routine surveillance of drinking water supplies should be carried out by the relevant authorities to understand the risk of specific pathogens and to define proper control procedures. The WHO Guidelines for Drinking Water Quality, 3rd Edition, Vol. 1 may be referred for specific recommendations on using a water safety approach incorporating risk identification. Precautions/Care should be taken to prevent contamination of drinking water from chlorine resistant parasites such as cryptosporidium species and giardia.

Indian Standard

DRINKING WATER — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for drinking water.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard the following definition shall apply.

3.1 Drinking Water — Drinking water is water intended for human consumption for drinking and cooking purposes from any source. It includes water (treated or untreated) supplied by any means for human consumption.

4 REQUIREMENTS

Drinking water shall comply with the requirements given in Tables 1 to 4. The analysis of pesticide residues given in Table 3 shall be conducted by a recognized laboratory using internationally established test method meeting the residue limits as given in Table 5.

Drinking water shall also comply with bacteriological requirements (*see* **4.1**), virological requirements (*see* **4.2**) and biological requirements (*see* **4.3**).

4.1 Bacteriological Requirements

4.1.1 *Water in Distribution System*

Ideally, all samples taken from the distribution system including consumers' premises, should be free from coliform organisms and the following bacteriological quality of drinking water collected in the distribution system, as given in Table 6 is, therefore specified when tested in accordance with IS 1622.

4.2 Virological Requirements

4.2.1 Ideally, all samples taken from the distribution

Table 1 Organoleptic and Physical Parameters
(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, *Max*	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	*p*H value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, *Max*	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, *Max*	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, *Max*	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, *Max*	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, *Max*	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, *Max*	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, *Max*	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, *Max*	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl_2), mg/l, *Max*	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, *Max*	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, *Max*	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, *Max*	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, *Min*	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l
xii)	Iron (as Fe), mg/l, *Max*	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, *Max*	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, *Max*	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, *Max*	0.5	No relaxation	Clause **6** of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO_3), mg/l, *Max*	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C_6H_5OH), mg/l, *Max*	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, *Max*	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO_4) mg/l, *Max*	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H_2S), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, *Max*	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as $CaCO_3$), mg/l, *Max*	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, *Max*	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 3 Parameters Concerning Toxic Substances

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Cadmium (as Cd), mg/l, *Max*	0.003	No relaxation	IS 3025 (Part 41)	—
ii)	Cyanide (as CN), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 27)	—
iii)	Lead (as Pb), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 47)	—
iv)	Mercury (as Hg), mg/l, *Max*	0.001	No relaxation	IS 3025 (Part 48)/ Mercury analyser	—
v)	Molybdenum (as Mo), mg/l, *Max*	0.07	No relaxation	IS 3025 (Part 2)	—
vi)	Nickel (as Ni), mg/l, *Max*	0.02	No relaxation	IS 3025 (Part 54)	—
vii)	Pesticides, µg/l, *Max*	See Table 5	No relaxation	See Table 5	—
viii)	Polychlorinated biphenyls, mg/l, *Max*	0.000 5	No relaxation	ASTM 5175*	— or APHA 6630
ix)	Polynuclear aromatic hydrocarbons (as PAH), mg/l, *Max*	0.000 1	No relaxation	APHA 6440	—
x)	Total arsenic (as As), mg/l, *Max*	0.01	0.05	IS 3025 (Part 37)	—
xi)	Total chromium (as Cr), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 52)	—
xii)	Trihalomethanes:				
	a) Bromoform, mg/l, *Max*	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
	b) Dibromochloromethane, mg/l, *Max*	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
	c) Bromodichloromethane, mg/l, *Max*	0.06	No relaxation	ASTM D 3973-85* or APHA 6232	—
	d) Chloroform, mg/l, *Max*	0.2	No relaxation	ASTM D 3973-85* or APHA 6232	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 4 Parameters Concerning Radioactive Substances

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 14194	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Radioactive materials:				
	a) Alpha emitters Bq/l, *Max*	0.1	No relaxation	Part 2	—
	b) Beta emitters Bq/l, *Max*	1.0	No relaxation	Part 1	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 5 Pesticide Residues Limits and Test Method

(*Foreword* and *Table* 3)

Sl No.	Pesticide	Limit µg/l	Method of Test, Ref to	
			USEPA	AOAC/ ISO
(1)	(2)	(3)	(4)	(5)
i)	Alachlor	20	525.2, 507	—
ii)	Atrazine	2	525.2, 8141 A	—
iii)	Aldrin/ Dieldrin	0.03	508	—
iv)	Alpha HCH	0.01	508	—
v)	Beta HCH	0.04	508	—
vi)	Butachlor	125	525.2, 8141 A	—
vii)	Chlorpyriphos	30	525.2, 8141 A	—
viii)	Delta HCH	0.04	508	—
ix)	2,4- Dichlorophenoxyacetic acid	30	515.1	—
x)	DDT (*o, p* and *p, p* – Isomers of DDT, DDE and DDD)	1.	508	AOAC 990.06
xi)	Endosulfan (alpha, beta, and sulphate)	0.4	508	AOAC 990.06
xii)	Ethion	3	1657 A	—
xiii)	Gamma — HCH (Lindane)	2	508	AOAC 990.06
xiv)	Isoproturon	9	532	—
xv)	Malathion	190	8141 A	—
xvi)	Methyl parathion	0.3	8141 A	ISO 10695
xvii)	Monocrotophos	1	8141 A	—
xviii)	Phorate	2	8141 A	—

NOTE — Test methods are for guidance and reference for testing laboratory. In case of two methods, USEPA method shall be the reference method.

Table 6 Bacteriological Quality of Drinking Water[1)]

(*Clause* 4.1.1)

Sl No.	Organisms	Requirements
(1)	(2)	(3)
i)	*All water intended for drinking*:	
	a) *E. coli* or thermotolerant coliform bacteria[2), 5)]	Shall not be detectable in any 100 ml sample
ii)	*Treated water entering the distribution system*:	
	a) *E. coli* or thermotolerant coliform bacteria[2)]	Shall not be detectable in any 100 ml sample
	b) Total coliform bacteria	Shall not be detectable in any 100 ml sample
iii)	*Treated water in the distribution system*:	
	a) *E. coli* or thermotolerant coliform bacteria	Shall not be detectable in any 100 ml sample
	b) Total coliform bacteria	Shall not be detectable in any 100 ml sample

[1)]Immediate investigative action shall be taken if either *E.coli* or total coliform bacteria are detected. The minimum action in the case of total coliform bacteria is repeat sampling; if these bacteria are detected in the repeat sample, the cause shall be determined by immediate further investigation.

[2)]Although, *E. coli* is the more precise indicator of faecal pollution, the count of thermotolerant coliform bacteria is an acceptable alternative. If necessary, proper confirmatory tests shall be carried out. Total coliform bacteria are not acceptable indicators of the sanitary quality of rural water supplies, particularly in tropical areas where many bacteria of no sanitary significance occur in almost all untreated supplies.

[3)]It is recognized that, in the great majority of rural water supplies in developing countries, faecal contamination is widespread. Under these conditions, the national surveillance agency should set medium-term targets for progressive improvement of water supplies.

system including consumers' premises, should be free from virus.

4.2.2 None of the generally accepted sewage treatment methods yield virus-free effluent. Although a number of investigators have found activated sludge treatment to be superior to trickling filters from this point of view, it seems possible that chemical precipitation methods will prove to be the most effective.

4.2.3 Virus can be isolated from raw water and from springs, enterovirus, reovirus, and adenovirus have been found in water, the first named being the most resistant to chlorination. If enterovirus are absent from chlorinated water, it can be assumed that the water is safe to drink. Some uncertainty still remains about the virus of infectious hepatitis, since it has not so far been isolated but in view of the morphology and resistance of enterovirus it is likely that, if they have been inactivated hepatitis virus will have been inactivated also.

4.2.4 An exponential relationship exists between the rate of virus inactivation and the redox potential. A redox potential of 650 mV (measured between platinum and calomel electrodes) will cause almost instantaneous inactivation of even high concentrations of virus. Such a potential can be obtained with even a low concentration of free chlorine, but only with an extremely high concentration of combined chlorine. This oxidative inactivation may be achieved with a number of other oxidants also, for example, iodine, ozone and potassium permanganate, but the effect of the oxidants will always be counteracted, if reducing components, which are mainly organic, are present. As a consequence, the sensitivity of virus towards disinfectants will depend on the *milieu* just as much as on the particular disinfectant used.

4.2.5 Viruses are generally resistant to disinfectants as well as get protected on account of presence of particulate and organic matter in water. Because the difference between the resistance of coliform organisms and of virus to disinfection by oxidants increases with increasing concentration of reducing components, for example, organic matter, it cannot be assumed that the absence of available coliform organisms implies freedom from active virus under circumstances where a free chlorine residual cannot be maintained. Sedimentation and slow sand filtration in themselves may contribute to the removal of virus from water.

4.2.6 In practice, >0.5 mg/l of free chlorine for 1 h is sufficient to inactivate virus, even in water that was originally polluted provided the water is free from particulates and organic matter.

4.2.7 MS2 phage are indicator of viral contamination in drinking water. MS2 phage shall be absent in 1 litre of water when tested in accordance with USEPA method 1602. If MS2 phage are detected in the drinking water, virological examination shall be done by the Polymerase Chain Reaction (PCR) method for virological examination as given in Annex B. USEPA method in Manual of Method for Virology Chapter 16, June 2001 shall be the alternate method. If viruses are detected, the cause shall be determined by immediate further investigation.

4.3 Biological Requirements

4.3.1 Ideally, all samples taken including consumers premises should be free from biological organisms. Biological examination is of value in determining the causes of objectionable tastes and odours in water and controlling remedial treatments, in helping to interpret the results of various chemical analysis, and in explaining the causes of clogging in distribution pipes and filters. In some instances, it may be of use in demonstrating that water from one source has been mixed with that from another.

4.3.2 The biological qualities of water are of greater importance when the supply has not undergone the conventional flocculation and filtration processes, since increased growth of methane-utilizing bacteria on biological slimes in pipes may then be expected, and the development of bryozoal growths such as *Plumatella* may cause operational difficulties.

4.3.3 Some of the animalcules found in water mains may be free-living in the water, but others such as *Dreissena* and *Asellus* are more or less firmly attached to the inside of the mains. Although these animalcules are not themselves pathogenic, they may harbour pathogenic organisms or virus in their intestines, thus protecting these pathogens from destruction by chlorine.

4.3.4 Chlorination, at the dosages normally employed in waterworks, is ineffective against certain parasites, including amoebic cysts; they can be excluded only by effective filtration or by higher chlorine doses than can be tolerated without subsequent dechlorination. *Amoebiasis* can be conveyed by water completely free from enteric bacteria; microscopic examination after concentration is, therefore, the only safe method of identification.

4.3.5 Strict precautions against back-syphonage and cross-connections are required, if amoebic cysts are found in a distribution system containing tested water.

4.3.6 The *cercariae of schistosomiasis* can be detected by similar microscopic examination, but there is, in

any case, no evidence to suggest that this disease is normally spread through piped water supplies.

4.3.7 The cyclops vector of the embryos of *Dracunculus medinensis* which causes dracontiasis or Guinea-worm disease can be found in open wells in a number of tropical areas. They are identifiable by microscopic examination. Such well supplies are frequently used untreated, but the parasite can be relatively easily excluded by simple physical improvements in the form of curbs, drainage, and apron surrounds and other measures which prevent physical contact with the water source.

4.3.8 Cryptosporidium shall be absent in 10 liter of water when tested in accordance with USEPA method 1622 or USEPA method 1623* or ISO 15553 : 2006.

4.3.9 Giardia shall be absent in 10 liter of water when tested in accordance with USEPA method 1623* or ISO 15553 : 2006.

4.3.10 The drinking water shall be free from microscopic organisms such as algae, zooplanktons, flagellates, parasites and toxin producing organisms. An illustrative (and not exhaustive) list is given in Annex C for guidance.

NOTE — In case of dispute, the method indicated by '*' in **4.3.8** and **4.3.9** shall be referee method.

5 SAMPLING

Representative samples of water shall be drawn as prescribed in IS 1622 and IS 3025 (Part 1).

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
1622 : 1981	Methods of sampling and microbiological examination of water (*first revision*)
3025	Methods of sampling and test (physical and chemical) for water and waste water:
(Part 1) : 1987	Sampling (*first revision*)
(Part 2) : 2002	Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy
(Part 4) : 1983	Colour (*first revision*)
(Part 5) : 1983	Odour (*first revision*)
(Part 7) : 1984	Taste threshold (*first revision*)
(Part 8) : 1984	Tasting rate (*first revision*)
(Part 10) : 1984	Turbidity (*first revision*)
(Part 11) : 1983	*p*H value (*first revision*)
(Part 16) : 1984	Filterable residue (total dissolved solids) (*first revision*)
(Part 21) : 1983	Total hardness (*first revision*)
(Part 23) : 1983	Alkalinity (*first revision*)
(Part 24) : 1986	Sulphates (*first revision*)
(Part 26) : 1986	Chlorine residual (*first revision*)
(Part 27) : 1986	Cyanide (*first revision*)
(Part 29) : 1986	Sulphide (*first revision*)
(Part 32) : 1988	Chloride (*first revision*)
(Part 34) : 1988	Nitrogen (*first revision*)
(Part 37) : 1988	Arsenic (*first revision*)
(Part 39) : 1989	Oil and grease
(Part 40) : 1991	Calcium
(Part 41) : 1992	Cadmium (*first revision*)
(Part 42) : 1992	Copper (*first revision*)
(Part 43) : 1992	Phenols (*first revision*)
(Part 46) : 1994	Magnesium
(Part 47) : 1994	Lead
(Part 48) : 1994	Mercury
(Part 49) : 1994	Zinc
(Part 52) : 2003	Chromium
(Part 53) : 2003	Iron
(Part 54) : 2003	Nickel
(Part 55) : 2003	Aluminium
(Part 56) : 2003	Selenium
(Part 57) : 2005	Boron
(Part 59) : 2006	Manganese
(Part 60) : 2008	Fluoride
13428 : 2003	Packaged natural mineral water — Specification (*first revision*)
14194	Radionuclides in environmental samples — Method of estimation:
(Part 1) : 1994	Gross beta activity measurement
(Part 2) : 1994	Gross alpha activity measurement
15302 : 2002	Determination of aluminium and barium in water by direct nitrous oxide-acetylene flame atomic absorption spectrometry
15303 : 2002	Determination of antimony, iron and selenium in water by electrothermal atomic absorption spectrometry

ANNEX B

(*Clause* 4.2.7)

POLYMERASE CHAIN REACTION (PCR) METHOD

B-1 GENERAL

The method involves the concentration of viruses from 100 litre of drinking water to 1 ml by membrane filter technique. The concentrate is subjected to amplification using polymerase chain reaction (PCR) and primers based on highly conserved regions of viral genomes. This method can detect as low as 10 genome copies. Stringent precautions are needed to avoid contamination with amplified DNA products leading to false positive reactions. Detection of hepatitis A virus (HAV) RNA and enterovirus (EV) RNA is considered as an indication of presence of viruses in water. Steps involved include concentration of water, RNA extraction, complementary DNA (cDNA) synthesis and PCR.

B-2 CONCENTRATION OF DRINKING WATER

B-2.1 Apparatus

B-2.1.1 *Pressure Pump*

B-2.1.2 *Membrane Filter Assembly with 144 mm Diameter with Tripod Stand*

B-2.1.3 *Pressure Vessel (50 litre capacity) with Pressure Gauge*

B-2.1.4 *Inter-connecting Pressure Tubes*

B-2.2 Reagents

Autoclaved double distilled water shall be used for the preparation of reagents/buffers in this study.

B-2.2.1 *Aluminium Chloride*

B-2.2.2 *HCl/NaOH Urea (Extra Pure)*

B-2.2.3 *Disodium Hydrogen Phosphate* ($Na_2HPO_4.2H_2O$) — 0.2 M, filter sterilized.

B-2.2.4 *Sodium Dihydrogen Phosphate* ($NaH_2PO_4.2H_2O$) — 0.2 M, filter sterilized.

B-2.2.5 *Citric Acid* — 0.1 M, filter sterilized.

B-2.2.6 *L-Arginine* — 0.5 M, filter sterilized.

B-2.2.7 *Urea-Arginine Phosphate Buffer (U-APB)* — Mix 4.5 g of urea with 2 ml of 0.2 M NaH_2PO_4 and 2 ml of 0.5 M L - Arginine and make up the volume to 50 ml with sterile distilled water. The *p*H of the eluent shall be 9.0.

B-2.2.8 *Magnesium Chloride* ($MgCl_2$) — 1 M.

B-2.2.9 *McII Vaines Buffer* (*p*H *5.0*) — Mix 9.7 ml of 0.1 M citric acid with 10.3 ml of 0.2 M $Na_2HPO_4.2H_2O$ under sterile conditions.

B-2.3 Procedure

Filter 100 litre of drinking water sample through membrane filter assembly using either positively charged membrane of 144 mm diameter or 0.22 micron diameter pore size nitrocellulose membrane. For positively charged membrane the test water *p*H need not be adjusted. But for the 0.22 micron nitrocellulose membrane adjust the *p*H to 3.5 after adding the aluminium chloride as a coagulant to a final concentration of 0.000 5 M.

At lower *p*H pass the water through the membrane. The flow rate shall be 40 litre/h approximately. After the completion of the filtration, elute the adsorbed particles using 100 ml of urea-arginine phosphate buffer (U-APB). Precipitate the suspended particles using 1 ml of magnesium chloride (1 M). Dissolve the resultant precipitate centrifuged out of the sample in 800-1.0 ml of McII vaines buffer. The processed sample can be stored at refrigerator until required.

B-3 RNA EXTRACTION

B-3.1 Apparatus

B-3.1.1 *Cooling Centrifuge*

B-3.1.2 *Deep Freezer (–20°C)*

B-3.1.3 *Vortex Mixer*

B-3.1.4 *Pipette Man*

B-3.2 Reagents

B-3.2.1 *Cetyl Trimethyl Ammonium Bromide (CTAB) Buffer*

CTAB	:	1 percent
Sodium Dodecyl Sulphate (SDS)	:	1 percent
EDTA	:	20 mM
Sodium Chloride	:	1 M

B-3.2.2 *Phenol, Chloroform and Isoamylalcohol in the ratio of 25:24:1 (PCI)*

B-3.2.3 *Ethanol*

B-3.2.4 *TE Buffer* (*p*H *8.0*)

Tris base	:	1 M
EDTA	:	0.5 M

B-3.2.5 *Sodium Acetate* — 3 M.

B-3.3 Procedure

Treat 300 µl of concentrated water sample with equal volume of CTAB and 1/10th volume of PCI. Vortex and centrifuge at 5 000 × g for 30 min at 4°C. Add 1/10th volume of 3 M sodium acetate and double the volume of cold ethanol to the aqueous layer. Keep the mixture at either at –20°C for overnight or in liquid nitrogen for 2-5 min. Centrifuge at 10 000 × g, for 30 min at 4°C. Discard the supernatant and air dry the pellet and dissolve it in 20 µl TE buffer.

B-4 COMPLEMENTARY DNA (c DNA) SYNTHESIS

B-4.1 Apparatus

B-4.1.1 *PCR Machine*

B-4.1.2 *Deep Freezer (–20°C)*

B-4.2 Reagents

B-4.2.1 *cDNA Synthesis Kit*

B-4.3 Procedure

Suspend the extracted RNA in 20 µl of cDNA reaction mixture, which consists of 4 µl of 5X reverse transcriptase reaction buffer [250 mM TRIS–HCl (*p*H 8.5), 40 mM KCl, 150 mM $MgCl_2$, 5 mM dithiothreitol (DTT)], 0.5 µl of 10 mM deoxynucleotide phosphate (dNTP), 2 µl of hexa nucleotide mixture, 1 µl of 25 U of Maloney Murine Leukaemia Virus (M-MuLV) reverse transcriptase, 0.5 µl of 20 U of human placental RNase inhibitor. Heat the reaction mixture to 95°C for 5 min and rapidly chill on ice, this is followed by the addition of 1 µl (25 U/µl) of M-MuLV reverse transcriptase. Incubate the reaction mixture as given by the manufacturer of the kit and quickly chill the reaction tube on ice.

B-5 PCR AMPLIFICATION

B-5.1 Apparatus

B-5.1.1 *PCR Machine*

B-5.1.2 *Deep Freezer (–20°C)*

B-5.1.3 *Micropippette*

B-5.2 Reagents

B-5.2.1 *Primers for EV and HAV*

EV sense primer, 5' — TCC TCC GGC CCC TGA ATG CG — 3'

antisense primer, 5' — ATT GTC ACC ATA AGC AGC CA — 3'

HAV sense primer, 5' — GTTTT GCTCC TCTTT ATCAT GCTAT G-3'

antisense primer, 5' — GGAAA TGTCT CAGGT ACTTT CTTTG-3'

B-5.2.2 *PCR Master Mix*

B-5.2.3 *Mineral Oil*

B-5.3 Procedure

B-5.3.1 *PCR Amplification for Hepatitis A Virus (HAV)*

In 5 µl of cDNA, add 95 µl of a PCR Master Mix (10 mM TRIS–HCl (*p*H 8.3), 50 mM KCl, 2.5 mM $MgCl_2$, 0.01 percent gelatin (1× PCR buffer), 200 µM of each dNTP, 1.5 U of *Thermus aquaticus* polymerase). Add 25 pico moles of sense and antisense oligonucleotide primers of HAV and overlay with mineral oil. Appropriate positive and negative controls shall be included with each run. Set the following reaction at thermo cycler:

Denaturation at 94°C for 2 min

Denaturation for	1.0 min	at 94°C	} 35 cycles
Annealing for	1.0 min	at 57°C	
Extension for	1.3 min	at 72°C	

Final extension at 72°C for 7 min.

B-5.3.2 *PCR Amplification for Enterovirus (EV)*

In 5 µl of cDNA, add 95 µl of a PCR Master Mix (10 mM TRIS–HCl (*p*H 8.3), 50 mM KCl, 2.5 mM $MgCl_2$, 0.01 percent gelatin (1X PCR buffer), 200 µM of each dNTP, 1.5 U of *Thermus aquaticus* polymerase). Add 25 pico moles of sense and antisense oligonucleotide primers of EV and overlay with mineral oil. Appropriate positive and negative controls shall be included with each run. Set the following reaction at thermo cycler:

Denaturation at 94°C for 2 min

Denaturation for	1.0 min	at 94°C	} 35 cycles
Annealing for	1.0 min	at 42°C	
Extension for	2.0 min	at 72°C	

Final extension at 72°C for 7 min.

B-6 AGAROSE GEL ELECTROPHORESIS

B-6.1 Apparatus

B-6.1.1 *Micropippette*

B-6.1.2 *Electrophoresis Apparatus*

B-6.1.3 *Gel Documentation System*

B-6.2 Reagents

B-6.2.1 *Running Buffer* — 50X TAE buffer

Tris base/Tris buffer : 121.00 g

Glacial acetic acid	:	28.55 ml
0.5 M EDTA	:	50 .00 ml
Distilled water (autoclaved)	:	300.45 ml

Make the final volume upto 1 000 ml with deionised distilled water, sterilize and store at 4°C. The final concentration for the preparation of agarose gel and to run the gel shall be 1X.

B-6.2.2 *Tracking Dye* — 6X bromophenol blue.

B-6.2.3 *Ethidium Bromide* — 0.5 µg/ml.

B-6.3 Procedure

Run the PCR amplified product of EV and HAV on 1.5 percent agarose gel using 1X TAE buffer. Load 10 µl of amplified product after mixing it with 1 µl 10X loading dye. Run the molecular weight marker along with the samples. Run the electrophoresis at 100 V for 30 min. Stain the gel with ethidium bromide (0.5 µl/ml) for 20 min. Wash it with distilled water and view under UV transilluminator and photograph the gel to analyse the band pattern. EV gives the band as 155 base pair and the HAV gives band as 225 base pair.

ANNEX C

(*Clause* 4.3.10)

ILLUSTRATIVE LIST OF MICROSCOPIC ORGANISMS PRESENT IN WATER

Sl No.	*Classification of Microscopic Organism*	*Group and Name of the Organism*	*Habitat*	*Effect of the Organisms and Significance*
(1)	(2)	(3)	(4)	(5)
	i) Algae	a) Chlorophyceae:		
		1) *Species of* Coelastrum, Gomphospherium, Micractinium, Mougeotia, Oocystis, Euastrum, Scenedesmus, Actinastrum, Gonium, Eudorina Pandorina, Pediastrum, Zygnema, Chlamydomonas, Careteria, Chlorella, Chroococcus, Spirogyra, Tetraedron, Chlorogonium, Stigeoclonium	Polluted water, impounded sources	Impart colouration
		2) *Species of* Pandorina, Volvox, Gomphospherium, Staurastrum, Hydrodictyon, Nitella	Polluted waters	Produce taste and odour
		3) *Species of* Rhizoclonium, Cladothrix, Ankistrodesmus, Ulothrix, Micrasterias, Chromulina	Clean water	Indicate clean condition
		4) *Species of* Chlorella, Tribonema, Clostrium, Spirogyra, Palmella	Polluted waters, impounded sources	Clog filters and create impounded difficulties
		b) Cyanophyceae:		
		1) *Species of* Anacystis and Cylindrospermum	Polluted waters	Cause water bloom and impart colour
		2) *Species of* Anabena, Phormidium, Lyngbya, Arthrospira, Oscillatona	Polluted waters	Impart colour
		3) *Species of* Anabena, Anacystis, Aphanizomenon	Polluted waters, impounded sources	Produce taste and odour
		4) *Species of* Anacystis, Anabena, Coelospherium, Cleotrichina, Aphanizomenon	Polluted waters	Toxin producing
		5) *Species of* Anacystis, Rivularia, Oscillatoria, Anabena	Polluted waters	Clog filters

Sl No. (1)	Classification of Microscopic Organism (2)	Group and Name of the Organism (3)	Habitat (4)	Effect of the Organisms and Significance (5)
		6) *Species of* Rivularia	Calcareous waters and also rocks	Bores rocks and calcareous strata and causes matted growth
		7) *Species of* Agmenellum, Microcoleus, Lemanea	Clean waters	Indicators of purification
		c) Diatoms (Bacillareophyceae):		
		1) *Species of* Fragillaria, Stephanodiscus, Stauroneis	—	Cause discoloration
		2) *Species of* Asterionella, Tabellaria	Hill streams high altitude, torrential and temperate waters	Taste and odour producing clog filters
		3) *Species of* Synedra and Fragillavia	Polluted waters	Taste and odour producing
		4) *Species of* Nitzchia, Gomphonema	Moderately polluted waters	Cause discoloration
		5) *Species of* Cymbela, Synedra, Melosira, Navicula, Cyclotella, Fragillaria, Diatoma, Pleurogsigma	Rivers and streams impounded sources	Clog filters and cause operational difficulties
		6) *Species of* Pinmularia, Surinella, Cyclotella, Meridion, Cocconeis	Clean waters	Indicators of purification
		d) Xanthophyceae:		
		Species of Botryococcus	Hill streams, high altitude and temperate waters	Produces coloration
	ii) Zooplankton	a) Protozoa:		
		1) Amoeba, Giardia Lamblia Arcella, Difflugia, Actinophrys	Polluted waters	Pollution indicators
		2) Endamoeba, Histolytica	Sewage and activated sludge	Parasitic and pathogenic
		b) Ciliates:		
		Paramoecium, Vorticella, Carchesium, Stentor, Colpidium, Coleps, Euplotes, Colopoda, Bodo	Highly polluted waters, sewage and activated sludge	Bacteria eaters
		c) Crustacea:		
		1) Bosmina, Daphnia	Stagnant polluted waters	Indicators of pollution
		2) Cyclops	Step wells in tropical climate	Carrier host of guinea worm
	iii) Rotifers	a) Rotifers:		
		Anurea, Rotaria, Philodina	Polluted and Algae laden waters	Feed on algae
		b) Flagellates:		
		1) Ceratium, Glenodinium, Peridinium Dinobryon	Rocky strata, iron bearing and acidic waters	Impart colour and fishy taste
		2) Euglena, Phacus	Polluted waters	Impart colour

Sl No.	*Classification of Microscopic Organism*	*Group and Name of the Organism*	*Habitat*	*Effect of the Organisms and Significance*
(1)	(2)	(3)	(4)	(5)
iv)	Miscellaneous Organisms	a) Sponges, Hydra	Fresh water	Clog filters and affect purification systems
		b) Tubifex, Eristalls, Chironomids	Highly polluted waters, sewage and activated sludge and bottom deposits	Clog filters and render water unaesthetic
		c) Plumatella	Polluted waters	Produces biological slimes and causes filter operational difficulties
		c) Dreissena, Asellus	Polluted waters	Harbour pathogenic organisms

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This Indian Standard has been developed from Doc No.: FAD 25 (2047).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi

Annexure - 5

O/C

ADITYA BIRLA
GRASIM

Ref: GIL/LKO/30/36 dt. 17.09.19

To,

Member Secretary
U.P. Pollution Control Board,
Vibhuti Khand, Gomti Nagar,
Lucknow

Sub: Environmental risk assessment for hazardous waste disposal in abandoned secured landfill of Grasim Industries Limited- Renukoot Plant, Sonebhadra (U.P.) prepared by NEERI.

Dear Sir,

Kindly find attached herewith above comprehensive study prepared by NEERI. Please note that in the past no such comprehensive study was undertaken either. We are happy to submit the detailed final report for your kind perusal and ready reference.

Thanking you,

Yours faithfully,
for Grasim Industries Limited, Chemical Division Renukoot

(Avinaash Rai)
General Manager

Encl.:-a/a.

C.C. Chief Engineer (Circle-2) for kind information.
U.P. Pollution Control Board,
Vibhuti Khand, Gomti Nagar,
Lucknow

डाक प्राप्ति रसीद
प्राप्ति दिनांक 18-9-19
प्राप्तकर्ता के हस्ताक्षर
कार्यालय प्रदूषण नियंत्रण बोर्ड, लखनऊ

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PAN AAACG4464B

Annexure-6

OUT TODAY

ITEM NO.27 COURT NO.11 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No(s). 37833/2019

(Arising out of impugned final judgment and order dated 28-08-2018 in OA No. 164/2018 28-08-2018 in EA No. 22/2018 19-07-2019 in IA No. 155/2019 19-07-2019 in EA No. 22/2018 passed by the National Green Tribunal)

GRASIM INDUSTRIES LIMITED
(EARLIER ADITYA BIRLA CHEMICAL INDUSTRIES LIMITED) Appellant(s)

VERSUS

ASHWANI KUMAR DUBEY & ORS. Respondent(s)

(IA No.165087/2019-CONDONATION OF DELAY IN FILING and IA No.165089/2019-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.165088/2019-EX-PARTE STAY)

Date : 04-11-2019 These appeals were called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE SANJAY KISHAN KAUL
HON'BLE MR. JUSTICE B.R. GAVAI

For Petitioner(s) Mr. C.A. Sundram, Sr. Adv.
Mr. Pinaki Mishra, Sr. Adv.
Mr. Rajat Jariwal, Adv.
Mr. Bharat Gupta, adv.
Mr. Sanjeev K. Kapoor, Adv.
M/S. Khaitan & Co., AOR

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Application for exemption from filing c/c of the impugned judgment is allowed.

Validity unknown
Digitally signed by ANITA MALHOTRA
Date: 2019.11.15 15:51:30 IST
Reason:

Delay condoned.

At the oral request of learned senior counsel for the appellant, CSIR-National Environmental Engineering Research

Institute is impleaded as respondent No.49.

Learned senior counsel for the appellant submits by relying on report at page 711, Vol.IV and page 42 of the additional documents (at page 112, Vol.V) that it has been opined that from the point of view of environmental perspective, it was not recommended to open the Secure Landfill Resource (SLR) and, thus, shifting of the Mercury bearing brine sludge would cause environmental hazard and no method has even been informed to the appellant despite queries raised to the concerned authorities.

Issue notice.

The proceedings before the National Green Tribunal qua the aforesaid aspect be deferred as we are informed that the matter is listed tomorrow.

Order dasti today.

(ASHA SUNDRIYAL)
COURT MASTER

(ANITA RANI AHUJA)
COURT MASTER

Annexure-7

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

पत्रांक 52509 /सी-2/ NGT Cell-II/2020 दिनांक 29-07-2020

सेवा में,

मेसर्स ग्रासिम इण्डस्ट्रीज (केमिकल डिवीजन)
पूर्व नाम–मैसर्स कनौरिया केमिकल्स,
रेनूकूट,
जनपद–सोनभद्र।

यह कि केन्द्रीय प्रदूषण नियंत्रण बोर्ड, दिल्ली के पत्र सं0– B-29016/CS(16)-NGT/2019/WM-I दिनांक 22 जुलाई 2020 द्वारा मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली द्वारा ओ0ए0 संख्या 804/2017, राजीव नारायण व अन्य बनाम यूनियन ऑफ इण्डिया व अन्य में पारित आदेश दिनांक 07.07.2020 के अनुपालन के क्रम में प्रदेश में कन्टेमिनेटेड साईटस का स्टेटस एवं ऐक्शन प्वाइंट प्रेषित किये गये हैं। जिसके अनुसार मैसर्स ग्रासिम इण्डस्ट्रीज (केमिकल डिवीजन), रेनूकूट, जनपद–सोनभद्र द्वारा इकाई से जनित Mercury Bearing Sludge को परिसर में भण्डारित किया गया है तथा उक्त स्थल को कन्टेमिनेटड साइट के रूप में चिन्हित किया गया है। केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा उद्योग से जनित Mercury Bearing Sludge के भण्डारण से आस–पास के क्षेत्र की मृदा एवं भूजल की गुणता प्रभावित होने की सम्भावना के दृष्टिगत मृदा/वेस्ट/भू–जल/सेडीमेंट के नमूनें की विश्लेषण आख्या उपलबध कराये जाने के निर्देश दिये गये हैं।

अतः जनहित एवं जन साधारण को स्वच्छ वातावरण प्रदान करने के लिए उपरोक्त वर्णित तथ्यों के परिप्रेक्ष्य में पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा–5 के अन्तर्गत सक्षम अधिकारी के अनुमोदनोपरान्त उद्योग को निम्न निर्देश जारी किये जाते है।

1. इकाई से जनित Mercury Bearing Sludge के भण्डारण से आस–पास के क्षेत्र की मृदा एवं भूजल गुणता की जांच हेतु मृदा/वेस्ट/भू–जल/सेडीमेंट के नमूनें की विश्लेषण आख्या ख्यातिलब्ध प्रतिष्ठित संस्थान यथा नीरी/आई.आई.टी. आदि से कराकर 15 दिन में बोर्ड को प्रेषित करें, जिसमें chemicals of concern (CoCs) with general parameters and heavy metals की मात्रा का विशेष रूप से उल्लेख हो एवं नमूना एकत्रण के समय राज्य बोर्ड के क्षेत्रीय कार्यालय, सोनभद्र के अधिकारियों को सूचित किया जाए ताकि वह नमूना एकत्रण के सयम उपस्थित रहें।
2. सम्पलिंग रिपोर्ट में प्रचालकों की मात्रा निर्धारित मानकों के अनुरूप न होने की दशा में लब्ध प्रतिष्ठित संस्थान से कन्टेमिनेटेड साइट के रेमिडियेशन हेतु 03 माह में डी0पी0आर0 तैयार करायी जाये तथा केन्द्रीय प्रदूषण नियंत्रण बोर्ड/उ0प्र0 प्रदूषण नियंत्रण बोर्ड से अनुमोदित कराया जाय तथा उक्त डी.पी.आर. के अनुसार कन्टेमिनेटेड क्षेत्रों में प्रदूषित मृदा एवं भू–जल के रेमीडियेशन हेतु समयबद्ध कार्यक्रम बोर्ड में जमा किया जाए तथा उक्त कार्य में प्रतिवर्ष आने वाले व्यय हेतु पृथक एस्को एकाउन्ट (Escrow account) खुलवाकर वॉछित धनराशि उक्त एकाउन्ट में रखी जाए।

.....2/–

टी.सी.–12 वी., विभूति खण्ड,
गोमती नगर, लखनऊ–226010
ई–मेल–info@uppcb.com
वेब साइट -www.uppcb.com

TC-12-V, Vibhuti Khand
Gomti Nagar, Lucknow-226010
e-mail: info@uppcb.com
Web site www.uppcb.com

उपरोक्त निर्देशो की अनुपालन/प्रगति आख्या 15 दिन में बोर्ड को प्रेषित करना सुनिश्चित करें अन्यथा उद्योग के विरूद्ध नियमानुसार कार्यवाही प्रारम्भ कर दी जाएगी, जिसका उत्तरदायित्व उद्योग एवं उद्योग स्वामी का होगा।

भवदीय,

(आशीष तिवारी)
सदस्य सचिव

प्रतिलिपिः– निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. निजी सचिव, अध्यक्ष, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ।
2. सदस्य सचिव, केन्द्रीय प्रदूषण नियंत्रण बोर्ड, परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली।
3. जिलाधिकारी, सोनभद्र ।
4. क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र को इस आशय से प्रेषित कि उद्योग को जारी निर्देश की प्रति अपने स्तर से भी प्राप्त करा दें एवं नमूना एकत्रण के समय उद्योग प्रतिनिधि के साथ मौके पर उपस्थित रहना भी सुनिश्चित करें।

सदस्य सचिव

Annexure-8

CENTRAL LABORATORY, U.P. POLLUTION CONTROL BOARD
T.C-12 V, Vibhuti Khand, Gomti Nagar, Lucknow-226010
Phone: 0522-2720832, 2720480

TEST REPORT: WATER LABORATORY (SURFACE WATER)

Certificate No. TC-6345

S.No. .....

Dt. of compilation of test report ... 13/10/2020

Dt./period of testing 30/9/2020 – 7/10/2020

1 नमूने का स्रोत (नदी जल / नाला / एस.टी.पी. / अन्य) Sample Source (River/ Lake/Pond/Drain/ S.T.P./ any other specify) ..... Nala

2 नमूने का प्रकार (ग्रैब / कम्पोजिट / इन्टिग्रेटेड) Type of Sample (Grab/Composite/Integrated): Grab

3 नमूने एकत्र करने वाले व्यक्ति का विवरण / Sample Collected by MS. Shiv Bahal (JE), Mr. Radhey Shyam (RO)

4. एकत्रित नमूने का रंग एवं गंध / Colour & Odour: Turbid

5. एकत्रित नमूने की मात्रा एवं पैकिंग / Quantity & Packing (Plastic Jerican/Any Other) 2 L + 1 L

6. नमूने एकत्रण की तिथि / Date of Sample Collection : 29/9/2020

7 विश्लेषण हेतु आहरणकर्ता / Analysis indented by ..... UPPCB RO Sitapur

8. प्रयोगशाला में नमूना प्राप्ति की तिथि / Date of Sample receipt in Laboratory : 30/9/2020

9. मानक हेतु प्रयुक्त / Standards followed are appended overleaf

10 विश्लेषण विधि / method of analysis .... APHA, AWWA, WEF,23rd Edition,2017; IS 3025(Part-44) : for BOD

क्र. सं. / S.No.	पैरामीटर / Parameter	इकाई / Unit	Results नमूने का कोड नं./ एकत्रण स्थल Code No./Sampling Point: UPPCB/A/W/694/2020 Dongia Nala near Kathal Revilkot Sitapur	Detection Range
1	पी. एच / pH , 4500-H+B(4-95 to 04-99) Electrometric Method		6.67	02-12
2	गंदलापन / Turbidity 2130B (2-13 to2-15) Nephelometric Method	एन.टी.यू / NTU	/	1-500 NTU
3	रंग / Colour , 2120B (2-8 to2-7) Visual Comparison Method	हैजन / Hazen		5-10000 Hazen
4	चालकता / Conductivity , 2510B (2-56 to2-59) Laboratory Method	माइक्रो साइमन्स / सेमी µS/cm	1668.0	01 - 9000 µS/cm
5	निलंबित ठोस / Suspended Solids, 2540 D (2-70 to 2-71) Total Suspended Solids dried at 103-105°C	मिग्रा / ली. / mg/l	38.0	2.5 - 10000 mg/l
6	घुलित ठोस / Total Dissolved Solids, 2540C (2-69 to 2-70)Total Dissolved Solids dried at 180°C	मिग्रा / ली. / mg/l	/	2.5 - 10000 mg/l
7	ठोस / Total Solids, 2540 B (2-68 to 2-69) Total Solids dried at 103-105°C	मिग्रा / ली. / mg/l	1026.0	2.5 - 15000 mg/l
8	कुल कठोरता / Total Hardness, 2340 (2-48 to 2-50) EDTA Titrimetric Method	मिग्रा / ली. / mg/l		50.0 - 5000 mg/l
9	कैल्शियम कठोरता / Calcium Hardness , 3500 -Ca B(3-69 to 3-70) 3.137A Titrimetric Method	मिग्रा / ली. / mg/l		20.0 - 1000 mg/l
10	मैग्नीशियम कठोरता / Magnesium Hardness, 3500 -Mg B(3-86) Calculation Method	मिग्रा / ली. / mg/l		10.0 - 1000 mg/l
11	सोडियम / Sodium Na , 3500-Na B (3-99 to 3-100), Flame Photometric Method	मिग्रा / ली. / mg/l		1.0 - 100 mg/l
12	पोटेशियम / Potassium K, 3500-K B (3-89 to 3-90) Flame Photometric Method	मिग्रा / ली. / mg/l		1.0 - 100 mg/l
13	क्लोराइड / Chloride / Cl- , 4500- Cl - B (4-75 to 4-76) Argentometric Method	मिग्रा / ली. / mg/l		3.0 - 500 mg/l
14	फ्लोराइड / Fluoride as F , 4500- F D(4-86 to 4-87)(Spands Method) 4500- F C(4-90 to 4-91)(Selective Electrode Method)	मिग्रा / ली. / mg/l		0.1 - 10 mg/l
15	सल्फेट / Sulphate as SO_4^{2-} ,4500 -SO_4 -2 E (4-199 to 4-200) Turbidimetric Method	मिग्रा / ली. / mg/l		0.1 - 200 mg/l
16	फास्फेट / Phosphate-P 4500 PD [4-163 to 4-164] Stannous Chloride Method	मिग्रा / ली. / mg/l		0.01 - 50 mg/l
17	नाइट्रेट-नाइट्रोजन / Nitrate-Nitrogen 4500- NO_3^- -B,(4-127)(Ultraviolet Spectrophotometric Method)	मिग्रा / ली. / mg/l		0.005-100 mg/l
18	अमोनिकल नाइट्रोजन / Ammonical Nitrogen, 4500 NH3-F (4-119 to 4-120) Phenate Method	मिग्रा / ली. / mg/l		0.1 - 50 mg/l
19	क्षारीयता / Alkalinity 2320 B(2-37 TO 2-39) Titration Method	मिग्रा / ली. / mg/l		20.0-5000 mg/l
20	डी.ओ / D.O. 4500-OB 4-144 to 4-148 Iodometric Method	मिग्रा / ली. / mg/l		0.2 - 14.0 mg/l
21	बी.ओ.डी / BOD 3 day 27°C IS 3025(Part 44): 1993 Bio chemical Oxygen Demand	मिग्रा / ली. / mg/l	18.0	1.0 - 1000 mg/l
22	सी.ओ.डी / COD , 5220 B (5-18 to 5-19) Open Reflux Method	मिग्रा / ली. / mg/l	72.0	1.0 - 1000 mg/l
23	टोटल क्रोमियम / Total Chromium / T.Cr , 3111A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.005-1000 mg/l
24	कॉपर / Copper /Cu, 3111- A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.001-1000 mg/l
25	कैडमियम / Cadmium / Cd , 3111-A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.001-1000 mg/l
26	लेड / Lead / Pb , 3111-A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.005-1000 mg/l
27	आयरन / Iron / Fe , 3111-A+B (3-16to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.005-1000 mg/l
28	निकिल / Nickel / Ni , 3111-A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.001-1000 mg/l
29	जिंक / Zinc / Zn , 3111-A+B (3-16 to 3-21) Atomic Absorption Spectrometry	मिग्रा / ली. / mg/l		0.001-1000 mg/l
30	Total Coliform	MPN/100ml	BDL	<1.8 MPN/100ml above
31	Fecal Coliform	MPN/100ml	BDL	<1.8 MPN/100ml above
* 32	Mercury (Hg)	mg/l	BDL	BDL = Below detection limit

* Non NABL Parameter

परीक्षण / Analysed by ..... (Dr. M. Pandey SA) 13/10/2020

हस्ताक्षर / Signature / Authorised Signatory 14/10/20

मुख्य पर्यावरण अधिकारी / Chief Environmental Officer

मा0 ओवर साईट कमेटी की दिनांक 29.01.2021 को वीडियो कॉन्फ्रेंसिंग के माध्यम से सम्पन्न बैठक में तापीय विद्युत परियोजनाओं से जनित होने वाली फ्लाईऐश के निस्तारण हेतु जनपद–सोनभद्र में स्थापित परित्यक्त स्टोन क्वैरी के आवंटन के सम्बन्ध में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–02.02.2021 को सम्पन्न बैठक की कार्यवृत्त।

मा0 ओवर साईट कमेटी की दिनांक 29.01.2021 को वीडियो कॉन्फ्रेंसिंग के माध्यम से सम्पन्न बैठक में तापीय विद्युत परियोजनाओं से जनित फ्लाईऐश के निस्तारण हेतु दिये गये निर्देशों के अनुपालन में जिलाधिकारी, सोनभद्र की अध्यक्षता में दिनांक–02.02.2021 को सभी तापीय विद्युत परियोजनाओं के प्रतिनिधियों, प्रभागीय वनाधिकारी, ओवरा/रेनुकूट, खान अधिकारी तथा क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र के साथ पॉवर प्लाण्ट से निकलने वाली फ्लाईऐश को परित्यक्त स्टोन क्वैरी में सुरक्षित रूप से निस्तारण करने हेतु बैठक आयोजित की गयी। बैठक में निम्न अधिकारीगण व उद्योग प्रतिनिधिगण उपस्थित थे :–

I. जिलाधिकारी, सोनभद्र।
II. श्री प्रखर मिश्रा, प्रभागीय वनाधिकारी, ओवरा, सोनभद्र।
III. श्री एम0पी0 सिंह, प्रभागीय वनाधिकारी, ओवरा, सोनभद्र।
IV. मो0 महबूब, खान अधिकारी, सोनभद्र।
V. श्री राधेश्याम, क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र।
VI. श्री वी0के0 बजाज, मुख्य प्रबन्धक, एन0सी0एल0, बीना, सोनभद्र।
VII. श्री जे0के0 सिन्हा, मुख्य प्रबन्धक, एन0सी0एल0, खड़िया, सोनभद्र।
VIII. श्री राजीव कुमार, अधीक्षण अभियन्ता, ओबरा तापीय परियोजना, ओबरा, सोनभद्र।
IX. श्री अजय कुमार राय, अधिशासी अभियन्ता, अनपरा तापीय परियोजना, अनपरा, सोनभद्र।
X. श्री मुकेश मित्तल, वाईस प्रेसीडेन्ट, हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र।
XI. श्री वी0के0 अत्री, ए0जी0एम0 (ई0एम0जी0), एन0टी0पी0सी0 रिहन्दनगर, सोनभद्र।
XII. श्री विनय कुमार यादव, मैनेजर ग्रासीम इण्डस्ट्रीज लि0, रेनुकूट, सोनभद्र।
XIII. श्री ओमवीर सिंह जादौन, असिस्टेन्ट मैनेजर (पर्यावरण), एन0सी0एल0 कृष्णशिला, सोनभद्र।
XIV. श्री वरूण सिंह, असिस्टेन्ट मैनेजर (पर्यावरण), एन0सी0एल0 ककरी, सोनभद्र।
XV. श्री सन्दीप गोस्वामी, डायरेक्टर, लैंको, अनपरा, सोनभद्र।

1. क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र द्वारा अवगत कराया गया कि मा0 ओवर साईट कमेटी की दिनांक–29.01.2021 को सम्पन्न वर्चुअल बैठक में निर्देशित किया गया है कि जनपद में चिन्हित 07 स्टोन क्वैरीज में से 04 स्टोन क्वैरीज के आवंटन की सूचना विगत बैठक में उद्यमियों द्वारा दी गयी, परन्तु 03 स्टोन क्वैरीज के आवंटन की सूचना ओवर साईट कमेटी के समक्ष नहीं प्रस्तुत किये जाने के कारण मा0 ओवर साईट कमेटी द्वारा अवशेष तीनों स्टोन क्वैरीज के राजस्व तथा वन विभाग के विवाद की स्थिति स्पष्ट करने तथा इनका आवंटन एक सप्ताह के अन्दर करने हेतु जिलाधिकारी, सोनभद्र को निर्देशित किया गया है।

2. जिलाधिकारी महोदय ने प्रकरण में वास्तविक स्थिति से अवगत कराने हेतु खान अधिकारी, सोनभद्र को निर्देशित किया। खान अधिकारी द्वारा अवगत कराया गया कि धारा–20 के प्रकाशन से पूर्व 07 स्टोन क्वैरीज चिन्हित की गयी थी। धारा–20 के प्रकाशन के उपरान्त 04 स्टोन क्वैरीज को मेसर्स उ0प्र0 राज्य विद्युत उत्पादन निगम लिमिटेड, ओबरा, सोनभद्र को आंवटित कर

क्रमशः 2/–पर....

दिया गया है। (आवंटन सम्बन्धी अभिलेख संलग्न है)। अवशेष 03 स्टोन क्वैरीज में से 02 स्टोन क्वैरीज में पर्याप्त मात्रा में खनन योग्य उपखनिज उपलब्ध होने एवं वन भूमि से 100 मीटर की परिधि के बाहर होने के कारण खनन विभाग, सोनभद्र द्वारा परित्यक्त खदान घोषित नहीं किया गया है। इन दो खदानों में खनन पट्टा स्वीकृत किये जाने हेतु ई–निविदा सह ई–नीलामी आमंत्रण की सूचना प्रकाशित की गयी है। अतएव इन दो स्टोन क्वैरीज को फ्लाईऐश के भण्डारण हेतु आवंटित नहीं किया जा सकता है।

3. प्रभागीय वनाधिकारी, ओबरा, सोनभद्र द्वारा अवगत कराया गया कि भारतीय वन अधिनियम, 1927 की धारा–20 के प्रकाशन के उपरान्त एक स्टोन क्वैरीज सुरक्षित वन क्षेत्र में आच्छादित हो गयी है, जिससे इस स्टोन क्वैरीज को फ्लाईऐश के भण्डारण हेतु आवंटित किया जाना सम्भव नहीं है।

4. खान अधिकारी द्वारा यह भी अवगत कराया गया कि 02 खदान प्राइवेट भू–भाग पर है, जिनमें से एक की समय–सीमा समाप्त हो चुकी है तथा दूसरे की समय–सीमा एक सप्ताह के अन्दर समाप्त हो जायेगी। उक्त खदानों में फ्लाईऐश का निस्तारण करने हेतु सम्बन्धित भू–स्वामियों से सम्पर्क किया जा रहा है। भू–स्वामियों की सहमति के उपरान्त उक्त खदानों को आवंटित किये जाने की कार्यवाही की जा सकती है। जिलाधिकारी द्वारा खान अधिकारी को निर्देशित किया गया कि प्रकरण में भू–स्वामियों से वार्ता कर भू–स्वामियों के अन्तिम निर्णय से अवगत करायें, जिससे कि उक्त स्टोन क्वैरीज के आवंटन की कार्यवाही की जा सके। खान अधिकारी द्वारा सभी उद्यमियों को सूचित किया गया कि वर्तमान समय में आवंटन हेतु कोई स्टोन क्वैरीज अवशेष नहीं है।

5. खान निरीक्षक श्री जी0के0 दत्ता द्वारा अवगत कराया गया कि ग्राम–बिल्ली मारकुण्डी के गाटा संख्या 7536–घ में पूर्व में डोटो स्टोन के खनन हेतु खनन पट्टे स्वीकृत किये गये थे, जो वर्तमान में परित्यक्त खदान के रूप में विद्यमान हैं। इन खदानों की औसत गहराई 50 से 70 मीटर है तथा इनमें लगभग 1.20 करोड़ घनमीटर फ्लाईऐश का निस्तारण किया जा सकता है। वर्तमान समय में ज्यातादर खदानों में पानी भरा हुआ है। उनके द्वारा अवगत कराया गया कि उक्त खदानें डोलो माईट स्टोन की है, जिससे इनमें पानी के रिसाव के समस्या नगण्य होती है। इन खदानों में वन संरक्षण अधिनियम तथा पर्यावरण अधिनियमों को ध्यान में रखते हुए फ्लाईएश भरकर पौधारोपण करने सम्बन्धी कार्य किया जा सकता है।

6. प्रभागीय वनाधिकारी, ओबरा, सोनभद्र द्वारा अवगत कराया गया कि वन विभाग के अधीन गाटा संख्या 7536–घ पर 60.122 हेक्टेयर क्षेत्रफल में स्थित परित्यक्त स्टोन क्वैरीज को वन संरक्षण अधिनियम के प्राविधानों के अन्तर्गत वन विभाग को स्टोन क्वैरीज के क्षेत्रफल के बराबर भूमि विनियमित कराने के उपरान्त फ्लाईऐश का निस्तारण करने हेतु आवंटित किये जाने का प्राविधान है। विगत बैठकों में उद्यमियों को स्टोन क्वैरीज की माँग हेतु ऑनलाईन आवेदन करने हेतु सुझाव दिया गया था, परन्तु अभी तक किसी भी उद्यमी द्वारा इस दिशा में कोई रूचि नहीं ली गयी है। प्रभागीय वनाधिकारी, ओबरा द्वारा वन संरक्षण अधिनियम, 1980 के अन्तर्गत स्टोन क्वैरीज की अनुमति के सम्बन्ध में अपनाये जाने वाली प्रक्रिया का संक्षिप्त विवरण उपलब्ध कराया गया, जिसे समस्त उद्यमियों को उपलब्ध करा दिया गया है। जिलाधिकारी महोदय द्वारा सभी उद्यमियों को निर्देशित किया गया कि प्रभागीय वनाधिकारी, ओबरा, सोनभद्र (मोबाइल संख्या 07839435182) से समन्वय स्थापित कर वन विभाग के अधीन स्थापित स्टोन क्वैरीज के आवंटन हेतु नियमानुसार आवश्यक कार्यवाही करें।

03/2/21

क्रमशः 3/–पर....

7. मेसर्स एन0टी0पी0सी0 रिहन्द एवं शक्तिनगर, मेसर्स हिण्डाल्को इण्डस्ट्रीज लिमिटेड रेनुसागर पॉवर डिवीजन तथा मेसर्स लैंको अनपरा पॉवर के उपस्थित प्रतिनिधियों द्वारा जिलाधिकारी महोदय से स्टोन क्वैरीज एवं लो–लाईंग एरिया के आवंटन की मांग की गयी है। जिलाधिकारी महोदय द्वारा वन विभाग तथा राजस्व विभाग की संयुक्त समिति के माध्यम से जनपद में स्थित सभी लो–लाईंग एरिया के चिन्हीकरण का कार्य करने तथा सभी लो–लाईंग एरिया की सूची सभी उद्यमियों को उपलब्ध कराने हेतु निर्देशित किया गया।

अन्त में सभी को धन्यवाद् ज्ञापित करते हुए बैठक की कार्यवाही समाप्त की गयी।

(अभिषेक सिंह)
जिलाधिकारी,
सोनभद्र

कार्यालय जिलाधिकारी, सोनभद्र

पत्रांक :G/115494/ओवर साईट कमेटी/2021 दिनांक 03/02/2021

प्रतिलिपिः–निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. अपर जिलाधिकारी, सोनभद्र।
2. प्रभागीय वनाधिकारी, वन प्रभाग, ओबरा/रेनुकूट, सोनभद्र।
3. खान अधिकारी, सोनभद्र।
4. क्षेत्रीय अधिकारी, उ0प्र0 प्रदूषण नियंत्रण बोर्ड, सोनभद्र।
5. महाप्रबन्धक, मेसर्स एन0टी0पी0सी0 लिमिटेड रिहन्दनगर/शक्तिनगर, मुख्य प्रबन्धक, एन0सी0एल0, वीना सोनभद्र, मुख्य प्रबन्धक, एन0सी0एल0, खड़िया सोनभद्र, अधीक्षण अभियन्ता, ओबरा तापीय परियोजना, ओबरा सोनभद्र, अधिशासी अभियन्ता, अनपरा तापीय परियोजना, अनपरा सोनभद्र, वाईस प्रेसीडेन्ट, हिण्डाल्को इण्डस्ट्रीज लिमिटेड, रेनुकूट, सोनभद्र, ए0जी0एम0 (ई0एम0जी0), एन0टी0पी0सी0 रिहन्दनगर, सोनभद्र, मैनेजर ग्रासीम इण्डस्ट्रीज लि0, रेनुकूट, सोनभद्र, असिस्टेन्ट मैनेजर (पर्यावरण), एन0सी0एल0 कृष्णशिला, सोनभद्र, असिस्टेन्ट मैनेजर (पर्यावरण), एन0सी0एल0 ककरी, सोनभद्र एवं डायरेक्टर, लैंको, अनपरा, सोनभद्र।

03/2/21
जिलाधिकारी,
सोनभद्र

प्रेषक,

खान अधिकारी,
सोनभद्र।

सेवा में,

अधिशासी अभियन्ता, केप पर्यावरण एवं सुरक्षा खण्ड,
ओबरा ताप विद्युत गृह, उ0प्र0रा0वि0 उत्पादन नि0लि0
(उ0प्र0 सरकार का उपक्रम), ओबरा, सोनभद्र।

पत्रांक 1538 / खनिज / 2020 दिनांक 06/08/2020

विषयः- ओबरा ताप विद्युत गृह द्वारा उत्सर्जित राख को परित्यक्त खदानों में भरने हेतु अनापत्ति (एन0ओ0सी0) दिये जाने के सम्बन्ध में।

महोदय,

कृपया उपरोक्त विषयक आपने पत्र संख्या–209 / के0प0रु0ख0 दिनांक 30.06.2020 का सन्दर्भ ग्रहण करने का कष्ट करें, जिसके द्वारा 07 परित्यक्त खदानों तक आने–जाने हेतु रास्तो को राजस्व मानचित्र पर दर्शाते हुए प्रस्तगत क्षेत्र की उद्धरण खतौनी के साथ मानचित्र पर उपलब्ध कराने का अनुरोध किया गया है।

इस सम्बन्ध में अवगत कराना है कि जनपद–सोनभद्र में कुल 07 परित्यक्त खदानों की सूचना प्रभागीय वनाधिकारी, ओबरा के पत्र दिनांक 30.06.2020 को प्रेषित की गयी है। उक्त के सम्बन्ध में अवगत कराना है कि उक्त सूची के क्रम संख्या–1, 3, 4 एवं 5 पर अंकित क्षेत्र पर खनन पट्टा दिया जाना सम्भव नहीं है, इसलिए उक्त चारों क्षेत्र परित्यक्त खदान की श्रेणी में है।

उक्त परित्यक्त खदान की सूची के क्रम संख्या–2, 6 व 7 पर उल्लिखित क्षेत्र के सम्बन्ध में अवगत कराना है कि ग्राम–बिल्ली मारकुण्डी के क्षेत्रो का दिनांक 15.06.2020 को भारतीय वन अधिनियम, 1927 की धारा–20 का प्रकाशन किया गया है, जिसके अनुसार क्रम संख्या–2 पर अंकित क्षेत्र, सुरक्षित वन घोषित हो गया है, इसलिए क्रमांक–2 पर अंकित खदान को परित्यक्त खदान हेतु संस्तुति नहीं किया जा सकता है। क्रमांक–6 व 7 पर अंकित दोनो खनन क्षेत्र वन भूमि के 100 मीटर की परिधि के बाहर है, जिसमें पर्याप्त मात्रा में खनन योग्य उपखनिज उपलब्ध है, जिस पर खनन पट्टा स्वीकृत किये जाने के दृष्टिगत परित्यक्त खदान हेतु संस्तुति किया जाना राजस्व हित में नहीं है।

अतः संलग्न सूची के क्रम संख्या–1, 3, 4 एवं 5 पर उल्लिखित क्षेत्र ही परित्यक्त खदान है, जिसे राजस्व मानचित्र पर दर्शाते हुए इस पत्र के साथ संलग्न कर आवश्यक कार्यवाही हेतु प्रेषित है।

संलग्नकः- यथोपरि।

भवदीय,

06/8/2020

(मो0 महबूब)
जिला खान अधिकारी,
सोनभद्र।

Rec'd
07/08/2020

Appendix- XLIV

The information sought by NGT oversight committee in the meeting dated 29.01.2021: OA No. 164/2018(Earlier OA No. 276/2013) in re: Ashwani Kumar Dubey Vs. Union of India & Ors.

1. Morcha Nala Diversion (Anpara TPS)

As per the directions of over site committee, constituted by NGT, a meeting was convened on 04.11.2020 under chairmanship of Additional Chief Secretary, Department of irrigation and water resource, GoUP for diversion of Morcha Nala. During the meeting a detailed presentation was made by Department of irrigation, GoUP, during which it was informed by irrigation department that diversion of Morcha Nala is not possible due to geographical conditions of the area.

However, it was suggested that UPRVUNL may seek consultation from Central Water and Energy Research Centre, Pune or Central Water Institute, New Delhi and explore other possible options for the same.

Accordingly, vide letter nos. 944 &945 /CE(L-1)/ATP/Camp dated 31.12.2020 and 84 & 85 /CE(L-1)/ATP/Camp dated 27.01.2021 , requests for consultancy service offer have been made from aforesaid institute. However, the offers are still awaited.

In order to ensure zero discharge from Ash Pond to Rihand reservoir, UPRVUNL has taken following preventive actions:

1. First height raising of ash dyke (up to 05 meters) is presently being carried out, which has been divided in two separate lagoons. The first lagoon shall be charged in May -2021, before onset of monsoon season. Ash dyke raising has enabled sufficient water detention time, leading to passage of clear water to auxiliary pond, which shall be re-circulated for reuse in the plant through AWRS system.

2. The ash slurry will be discharged in first lagoon, while the other lagoon will be kept ready after its proper maintenance.

3. Discharge of ash slurry into the lagoon, which observes discharge of Morcha Nala shall be stopped during the monsoon season, while the other lagoon shall be utilized for disposal of ash slurry from the plant

2. Ash Utilization Plan

The following steps has been taken by thermal power plant of UNL for utilization of ash:-

Anpara TPS

Annual ash generation from Anpara TPS is 40.26 lac MT

Sr. No.	Place of Ash utilization	Expected quantity of ash which is to be filled in this area
1	The consultancy work awarded to IIT, BHU for safe disposal of ash in the form of ash mound. The report of the same has been submitted by IIT, BHU to UPRVUNL. At present the case has been processed for obtaining the administrative approval for inviting the tender.	9.11 lakh MT
2	Ash will be utilized in raising of ash dyke at Anpara TPP	5.00 lakh MT
3	Fly ash is being issued to Brick manufacturers	0.02 Lac MT
4	UPRVUNL requested to NCL for allotment of abandoned coal mines of Gorbi having 48 Hectare (Pit No. 1 & 2) area and depth up to 60 meter. NCL assure that they will allot the above mines to UPRVUNL.	2.88 crore MT
5	UNL also trying to get abandoned stone quarry at Sindur near Pipri, Renukoot. for allotment of this abandoned stone quarry a request has been made to DM Sonebhadra.	20.00 lakh MT

Obra TPS

Annual ash generation from Obra TPS is 11.63 lac MT

Sr. No.	Place of Ash utilization	Expected quantity of ash which is to be filled in this area
1	CTEs from UPPCB have been obtained for back filling of ash in low lying areas of Lodhi Toll Plaza and Obra	1.50 Lakh MT
2	Sector-2 &3	Total capacity of this area is about 63.00 lakh MT .In first phase 2.4 Lakh MT will be disposed off.
3	Abandoned Stone Mines	7.00 Lac MT
4	At present there is only one cement factory available in the vicinity of Obra TPS i.e. M/s Ultra Tech Cement Factory , Dala which is lifting 12000MT/ month Fly Ash while Ash Bricks Manufacturers are lifting around 150 MT/ month Fly Ash .	1.45 lakh MT per year
5	Agreement with M/s ACC Ltd for lifting of fly ash @ 4500 MT/day is to be done for which the case is under process for approval	16.42 lakh MT per year

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3. Third party checking of ash dyke after construction

Anpara TPS-

Presently the ash dyke of Anpara is under raising. The consultancy work for design and engineering was awarded to IIT Roorkee. On the basis of IIT Roorkee report the raising of ash dyke is being done. For the raising of ash dyke soil investigation of ash dyke has been done by MNIT Allahabad. For raising of ash dyke following structures has been constructed at site.

1. The ash dyke is being raised by gabion wall method.
2. Sand filter
3. Chimney Filter
4. Geo grid
5. Geo textile
6. Brick pitching with pointing, grass turfing on outer slope,
7. Decantation well
8. Raising of spillway

In continuation to above it is to intimate that IIT Roorkee is one of the best institute in the field of civil engineering and they have made all precaution for the safety of dam. However UPRVUNL will make stability study after completion of work

Obra TPS-

The first raising work of ash dyke has been completed at Obra site. The stability study of ash dyke will be done by IIT Roorkee. The team of IIT Roorkee visited the site in the first week of February, 2021. Report is awaited.

Parichha TPS-

The third raising of ash dyke will be done in consultation with IIT Roorkee. The tender specification has been prepared by IIT Roorkee. The stability of ash dyke will be conducted after the completion of raising work.

Harduaganj TPS-

At present raising of ash dyke is being done at Harduaganj. The design and engineering of ash dyke has been prepared by IIT Roorkee. After completion of work the stability of ash dyke will be checked

4. Detail of court cases

Sl No.	Project Name	Filed Before	Court Case No.	Petitioner and respondent Name	Matter	Current Status
1	Anpara TPS	Hon'ble Supreme court of India	Hon'ble NGT OA No. 164/2018 (Earliar OA No. 276/2013)	Ashwani Kumar Dubey V/s Union of India and others	Environment Compensation of Rs. 21 Crore 50 Lac has been imposed for non-utilization of 100% fly ash	Hon'ble Supreme court of India has passed the stay order on the NGT order.
2	Anpara TPS	Hon'ble Supreme court of India	Hon'ble NGT OA No. 453/2019	Anapara Thermal Power Station V/S Anjani Jaiswal & Ors.	Environment Compensation of Rs. 6,11,40,000.00	Hon'ble Supreme court of India has passed the stay order on the NGT order.
3	Obra TPS	Hon'ble Supreme court of India	Hon'ble NGT OA No. 164/2018 (Earliar OA No. 276/2013)	Ashwani Kumar Dubey V/s Union of India and others	Environment Compensation of Rs. 7 Crore 73 Lac has been imposed for non-utilization of 100% fly ash	Hon'ble Supreme court of India has passed the stay order on the NGT order.
4	Obra TPS	Hon'ble Supreme court of India	Hon'ble NGT OA No. 453/2019	Obra Thermal Power Station V/S Anjani Jaiswal & Ors.	Environment Compensation of Rs. 6,11,40,000.00	Hon'ble Supreme court of India has passed the stay order on the NGT order.
5	Harduaganj TPS Unit no. 08& 09	Hon'ble Supreme court of India	W.P. 13029/1985 date of filing 07.07.2020	MC Mehta V/s Union of India and others	Non-compliance of CPCB guidelines for installation of FGD and Combustion Modification in the boiler of Unit to reduce SOx and NOx up to December 2019	Hon'ble Supreme court of India has passed the stay order on the NGT order.
6	Anpara, Obra, Harduaganj and Parichha TPS	Hon'ble Supreme court of India	Hon'ble NGT OA No. 117/2014, OA No. 499/2014 and OA No. 102/2014	Appeal against the order of Hon'ble NGT	Non-utilization of 100% fly ash and breach of ash dyke	Hon'ble Supreme court of India has passed the stay order on the NGT order.

Note:- Photocopy of all orders attached at annexure A

Annexure-A

ITEM NO.12+ 32 Court 7 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

ITEM 12

Civil Appeal No(s).4034/2020

ANPARA THERMAL POWER STATION Appellant(s)

VERSUS

ASHWANI KUMAR DUBEY & ORS. Respondent(s)

(IA No.130906/2020-ADDITION / DELETION / MODIFICATION PARTIES and IA No.130905/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.130904/2020-STAY APPLICATION and IA No.130907/2020-PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES)

WITH
C.A. No. 4038/2020 (XVII)
(IA No.131006/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.131005/2020-EX-PARTE STAY and IA No.131007/2020-DELETING THE NAME OF PETITIONER/RESPONDENT and IA No.131008/2020-PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES)

ITEM 32
CIVIL APPEAL Diary No(s). 25306/2020
(IA No.134/2021-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.133/2021-EX-PARTE STAY and IA No.132/2021-PERMISSION TO FILE APPEAL).

Date : 05-01-2021 These appeals were called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE L. NAGESWARA RAO
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MS. JUSTICE INDU MALHOTRA

For Appellant(s) Mr. Sanjay Jain, ASG
Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Kandpal, Adv.
Mr. Gaurav, AOR

Ms. Nishtha Kumar, AOR
Mr. Vikas Maini, Adv

Signature Not Verified
Digitally signed by GEETA AHUJA
Date: 2021.01.07 15:56:44 IST
Reason:

For Respondent(s)

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UPON hearing the counsel the Court made the following

O R D E R

Permission to file appeal is granted.

Issue notice.

Having heard Shri Sanjay Jain, learned Additional Solicitor General appearing for the appellant(s), we are of the view that there should be stay of recovery for the present.

Application for deletion of proforma respondents is allowed.

Cause title be amended accordingly.

Tag with Civil Appeal No.3087/2020.

(Geeta Ahuja)
Court Master

(Beena Jolly)
Court Master

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(2)

ITEM NO.6 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 3402/2020

ANPARA THERMAL POWER STATION Appellant(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

IA No. 100146/2020 - ADDITION / DELETION / MODIFICATION PARTIES
IA No. 103689/2020 - APPLICATION FOR PERMISSION
IA No. 103691/2020 - EXEMPTION FROM FILING AFFIDAVIT
IA No. 100145/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT
IA No. 100143/2020 - STAY APPLICATION

Date : 27-10-2020 This matter was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MR. JUSTICE KRISHNA MURARI

For Appellant(s) Mr. Adarsh Tripathi, Adv.
Mr. Talha Abdul Rahman, AOR
Mr. Vibhanshu Srivastava, Adv.
Mr. Nirmit Srivastava, Adv.
Mr. Mohd Shaz Khan, Adv.
Mr. Udit Atul Konkanthankar, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following

O R D E R

Application for deletion of proforma respondents is allowed at the risk of the appellant

Issue notice.

There shall be stay of recovery in the meantime.

Tag with C.A. Nos. 4251-4252 of 2019.

Signature Not Verified
Digitally signed by P. Natarajan
Date: 2020.10.27 16:44:01 IST
Reason:

(P. NATARAJAN)
SUPT. REGISTRAR-cum-PS

(NISHA TRIPATHI)
BRANCH OFFICER

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ITEM NO.16 Court 10 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No.521/2020

ANPARA THERMAL POWER STATION Petitioner(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

(IA No.100146/2020-ADDITION / DELETION / MODIFICATION PARTIES and IA No.100145/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.100143/2020-STAY APPLICATION and IA No.100141/2020-CONDONATION OF DELAY IN REFILING / CURING THE DEFECTS)

Date : 09-10-2020 This petition was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE V. RAMASUBRAMANIAN
[IN CHAMBERS]

For Petitioner(s) Mr. Talha Abdul Rahman, AOR
Mr. Vibhuanshu Srivastava, Adv.
Mr. Nirmit Srivastava, Adv.
Mr. Mohd. Shaz Khan, Adv.
Mr. Udit Atul Konkanthankar, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Delay of 239 days in refiling is condoned.

(RACHNA)
SENIOR PERSONAL ASSISTANT

(DIPTI KHURANA)
COURT MASTER (NSH)

Signature Not Verified
Digitally signed by Rachna
Date: 2020.10.09 16:12:21 IST
Reason:

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ITEM NO.12+ 32 Court 7 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

ITEM 12

Civil Appeal No(s).4034/2020

ANPARA THERMAL POWER STATION Appellant(s)

VERSUS

ASHWANI KUMAR DUBEY & ORS. Respondent(s)

(IA No.130906/2020-ADDITION / DELETION / MODIFICATION PARTIES and IA No.130905/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.130904/2020-STAY APPLICATION and IA No.130907/2020-PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES)

WITH
C.A. No. 4038/2020 (XVII)
(IA No.131006/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.131005/2020-EX-PARTE STAY and IA No.131007/2020-DELETING THE NAME OF PETITIONER/RESPONDENT and IA No.131008/2020-PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES)

ITEM 32
CIVIL APPEAL Diary No(s). 25306/2020
(IA No.134/2021-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.133/2021-EX-PARTE STAY and IA No.132/2021-PERMISSION TO FILE APPEAL).

Date : 05-01-2021 These appeals were called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE L. NAGESWARA RAO
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MS. JUSTICE INDU MALHOTRA

For Appellant(s) Mr. Sanjay Jain, ASG
Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Kandpal, Adv.
Mr. Gaurav, AOR

Ms. Nishtha Kumar, AOR
Mr. Vikas Maini, Adv

For Respondent(s)

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UPON hearing the counsel the Court made the following

O R D E R

Permission to file appeal is granted.

Issue notice.

Having heard Shri Sanjay Jain, learned Additional Solicitor General appearing for the appellant(s), we are of the view that there should be stay of recovery for the present.

Application for deletion of proforma respondents is allowed.

Cause title be amended accordingly.

Tag with Civil Appeal No.3087/2020.

(Geeta Ahuja)
Court Master

(Beena Jolly)
Court Master

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ITEM NO.7 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 3329/2020

OBRA THERMAL POWER STATION Appellant(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

(IA No. 90390/2020 - ADDITION/DELETION / MODIFICATION PARTIES
IA No. 99023/2020 - EXEMPTION FROM FILING AFFIDAVIT
IA No. 90389/2020 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT, IA No. 99024/2020 - EXEMPTION FROM FILING O.T.
IA No. 99022/2020 - PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES, IA No. 90388/2020 - STAY APPLICATION)

Date : 12-10-2020 This matter was called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE ROHINTON FALI NARIMAN
HON'BLE MR. JUSTICE NAVIN SINHA
HON'BLE MR. JUSTICE K.M. JOSEPH

For Appellant(s) Mr. Adarsh Tripathi, Adv.
Mr. Talha A Rahman, Adv.
Mr. Vibhanshu Srivastava, Adv.
Mr. Nirmit Srivastava, Adv.
Mohd. Shaz Khan, Adv.
Mr. Udit atul Konkanthankar, Adv.
Mr. Talha Abdul Rahman, AOR

For Respondent(s)

UPON hearing the counsel the Court made the following

O R D E R

The names of the respondents except respondent Nos. 1,2,3,6 and 7 are deleted from the array of parties at the risk of the appellant.

Issue notice.

There shall be stay of recovery in the meantime.

Tag the matters along with Civil Appeal Nos. 4251-4152 of 2019.

Signature Not Verified
Digitally signed by Charanjeet Kaur
Date: 2020.10.12 17:57:32 IST
Reason:

(CHARANJEET KAUR)
ASTT. REGISTRAR-cum-PS

(NISHA TRIPATHI)
BRANCH OFFICER

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ITEM NO.6 Court 9 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No(s). 722/2020

OBRA THERMAL POWER STATION Petitioner(s)

VERSUS

ANJANI JAISWAL & ORS. Respondent(s)

(IA No.90390/2020-ADDITION / DELETION / MODIFICATION PARTIES and IA No.90389/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.90388/2020-STAY APPLICATION and IA No.90391/2020-CONDONATION OF DELAY IN REFILING / CURING THE DEFECTS)

Date : 22-09-2020 This petition was called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE V. RAMASUBRAMANIAN
[IN CHAMBER]

For Petitioner(s) Mr. Talha Abdul Rahman, AOR
Mr. Vibhanshu Srivastava, Adv.
Mr. Nirmit Srivastava, Adv.
Mr. Mohd. Shaz Khan, Adv.
Mr. Udit Atul Konkanthankar, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Delay in refiling the appeal is condoned.

(RAJNI MUKHI)
COURT MASTER (SH)

(KAMLESH RAWAT)
COURT MASTER (NSH)

Signature Not Verified
Digitally signed by ASHWANI KUMAR
Date: 2020.09.22 16:31:55 IST
Reason:

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ITEM NO.2 Virtual Court 2 SECTION PIL-W (5)

SUPREME COURT OF INDIA
RECORD OF PROCEEDINGS

Writ Petition(s)(Civil) No(s). 13029/1985

M.C. MEHTA Petitioner(s)

VERSUS

UNION OF INDIA & ORS. Respondent(s)

((1) REPORT NO. 106 SUBMITTED BY EPCA (SPECIAL REPORT ON POLLUTION HOT SPOTS IN NCR WITH REQUEST FOR URGENT DIRECTIONS TO IMPROVE ENFORCEMENT AND POLLUTION CONTROL)
(2) IN RE: STUBBLE BURNING AND SMOG IN DELHI(i) IA NO. 127792/2017 (DISPOSED OF) (APPLN. FOR DIRECTIONS FILED BY A.C.)(ii) IA NOS. 158128 AND 158129/2019 (APPLNS. FOR INTERVENTION AND DIRECTIONS ON BEHALF OF DR. KAUSHAL KANT MISHRA)AND DIRECTIONS ON BEHALF OF INDIA TRADE PROMOTION ORGNISATION)(iii) IA NO. 181745/2019 AND IA NO. 46339/2020(APPLNS. FOR INTERVENTION AND DIRECTIONS ON BEHALF OF HARSHITA SINGHAL)(iv) REPORT NO. 110 SUBMITTED BY EPCA REGARDING HOSPITAL WASTE MANAGEMENT IN COMPLIANCE OF DIRECTIONS DT. 06.3.2020)(v) REPORT NO. 111 SUBMITTED BY EPCA (REPORT ON PILLING UP OF WASTE/GARBAGE BY THE SIDES OF RAILWAY TRACKS IN DELHI IN COMPLIANCE OF DIRECTIONS OF THE HON'BLE COURT DT. 28.02.2020)(vi) IA NOS. 56487 AND 56489/2020 (APPLNS. FOR EXTENSION OF TIME AND EXEMPTION FROM FILING ATTESTED AFFIDAVIT ON BEHALF OF CENTRAL POLLUTION CONTROL BOARD)
(3) IN RE: PET COKE(i) IA NOS. 100194, 102169 AND 108253/2018 (APPLNS. FOR INTERVENTION, PERMISSION/DIRECTIONS AND CLARIFICATION OF ORDER DT. 26.7.2018 ON BEHALF OF INDIAN STEEL ASSOCIATION)(ii) IA NOS. 113743 AND 113750/2019 (APPLNS. FOR IMPLEADMENT AND DIRECTIONS ON B/O M/S BHARAT ALUMINIUM COMPANY LTD.)(iii) IA NOS. 153800 AND 153803/2019 (APPLNS. FOR INTERVENTION AND DIRECTIONS ON B/O NOBLE CAUSE FOUNDATION)(iv) IA NOS. 184874 AND 184881/2019 (APPLNS. FOR IMPLEADMENT AND DIRECTIONS ON B/O ALLIED J.B. FRICTION PVT. LTD.)(v) IA NO. 67800/2019 (APPLN. FOR INTERVENTION ON B/O MEWAR CHAMBER OF COMMERCE AND INDUSTRIES)(vi) IA NOS. 54314, 54315 AND 54320/2020 (APPLNS. FOR INTERVENTION, DIRECTIONS AND EXEMPTION FROM FILING DULY AFFIRMED AFFIDAVIT ON BEHALF OF RANE BREAK LINING LTD.)(vii) IA NOS. 56937, 56938 AND 56939/2020 (APPLNS. FOR INTERVENTION, DIRECTIONS AND EXEMPTION FROM FILING DULY AFFIRMED AFFIDAVIT ON B/O NEO CARBONS PVT. LTD.)
(5) IA NOS. 59929 AND 59930/2020 (APPLNS. FOR IMPLEADMENT AND DIRECTIONS ON BEHALF OF UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LTD.)

Signature Not Verified
Digitally signed by MUKESH KUMAR
Date: 2020.07.22 17:58:27 IST
Reason:

SMW(C) No. 3/2019 (PIL-W)
(FOR ADMISSION)

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W.P.(C) No. 1333/2019 (PIL-W)
(FOR ADMISSION and IA No.170316/2019-EX-PARTE STAY and IA No.170317/2019-PERMISSION TO APPEAR AND ARGUE IN PERSON)

T.C.(C) No. 42/2019 (XVI-A)

T.C.(C) No. 41/2019 (XVI-A)

W.P.(C) No. 1426/2019 (PIL-W)
(FOR ADMISSION)

Date : 21-07-2020 These petitions were called on for hearing today.

CORAM : HON'BLE MR. JUSTICE ARUN MISHRA
HON'BLE MR. JUSTICE VINEET SARAN
HON'BLE MR. JUSTICE M.R. SHAH

Counsel for the parties

Mr. Harish N. Salve, Sr. Advocate (A.C.) (N.P.)

Ms. Aparajita Singh, Sr. Advocate (A.C.)

Mr. A.D.N. Rao, Advocate (A.C.)

Mr. Siddhartha Chowdhury, Advocate (A.C.)

Mr. Tushar Mehta, Solicitor General
Ms. Aishwarya Bhati, ASG
Mr. W.A. Qadri,Sr.Adv.
Ms. Suhasini Sen, Advocate
Mr. D.L.Chidananda, Advocate
Mr. S.S.Rebello, Adv.
Mr. G.S. Makker, Adv.
Mr. Rajesh Kumar Singh,Adv.
Mr. Raj Bahadur Yadav,Adv.
Mr. Vibhu Shankar Mishra,Adv.
Ms. Snidha Mehra,Adv.
Mr. B.V. Balram Das,Adv.

Mr. Tushar Mehta,SG
Mr. Anil Grover, Sr. AAG/Haryana
Ms. Noopur Singhal,Adv.
Mr. Rahul Khurana,Adv.
MR. SANJAY KR. VISEN, Adv.

Mr. Tushar Mehta,SG
Mr. V. Shekhar,Sr.Adv.
Mr. Rajeev Kumar Dubey,Adv.
Mr. Kamlendra Mishra, Adv.

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Mr. Sanjay Jain, ASG
Mr. Adarsh Tripathi, Advocate
Mr. Anish Gupta, Advocate
Mr. Nikhil Kandpal, Advocate
Mr. Gaurav Srivastava, AOR

Mr. A.N.S. Nadkarni,Sr.Adv.
Mr. Sameer Shrivastava, Adv.

Mr. P. S. Narshimha,Senior Advocate
Ms. Uttara Babbar, Advocate
Ms. Bhavana Duhoon, Advocate
Mr. Manan Bansal, Advocate
Ms. Sindoora VNL, Advocate

Mr. Dhruv Mehta, Sr. Adv.
Mr. Alok Yadav, Adv.
Mr. Ayush Sharma, Adv.

Mr. Dhruv Mehta, Sr. Adv.
Ms. Ranjana Roy Gawai,Adv.
Ms. Vasudha Sen,Adv.
Ms. Prachi Golechha,Adv.
Ms. Ananya Chug,Adv.
Ms. Divya Roy,Adv.

Mr. Dinesh Dwivedi,Sr.Adv.
Ms. Jyoti Mendiratta,Adv.
Mr. Chirag M. Shroff, Adv.
Ms. Sanjana Nangia,Adv.

Mr. Sanjiv Sen,Sr.Adv.
Mr. Praveen Swarup, Adv.
Mr. Soumo Palit,Adv.
Mr. Kanishk Chaudhary,Adv.

Mr. Sanjay Hegde,Sr.Adv.
Mr. Anas Tanwir,Adv.
Ms. Sushma Mathur,Adv.

Ms. Vivha Datta Makhija,Sr.Adv.
Ms. Aswathi M.K., Advocates

Mr. Nalin Kohli,Sr.Adv.
Mr. Debojit Borkakati, Aor

Dr. Manish Singhvi, Sr. Advocate
Mr. Sandeep Kr. Jha, Adv.

Mr. Vikas Mahajan, AAG, H.P.
Mr. Vinod Sharma, Aor
Mr. Anil Kumar, Adv.

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Mr. Senthil Jagdeesan, Adv.

Mr. D.N. Goburdhun, Adv.

Ms. Ruchi Kohli, Adv.
Mr. Yash Mishra,Adv.
Ms. Nidhi Jaswal,Adv.
Ms. Srishti Mishra,Adv.
Ms. Manyaa Chandok,Adv.

Mr. Pukhrambam Ramesh Kumar, Adv.
Ms. Anupama Ngangom, Adv
Mr. Karun Sharma, Adv.
Mr. Shresth Sharma, Adv.

M/S Khaitan And Co.,AOR

Mr. Kumar Anurag Singh, Advocate
Mr. Nishant Piyush, Advocate
Ms. Tulika Mukherjee, Adv.

Mr. Santosh Kumar, Adv.

Mr. Jogy Scaria, Adv.
Ms. Beena Victor,Adv.

Ms. Garima Prashad, Aor
Mr. G. S. Oberoi, Adv.

Mr. Tapesh K. Singh, Adv.

Mr. Shuvodeep Roy, Adv.

Mr. Raghvendra Kumar, Adv.
Mr. Narendra Kumar, Aor

Mr. Anil Grover, AAHG
Dr. Monika Gusain, AOR

Mr. Anilendra Pandey, Adv.
Mr. Charanpal Singh Bahri, Adv.
Mr. Gurjeet Kaur Adv.

Mr. Narendra Kumar, Adv.

Mr. V.G. Pragasam, Adv.
Mr. S. Prabu Ramasubramanian, Adv.

Mr. M. Shoeb Alam, Adv.

Mr. V.N. Raghupathy, Adv.

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Mr. M. Yogesh Kanna, Adv.

Mr. Ashutosh Dubey, Adv.

Mr. Shovan Mishra, Adv.

Mr. Vinay Garg, Adv.
Mr. Upendra Mishra,Adv.

Mr. Vinod Sharma, Adv.

Mr. R.C. Kohli, Adv.

Ms. K. Enatoli Sema, Adv.
Mr. Amit Kumar Singh,Adv.

Mr. Vipin Nair, Adv.

Mr. Siddhesh Kotwal,Adv.
Mr. Divyansh Tiwari,Adv.
Ms. Astha Sharma, Adv.

Ms. Madhumita Bhattacharjee, Adv.

Mr. Anuj Bhandari, Adv.

Mr. K.V. Jagdishvaran,Adv.
Ms. G. Indira, Adv.

Mr. Mukesh Verma,Adv.
Mr. Pawan Kumar Shukla,Adv.
Mr. Yash Pal Dhingra, Adv.

Mr. Keshav Mohan,Adv.
Mr. R.K. Awasthi,Adv.
Mr. Prashant Kumar,Adv.
Mr. Piyush Vatsa,Adv.
Mr. Santosh Kumar - I, Aor

Mr. Yoginder Handoo, Adv.

Mr. Subhro Sanyal, Adv.

Mr. Preetpal Singh, Adv.
Mr. Ranjay Dubey, Adv.
Ms. Yati Sharma, Adv.
Ms. Priya Puri, Aor

Mr. Gaurav Sharma, Aor
Mr. Dhawal Mohan, Adv
Mr. Prateek Bhatia, Adv.

Mr. Gaurav Srivastava, Adv.

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Mr. Mahfooz Ahsan Nazki, Adv.
Mr. Polanki Gowtham,Adv.
Mr. Amitabh Sinha,Adv.

Mr. Sunil Fernandes, Adv.
Mr. Shariq Ahmed,Adv.
Mr. Muhammad Ali Khan,Adv.
Mr. Tariq Ahmed,Adv.
Ms. Nupur Kumar,Adv.
Mr. Omar Hoda,Adv.
Mr. Zeeshan Diwan,Adv.
Mr. Prastut Dalvi,Adv.

Ms. Nidhi Mohan Parashar, Adv.

Mr. Tapesh Kumar Singh, Aor

Mr. Ajay Aggarwal,Adv.
Mr. Kishan Rawat,Adv.
Mr. Rajan Narain, Aor

Mr. Jishnu M.L.,Adv.
Ms. Priyanka Prakash,Adv.
Mr. G. Prakash, Aor

Dr. Sanjay Kulshrestha, Applicant-in-person

Mr. C. K. Rai, AOR

Mr. Rajat Jariwal,Adv.

Applicant-in-person

Petitioner(s)-in-person

UPON hearing the counsel the Court made the following

O R D E R

REPORT NO. 106 SUBMITTED BY EPCA (Special Report on pollution hot spots in NCR with request for urgent directions to improve enforcement and pollution control)

IN RE: STUBBLE BURNING AND SMOG IN DELHI
INTERLOCUTORY APPLICATION NO. 127792/2017(DISPOSED OF) (Application for direction submitted in Court by A.C. on 17.11.2017)

INTERLOCUTORY APPLICATION NOS. 158128 AND 158129/2019 (Applns. For intervention and directions on behalf of Dr. Kaushal Kant Mishra)

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IN RE : COMPLIANCE OF ORDER DATED 13.01.2020

We are literally shocked at the attitude of the respondents with respect to installation of Smog Towers, which were supposed to be installed within three months and for which an agreement was to be entered into and the order was passed on 13.01.2020 after obtaining the requisite reports. Places were also chosen and stated on affidavit by the Central Government and the Govt. of NCT of Delhi. It was directed that the smog towers be installed within three months, but unfortunately, neither the Agreement has been entered into nor the requisite drawings have been obtained. The affidavit that has been filed is so much laconic and it is painful to note that the real intention is not to comply with the order of this Court and there is absolutely no respect shown to the order passed by this Court and for compliance of the order passed by this Court by the concerned respondents.

In the circumstances, we direct the MoEF and Govt. of NCT of Delhi to collect the drawings, in case the drawings have not been collected so far and to enter into an agreement positively within seven days and place compliance before this Court on the next date of hearing. In case the aforesaid directions are not complied with, we direct the personal appearance of the Secretary to the Government, MoEF and the concerned Secretary to the Govt. of NCT of Delhi on the next date of hearing, to explain as to why they have not complied with the order passed by this Court so far.

List the matter on 29.07.2020.

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IN RE : WATER QUALITY

The issue of Water Quality will also be taken up on 29.07.2020.

IN RE : PILING UP OF WASTE/GARBAGE BY THE SIDES OF RAILWAY TRACKS IN DELHI

We direct the Railway Department as well as the Municipal Corporations to comply with the order and to submit an action plan on the next date of hearing.

It is made clear that if the action plan is not submitted within the stipulated time, appropriate action will be taken against the concerned individuals.

List the matter in the first week of August, 2020 regarding Waste/Garbage.

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Various affidavits filed by the State Governments will be taken up separately, except the matters of Delhi, Haryana, Punjab and U.P.

Let the matters of Delhi, Haryana, Punjab and U.P. to be heard together on 29.07.2020 along with the issue of Smog Towers.

It was rightly pointed out by Ms. Aparajita Singh, learned Amicus Curiae and senior counsel, that nothing concrete has been done so far. Meeting of all stakeholders is required to be held by the Central Government involving the States of Haryana and Punjab to work out the comprehensive plan of action. We direct that a

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meeting be convened among the concerned high level officers and the Secretaries of the Ministry of Environment and Forest and Ministry of Agriculture with the Chief Secretaries of Delhi, Punjab and Haryana and a comprehensive plan be submitted to this Court on the next date of hearing.

List on 29.07.2020.

INTERLOCUTORY APPLICATION NO. 181745/2019 AND 46339/2020 (Applications for Intervention and Directions on behalf of Harshita Singhal)

With respect to Bio-medical waste, this Court passed an order on 06.03.2020 and issued notice to M/s Biotic Waste Solutions Pvt. Ltd. In spite of notice, they have not responded so far. It was pointed out by Mr. A.N.S.Nadkarni, learned senior counsel appearing on behalf of the applicant(s), that Bio-medical waste is being dumped in open in the nearby forest area, which is an objectionable act. It was also pointed out by Ms. Aparajita Singh, learned Amicus Curiae that Bio-medical waste is not being segregated and it is very dangerous, more so due to the pandemic of Coronavirus. As the bio-medical waste of the corona patients is mixed with that of general patients and thrown in open, the same is going to create havoc and its requisite treatment by Incinators and disposal is required.

Under the Bio-Medical Waste (Management and Handling) Rules 2016, the individual hospitals can enter into a contract only with the State Pollution Board approved Common Bio-Medical Waste Treatment Facility (the Contractor) who collects the waste from the

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hospitals and manages the disposal of the waste.

The tracking of biomedical waste generated; collected; processed and recycled needs to be improved urgently by adopting the bar-code system, as specified in the 2016 Rules which has not yet been implemented completely. The following hospitals have not adopted the bar code system as per the EPCA Report :

1. Chhatrapati Shivaji Subharti Hosiptal, Subhartipuram, NH-58, Meerut
2. Paras Hospital, Plot No. 130, Sector 4, Vaishali, Ghaziabad
3. Lyf Hospital, NH- 04, Gyan Khand -I, Indrapuram, Ghaziabad

For the aforesaid purpose, we have requested Ms. Aishwarya Bhati, learned ASG appearing on behalf of the Central Government and Mr. Dinesh Dwivedi, learned senior counsel appearing on behalf of the Government of NCT of Delhi that let a meeting of the Central Pollution Control Board, Delhi Pollution Control Board and EPCA and the requisite stakeholders of the concerned Departments of the Central Government and Delhi Government and National Capital Region, including the representatives of the Corporations be called for urgently within three days from today and steps be taken with respect to clearing bio-medical waste of various hospitals and that of Corona patients.

Let notice be issued to the hospitals and they are directed to ensure that bio-medical waste is not dumped in the open area and properly segregated and disposed of. Let a concrete action plan be prepared in this regard with respect to bio-medical waste and be submitted to this Court before the next date of hearing.

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The following Contractors mentioned at Page 7 of the EPCA Report No. 110 are also issued notice and they are directed to respond before the next date of hearing :-

State	Name of the Contractors	Address
Delhi	Biotic Waste Solutions Pvt. Ltd.	46, SSI Industrial Area, G. T. Karnal Road, Jahagirpuri, New Delhi - 33
	SMS Water Grace Pvt. Ltd.	B-30, Ranhola-Nilothi Road, Amritapuri, Nilothi Village, Nilothi, Delhi - 41
UP/NCR	Synergy Waste Pvt. Ltd., Meerut	Chhatrapati Shivaji Subharti Hospital Campus, Subharatipuram, NH-58, Meerut
	Medicare Environmental Management Pvt. Ltd, Hapur	C-21, Phase I, UPSIDC, Masoori Gulawati Road, Hapur, UP
	M/s Environ Waste Connection LLP, Hapur	BN-102-104, Phase III, UPSIDC, MG Road Industrial Area, UP – 201015.
Gurugram	Biotic Waste Solutions Pvt. Ltd.	Plot No. 725, Sector 37, Gurugram.
Rohtak	M/s S D Biomedical Waste Management Co., Rohtak	Village Balland, Rohtak.
Rajasthan	M/s Hoswin Incinerator Pvt. Ltd.	Village Rundh, Dhuninath Tehsil, Ramgarh, Near MIA, Alwar, Rajasthan. Contact Person – Mr. Arvind Bhardwaj - 8875693666

Let a fresh notice be issued to M/s Biotic Waste Solutions Pvt. Ltd. to file a compliance report.

IN RE: PET COKE

INTERLOCUTORY APPLICATION NOS. 100194, 102169 AND 108253/2018 (Applns. for Intervention, Permission/Directions and clarification

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of Order dt. 26.7.2018 on behalf of Indian Steel Association)

We find no merit in these applications. The applications are, accordingly, dismissed.

INTERLOCUTORY APPLICATION NOS. 113743 AND 113750/2019 (Applications for impleadment & Directions on behalf of M/s Bharat Aluminium Co. Ltd.)

List these applications in the first week of August, 2020.

INTERLOCUTORY APPLICATION NOS. 153800 AND 153803/2019 (Applications for Intervention and Directions on behalf of Noble Cause Foundation)

The learned senior counsel appearing for the applicant(s) seeks leave to withdraw these applications at this stage, with liberty to file fresh application(s), in case necessity arises.

The applications are, accordingly, dismissed as withdrawn.

INTERLOCUTORY APPLICATION NOS. 184874 AND 184881/2019 (Applications for Impleadment and Directions on behalf of Allied J.B. Friction Pt. Ltd.)

We are not inclined to allow the prayer made in these applications. The applications are, accordingly, dismissed.

INTERLOCUTORY APPLICATION NO. 67800/2019 AND 65667/2020 (Applications for Intervention and Directions on behalf of Mewar chamber of Commerce and Industries)

We find no merit in the prayer made in these applications. The applications are, accordingly, dismissed.

INTERLOCUTORY APPLICATION NOS. 54314, 54315 AND 54320/2020

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(Applications for Intervention, Directions and exemption from filing duly affirmed affidavit on behalf of Rane Break Lining Ltd.)

We find the applications to be bereft of merits. The applications are, accordingly, dismissed.

INTERLOCUTORY APPLICATION NOS. 56937, 56938 AND 56939/2020 (Applications for Intervention, Directions and exemption from filing duly affirmed affidavit on behalf of Neo Carbons Pvt. Ltd.)

We find no merits in the prayer made in these applications. The applications are, accordingly, dismissed.

INTERLOCUTORY APPLICATION NOS. 59929 AND 59930/2020 (Applications for Impleadment and Directions on behalf of Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. (Harduaganj Thermal Power Station)

Issue notice.

Recovery so far as regards to Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. shall remain stayed till the next date of hearing.

Tag with I.A. No. 53959 and 53962/2020.

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Perused the letter circulated by Dr. Bhure Lal, Chairman, EPCA for urgent listing of Report Nos. 109, 108 and 105.

List these reports along with relevant applications in the first week of August, 2020.

(NARENDRA PRASAD)	(JAYANT KUMAR ARORA)	(JAGDISH CHANDER)
AR-CUM-PS	COURT MASTER	ASSISTANT REGISTRAR

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ITEM NO.8+29+32 Court 3 (Video Conferencing) SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No(s). 15397/2020

(Arising out of impugned final judgment and order dated 12-02-2020 in OA No. 102/2014 12-02-2020 in OA No. 117/2014 passed by the National Green Tribunal)

TATA POWER COMPANY LIMITED Petitioner(s)

VERSUS

SANDPLAST (INDIA) LTD. & ORS. Respondent(s)

(IA No.81427/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.81426/2020-EX-PARTE STAY and IA No.81424/2020-PERMISSION TO FILE APPEAL)

WITH
Diary No(s). 14871/2020 (XVII)
(FOR ADMISSION and IA No.86566/2020-STAY APPLICATION and IA No.86567/2020-PERMISSION TO FILE APPEAL)
Diary No(s). 15404/2020 (XVII)
(IA FOR PERMISSION TO FILE APPEAL ON IA 82789/2020 FOR EX-PARTE STAY ON IA 82790/2020 FOR EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT ON IA 82791/2020)
Diary No(s). 16626/2020 (XVII)
(IA FOR PERMISSION TO FILE APPEAL ON IA 83646/2020
FOR GRANT OF INTERIM RELIEF ON IA 83648/2020
FOR EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT ON IA 83649/2020
FOR PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES ON IA 83652/2020)
Diary No(s).10709/2020
(FOR ADMISSION and I.R. and IA No.87581/2020 - Ex-Parte Staty and IA No.87580/2020 - Permission to file Appeal)
Diary No(s). 11421/2020
(FOR ADMISSION and IA No.87550/2020 - Ex-Parte Stay and IA No.87552/2020 - Exemption from fiig affidavit and IA No.87549/2020 - Permission to file appeal)

Date : 11-09-2020 These matters were called on for hearing today.

CORAM : HON'BLE DR. JUSTICE D.Y. CHANDRACHUD
HON'BLE MS. JUSTICE INDU MALHOTRA
HON'BLE MR. JUSTICE K.M. JOSEPH

Signature Not Verified
Digitally signed by ARJUN BISHT
Date: 2020.09.11 19:22:31 IST
Reason:

For Petitioner(s) Mr. Sajan Poovayya, Sr. Adv.
Mr. Shri Venkatesh, Adv.

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Ms. Nishtha Kumar, AOR
Mr. vikas Maini, Adv.
Mr. Suhael Buttan, Adv.
Mr. anant Singh, Adv.
Mr. Pratibhanu Singh Kharola, Adv.

Mr. Bharat Sangal, Sr. Adv.
Mr. Nagarkatti Kartik Uday, AOR
Ms. Babita Khushwaha, Adv.

Mr. Adarsh Tripathi, Adv.
Mr. Anish Gupta, Adv.
Mr. Nikhil Kandpal, Adv.
Mr. Gaurav Srivastava, AOR

Mr. Dhruv Mehta, Sr. adv.
Ms. Ranjana Roy Gawai, Adv.
Ms. Vasudha Sen, Adv.
Ms. Prachi Golechha, Adv.
Ms. Divya Roy, AOR

For Respondent(s)

UPON hearing the counsel the Court made the following

O R D E R

Permission to file the appeals is granted.

Issue notice.

Dasti, in addition, is permitted.

Tag with Civil Appeal Nos 1692-1693 of 2020

There shall be an ad – interim stay of recoveries in pursuance of the impugned order of the National Green Tribunal.

(GULSHAN KUMAR ARORA)
AR-CUM-PS

(SAROJ KUMARI GAUR)
COURT MASTER

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