

**Vth QUARTERLY REPORT OF THE
OVERSIGHT COMMITTEE**

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

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

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THE ORDER DATED 14.07.2020 OF NGT IN OA 164/2018 (ASHWANI KUMAR
DUBEY VS. UNION OF INDIA AND ORS.)**

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

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

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

12. The newly constituted OC may furnish its reports quarterly by email at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. First such report may be furnished giving status as on 31.10.2020 by 15.11.2020 with copies to concerned stake holders for their response if any by 30.11.2020."

2. In compliance to the above order of Hon'ble NGT and findings / recommendations of the various earlier Committees, the new Oversight Committee in its first report had chalked out the various recommendations and gathered the status of compliance / ATR form the various stack holders, mainly Thermal Power Plants, Coal Mines and Railway authorities of the Singrauli region. The first report was submitted before the Hon'ble NGT on 27-11-2020. Likewise the second quarterly report was submitted on 28-3-2021, the third report was submitted on 15-06-2021 and the fourth report was submitted on 08-10-21.
3. Before the submission of the fourth quarterly report for the quarter ending 31-07-2021 and with the relaxation in Covid 19 restrictions, the Oversight Committee had undertaken the field visits of the sites of various stakeholders to assess the actual status of implementation by them. The field visits were undertaken on 9-10th September, 2021 and a review meeting with the various stakeholders was organized on 11th September at the conference hall of M/s Vindhychal Super Thermal Power Station, Singrauli and recommendations were submitted in the fourth report for the quarter ending 31-07-21.

4. For the Vth quarterly, compliance reports have been submitted by most of the stake holders. The present status of the compliance by the various stake holders as communicated to the committee and the field compliance status actually under taken and reported by the regional officer of the MPPCB at Singrauli was called. Based on the documentary submissions by the various stakeholders, the status of compliance is summarized as under:

1. Thermal Power Plants:

S.No.	Previous Recommendations	Current Status
A	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Thermal Power Plants NTPC, Sasan Power Ltd., Jaypee Nigrie Super Thermal Power & Hindalco Industries Ltd. Mahan Aluminium Project have submitted their compliance reports which are placed as ENCLOSURE 1A/V to ENCLOSURE 1 D/V respectively. M/s Essar Power Ltd has not submitted any compliance report. Except Jaypee Nigrie no other TPP has so far achieved 100% utilization of the fly ash.
B	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines as notified vide GSR 243(E) dated 31-03-21	Singrauli TPPs have reported that their progress for the installation of the FGD, SCR/SNCR and each one is at one or other stages of implementation. CPCB vide its letter dated 27-8-21 has categorized the Singrauli TPPs in compliance of the notification as category "C" and the time for compliance of the new emission is 31-12-24. The TPPs shall adhere to these timelines.
C	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	TPPs have reported their progress per their submissions (ENCLOSURE 1A/V to ENCLOSURE 1 D/V) that ash dyke monitoring is being conducted by them through reputed organizations like IITs etc.
D	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other	TPPs have reported the steps taken by them for the control air borne fly ash. However comprehensive measures have been reported under implementation by NTPS including installation of fog cannons, eagle sprinklers

	scientific measure.	automatic swiveling sprinklers (ENCLOSURE 1A/V to ENCLOSURE 1 D/V).
E	NTPC- VSTPS shall ensure that the disposal of the fly ash in the abandoned Gorbi mines shall be undertaken in an environmentally sound manner and necessary checks and balances as well as the monitoring of the surrounding ecosystem shall be ensured as outlined in the permission granted to it by MPPCB.	NTPC has reported that they are complying with this recommendation (ENCLOSURE 1A/V).
F	NPTC- Vindhyachal has reported completion of the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke. However as a measure of safety, the dredging pumps installed there should be operated regularly to ensure that no more traces of fly ash remain in the reservoir.	NTPC has accepted (ENCLOSURE 1A/V) the recommendations and has submitted that another round of dredging will be undertaken in August 2022 when the water level rises and supports dredging.
G	NPTC-Vindhyachal has completed the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submitted the report, however the conclusions that construction of RCC wall is neither technically feasible nor viable are subject to the final orders by Ld. NGT. Similarly studies / action should be initiated for the construction of Ash mounds.	Presently NTPC has reported that experts in this type of specialized work are not available and NTPC is searching for the same. They have also approached IIT Delhi and NIT Raurkela for conducting pilot studies (ENCLOSURE 1A/V).
H	The CAAQMS to be installed by NTPC behind the Trauma Center building of NTPC shall be completed within 2 months. NTPC shall ensure that apart from the regular parameters on line monitoring of Hg in	NTPC has reported that installation of CAAQMS work has been completed. Completion of commissioning is pending as electrical connection of required capacity is not available. Matter is being pursued with MPEB and district administration (ENCLOSURE 1A/V).

	ambient air shall also be ensured.	
I	The regular calibration of the CAAQMS and CEMS installed by the TPPs shall be ensured as per the prescribed frequency of calibration.	TPPs have reported compliance (ENCLOSURE 1A/V to ENCLOSURE 1 D/V).
J	As far as online continuous mercury monitoring in water is concerned, instead of continuous monitoring of mercury in water bodies like Surya nalla, Rihand reservoir etc., manually monitoring and analysis at least once in a month should be done and reported by NTPC till appropriate online Hg monitoring equipment is available.	NTPC has accepted to comply and report of Hg monitoring has been submitted for the Rihand reservoir and its presence has not been found (ENCLOSURE 2/V).
K	M/s Sasan Power Ltd. shall ensure that the huge amount of fly ash and mud that has flown into the local nallas reaching the Rihand river during heavy rains in the region in the month of May-June 2021, shall be cleared from the agriculture fields of the farmers as well as from the local Thargatta nalla, Garra nalla and the Rihand river within in three months time.	The TPP has reported its part of compliance that major part of the ash has been removed but only traces remain which will not affect the fertility of the agriculture fields. Industry has also submitted that the Thargatta nalla has been cleaned and the Garra nala cleaning will be completed by January 2022 (ENCLOSURE 1 B/V) However the site visit report by the Regional Officer, MPPCB Singrauly which is placed as ENCLOSURE 2/ V clarifies that industry has not removed the ash and has not complied with the recommendations.
L	Also due to the previous accident dated 10-04-2020 in which large volume of fly ash had flown in the Gawaiyya nala and still lying in thick heaps along the banks of the Gawaiyya nala as well as the ash deposited in the Rihand reservoir at should be cleaned by M/s Sasan Power Ltd.	The TPP has reported its part of compliance that major part of the ash has been removed but only insignificant quantity remain in Gawaiyya Nala which will be cleaned by June 2022 (ENCLOSURE 1 B/V). However the site visit report by the Regional Officer, MPPCB Singrauly (ENCLOSURE 2/ V) does not corroborate the industry's contentions.

	within 3 months, and a photographic and video-graphic record of the same shall be submitted from time to time to show the progress.	
M	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	The reply submitted by Sasan Power Ltd. is not conducive as the industry has not reported health checkups by itself under CSR activities rather have replied that the State Health Department is doing this job.

2. Coal Mines:-

S.No.	Previous Recommendations	Current Status
A.	Road sweeping machines procured by NCL shall be deployed to regularly sweep the main Jayant Square- Shukla Mod road so as to keep it clean and minimize dust nuisance. Regular sweeping of the all other internal coal transport roads shall also be undertaken to keep them dust free.	NCL mine management has reported affirmative compliance that one road sweeping machine is already working and another has been procured for the road sweeping. The compliance reported by NCL management is placed as ENCLOSURE 3 / V However the inspecting Regional Officer has reported that the situation of dust on the road is poor and also crates mud due to water sprinkling which is being undertaken in unscientific manner (ENCLOSURE 2/V)
B.	Strengthening of the road side shoulders of the main Jayant Square- Shukla Mod road shall be undertaken within 3 months and road shall be made dust free in all respects.	Mine management has reported that the road strengthening will be undertaken and its estimate is under approval stage (ENCLOSURE 3 / V).
C.	The NCL should construct oil and grease trap along with sedimentation pit of appropriate capacity at the earliest at the end of the catch drain within 3 months time to further strengthen the existing	Mine management has reported construction of sedimentation pit, however oil and grease trap is yet to be constructed (ENCLOSURE 3 / V).

	arrangements.	
D.	The alternate route for the transportation of the coal should be developed at the earliest, after completing due process of forest clearance. A time bound action plan in this regard may be prepared and implemented. Help of the District administration to overcome any bottlenecks can be solicited.	Mine management has reported compliance and submitted that permission for tree felling has been obtained for 7.44 Ha. of forest land & process of tree felling will be started shortly (ENCLOSURE 3 / V).
E.	Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled <i>“Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015”</i> .	Mine management has reported compliance, however the Regional Officer has reported that the green net that has been installed on the upper portion of the wind breaking wall has not been replaced with GI sheets (ENCLOSURE 2 / V & ENCLOSURE 3 / V).
F.	The study being undertaken by the IIT BHU regarding utilization of fly ash in external OB of the mines shall be completed in time and the progress in this regard shall be submitted from time to time.	Mine management has reported that the study report will be received by December 2021 (ENCLOSURE 3 / V).
G.	The construction work of additional capacity CHP in the Jayant Mine is already delayed. The work should be given impetus and is should be completed by March 2022 instead of July 2022, so that coal transportation by road is stopped and maximum quantity of the coal can be loaded in the railway wagons from the mine itself.	Mine management has reported that the overall physical progress till 31.10.2021 is 54.98% and all efforts are being made to expedite the work (ENCLOSURE 3 / V).
H.	The regular calibration of the CAAQMS installed by the mines	Mine management has submitted compliance (ENCLOSURE 3 / V).

	shall be ensured as per the prescribed frequency of calibration.	
I.	The Nigahi coal mine of M/s NCL should clear the OB from the Mudwani dam and M/s Moher & Moher Amlohri captive Coal Mine of M/s Sasan Power Ltd. should clear the OB from the agriculture land of farmers & compensate them within 45 days.	<p>Mine management has submitted time bound action plan for:</p> <p>(i) protection work along toe of dump to arrest silt near Mudwani Dam and clearing of OB ..by 30.04.2022</p> <p>(ii) Stabilisation of OB Dump near Mudwani Dam....by 31.05.2022</p> <p>(iii) Making RCC/RRM Retaining wall near bank of Mudwani Dam at Nigahi Project...by 31.05.2022</p> <p>(iv) Biological reclamation of the OB dump benches where rain cuts occurred....by 31.08.2022 (ENCLOSURE 3 / V).</p> <p>Moher & Moher Mines of Sasan Power Ltd. has asked for more time to clear the OB spread in the agriculture lands (ENCLOSURE 1 B / V).</p>
J.	It has been mentioned by M/s NTPC-Vindhyachal that the Pit 2 & 3 of the abandoned Gorbi mine is being allocated to the other power companies by M/s NCL, which are situated in UP. Since the mines are filled with acidic water and NTPC has started ash filling in Pit 1 on trial basis after a thorough study of various environmental parameters and will be studying the impact of ash filling in long term as well and will be developing facilities for the safe transportation of ash in long term; the allotment of other two pits to other outside parties may result in environmental & safety issues as well as issues related to the “responsibility of whom” in case the environment is adversely affected. Hence no	Mine management has reported that till date it has not given permission to any other agency of UP for filling of fly ash in Pit no. 2 & 3 of Gorbi abandoned mine (ENCLOSURE 3 / V).

	second party shall be allotted the other pits of Gorbi Mines for fly ash filling. The oversight Committee was told by representatives of M/s NCL that they will not go ahead with allotting the mines to any other party. However, M/s NCL should clarify their stand towards the objections raised by M/s NTPC-Vindhyachal.	
K.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. The manifestation among the mine workers as well as the villagers regarding coal dust related diseases shall be diagnosed and treatment provided. Record should be maintained and made available to the district health authorities.	Mine management has reported compliance for the years 20-21 and 21-22 as per ENCLOSURE 3/V. It has also been reported that no case of silicosis / fluorosis has been diagnosed.

3. Railway Sidings / Railway Administration:

S.No.	Previous Recommendations	Current Status
A.	The railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) are a source of dust pollution in the vicinity. The railway sidings should be operated in accordance with the guidelines published by CPCB titled " <i>Inventorization of Railway Sidings and Guidelines for their Environment Management-March 2015</i> " in compliance	East Central Railway (ECR) has submitted its compliance report, however West Central Railway (WCR) has failed to do so. The report submitted by ECR is placed as ENCLOSURE 4/V , it is not conducive. The ECR administration has asked for more time for complying with the norms at various sidings operated by it. The Regional Officer has reported no progress done by WCR at its Gajra Behra and Bargawan sidings and the status reported previously remains the same.

	with the Ld. NGT order dated 08-07-2021 in OA 87/2017 (CZ) and all necessary dust control devices should be installed within 3-6 months time and necessary consent from MPPCB shall be obtained.	
B.	Ld. NGT can issue suitable directions to RDSO to undertake scientific / engineering studies to undertake use of fly ash in track laying, which if successful may come a long way in utilization of fly ash for beneficial purposes.	_____

4. National Environmental Engineering Research Institute (NEERI):

S.No.	Previous Recommendations	Current Status
---	NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of M/s Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. NEERI should submit the pending reports in cases of M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. at the earliest.	NEERI has not submitted any further progress in the EDC reports of M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd.

5. District Administration/ Municipal Corporation:

S.No.	Previous Recommendations	Current Status
A.	Municipal Corporation Singrauli should ensure that all the villages, where RO water supply was provided, shall be supplied with piped water supply / tankers.	The inspecting regional officer has reported status quo as reported in the previous report (ENCLOSURE 2 / V).

B.	The STPs being constructed by the Municipal Corporation should be completed at the earliest as per the directions of Hon. NGT from time to time in OA 606 / 2018, else EC shall be levied as directed by Ld. NGT.	The inspecting regional officer has reported status quo as reported in the previous report. However SPCB has issued an order to the Municipal Corporation Singrauli on 24-12-21 for levying an environmental compensation of Rs. 300 lakhs from the Municipal Corporation for non compliance of SWM Rules, as per the orders of Ld. NGT in OA 606 / 2018 for a period of 1 st July 2020 to 31 st Dec 2020 (ENCLOSURE 5 / V).
C.	As discussed with the Municipal Officers, the sewage after treatment shall not be discharged in any natural water body. The Municipal Corporation shall prepare a plan for putting the treated effluent for beneficial uses like plantation and horticulture, road cleaning and other industrial uses within 3 months time.	Compliance not reported by the Municipal Corporation.
D.	The Health department of the district shall ensure that the citizens with manifestation of occupational diseases like silicosis, fluorosis etc shall be diagnosed and treated. Facilities for the same shall be developed in the newly constructed Trauma center of the district hospital. The health department shall also allot formally the space for the installation of CAAQMS to M/s NTPC-Vindhyachal within 15 days.	The health department has already allotted the space for the installation of CAAQMS to M/s NTPC-Vindhyachal which is now awaiting commissioning.
E.	The domestic use of coal in the households shall be discouraged and LPG connections under Ujjawala Scheme be provided.	-----

6. RECOMMENDATIONS:

Based on the submissions of the stakeholders as well as the field report from the Regional Officer of MPPCB, following recommendations are being made for further compliance by the various stakeholders:-

➤ **Thermal Power Plants:-**

- A.** The thermal power plants shall endeavour that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.
- B.** For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines as notified vide G.S.R. 243(E) dated 31-03-2021 and CPCB categorisation.
- C.** Fly ash dyke strength & stability monitoring shall be continued through some reputed organizations. The safety of ash dykes and timely maintenance should be regularly ensured and any failures will be the sole responsibility of the TPPs.
- D.** Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure along the lines that are being implemented by M/s NTPC shall be followed where ever practicable.
- E.** NPTC- Vindhyachal shall keep exploring possibilities for the construction of Ash mounds and progress shall be submitted from time to time.
- F.** The commissioning of CAAQMS installed by NTPC shall be completed at the earliest. NTPC shall ensure that apart from the regular parameters on line monitoring of Hg in ambient air shall also be ensured regularly.
- G. M/s Sasan Power Ltd.** has been avoiding and delaying in performing its environmental duties in clearing of fly ash and mud that has flown into the local Thargatta nalla, Garra nalla and the Rihand river during May-June 21 accident. Similary large volume of fly ash had flown in the Gawaiyya nala on 10-04- 20 and still lying in thick heaps along the banks of the Gawaiyya nala and Rihand reservoir. MPPCB should consider levying environmental compensation and other legal recourse for the same.
- H. M/s Sasan Power Ltd** instead of diverting its CSR responsibilities on the district health department shall itself undertake health check up of villagers through mobile medical vans for the detection of the

occupational diseases like silicosis, fluorosis etc. and treatment be provided. Record should be maintained and made available to the district health authorities and to the Oversight Committee from time to time.

➤ **Coal Mines:**

- A. The dust prevention activities by NCL Road the main Jayant Square-Shukla Mod road have not resulted to keep it clean and minimize dust nuisance. Proper scientific measures of dust prevention shall be ensured and strengthening of the road side shoulders of the main Jayant Square-Shukla Mod road shall be undertaken at the earliest and progress reported from time to time.
- B. The construction of oil and grease trap along with sedimentation pit of appropriate capacity shall be done at the within two months to further strengthen the existing arrangements or else MPPCB should consider levying environmental compensation and other legal recourse for the same.
- C. The alternate route for the transportation of the coal should be developed at the earliest in the acquired land of 7.44 hectares. Help of the District administration to overcome any bottlenecks can be solicited.
- D. Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled *“Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015”*. The green net used for the wind breaking wall shall be replaced with GI sheets in 3 months’ time.
- E. The study report undertaken by the IIT BHU regarding utilization of fly ash in external OB of the mines shall be submitted as soon as it is received.
- F. The progress of construction work of additional capacity CHP in the Jayant Mine is not satisfactory. Additional efforts shall be taken by the NCL management so as to complete it by March 2022.

- G. The regular calibration of the CAAQMS installed by the mines shall be ensured as per the prescribed frequency of calibration and reported from time to time.
 - H. The removal of OB by the Nigahi coal mine of M/s NCL from the Mudwani dam and M/s Moher & Moher Amlohri captive Coal Mine of M/s Sasan Power Ltd. from the agriculture land of farmers, has been dissatisfactory and long time has been planned for its clearance. Both the mines should complete OB removal by March 2022 and report about the compensation paid to affected locals. For further delay, MPPCB should consider levying environmental compensation and other legal recourse for the same
 - I. Health check up of villagers through mobile medical van should be continued for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities and reported from time to time.
- **Railway sidings / Railway Administration:**
- A. The Railway administration is slack in undertaking pollution control measures on the railway sidings operated by East Central Railways (ECR) and West Central Railways (WCR) in violation of the guidelines published by CPCB titled *"Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015"* and in violation of Ld. NGT order dated 08-07-2021 in OA 87/2017 (CZ) Necessary consent from MPPCB has also not been obtained . MPPCB should consider levying environmental compensation and other legal recourse for the same.
- **National Environmental Engineering Research Institute (NEERI):**
- NEERI should submit the reports of assessment of Environmental Damage Compensation (EDC) for M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. NEERI at the earliest.

➤ **District Administration / Municipal Corporation:**

- A. Municipal Corporation Singrauli should ensure that all the villages, where RO water supply was provided, shall be supplied with piped water supply / tankers.
- B. The STPs being constructed by the Municipal Corporation should be completed at the earliest as per the directions of Hon. NGT from time to time in OA 606 / 2018 and remit the amount EC levied on it by MPPCB.
- C. The Municipal Corporation shall prepare a plan for using the treated sewage for beneficial uses like plantation and horticulture, road cleaning and other industrial uses within 3 months time.
- D. The Health department of the district shall ensure that the citizens with manifestation of occupational diseases like silicosis, fluorosis etc shall be diagnosed and treated and record should be maintained.
- E. The domestic use of coal in the households should be discouraged and LPG connections under Ujjawala Scheme / smokeless fuel shall be provided.

Enclosures : As above



(Sunil Kumar Meena)
Scientist D,
CPCB Regional Directorate, Bhopal



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



(Rajiv Ranjan Meena)
District Magistrate
Singrauli (MP)

NTPC Vindhyachal Compliance Status (as on 28.11.21) to IVth quarterly report of the Oversight Committee constituted in compliance with the hon'ble NGT order Dated 14-07-2020 [O.A. 164 / 2018 (Ashwani Kumar Dubey vs. Union of India & Others.)]

RECOMMENDATIONS (Thermal Power Plants) & STATUS (NTPC Vindhyachal)

S.No.	RECOMMENDATION	NTPC VINDHYACHAL SUBMISSION (as on 28.11.21)
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	<ul style="list-style-type: none"> Action plan to achieve 100 % ash Utilisation and Summary of Measures taken/planned to achieve the same attached as Annexure 1.
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines as notified vide G.S.R. 243(E) dated 31-03-2021.	<ul style="list-style-type: none"> Contracts for the works have been awarded as required. FGD installation work, to achieve flue gas SO2 limits, is in progress in all the Units (1-12). Progress of work is as per Annexure 2. Timeline defined as per the MoEF & CC notification dated 31-03-2021 [Environment (Protection) Amendment Rules, 2021] will be achieved. Flue gas NOx limit achieved in Unit 8, Unit 9, Unit 10 and Unit 12. Action plan in place to achieve the limit in other Units and work is in progress to achieve the same before the timeline defined as per the MoEF & CC notification dated 31-03-2021 [Environment (Protection) Amendment Rules, 2021].
C.	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenanceshould be regularly ensured.	<ul style="list-style-type: none"> In order to ensure dyke stability and safety, detailed technical audit by external expert is being carried out on annual basis. IIT – Roorkee had conducted dyke stability analysis of all 4 Shahpur dykes of NTPC Vindhyachal in 2019. As per the report submitted, design and construction of the dykes was reported to be safe and no additional measures to enhance safety and stability of dyke were suggested. However, for V1 dyke, additional water escape structures in the form of spillways were suggested to take care of excessive rainfall conditions and the same have been incorporated in the design of the dyke and construction is completed. IIT-Delhi conducted separate stability analysis of V2 dyke of NTPC Vindhyachal in 2020 and suggested some berm stabilization through

ENCLOSURE 1A/V

NTPC Limited - Vindhyachal
 भारतीय विद्युत निगम - विंध्याचल
 AGM (EMG)
 अग्र महाप्रबंधक (संस्था)
 MUNISH JAIN

NTPC Limited - Vindhyachal
 भारतीय विद्युत निगम - विंध्याचल
 AGM (EMG)

		<p>rockfill strengthening of Starter dyke. Work is in progress to implement the same.</p> <ul style="list-style-type: none"> ● IIT-Hyderabad has conducted a comprehensive stability analysis of all Ash Dykes of Vindhyachal in 2020-21. The work included drone surveying and carrying out field tests of all dykes. Draft report of the study is received. ● Weekly inspection of all ash dykes is being carried out by inter-departmental team of NTPC Vindhyachal. Apart from this, daily monitoring in night is being done during the Monsoon period. These inspections are over and above the 24 hour patrolling being done in dyke area through contractual manpower to monitor any abnormality. Any observations during these inspections are immediately attended. ● Robotic inspection of water escape structure and decanting pipelines for V-2 ash dyke has been carried out by M/s Digital Surveillance Inc. The wells were inspected internally by deploying a specially designed truss frame carrying a Pan Tilt Zoom camera, with an objective to visually examine the condition of the well. The pipelines were inspected internally by deploying a robot equipped with video camera for visual inspection and sonar profiler for mapping ash accumulation. No major defect was observed in the inspection.
D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	<p>Measures to control fugitive dust from ash dykes:</p> <ul style="list-style-type: none"> ● 04 No of Fog Canons have been procured and are under commissioning (01 no. commissioned). ● 15 Eagle Sprinklers and 50 Garden Sprinklers in a HDPE Pipe Network of 500 Meters installed in Baliyari Dyke. ● 40 more automatic swiveling sprinklers have already been procured and procurement of another 200 is under progress. Installation expected to be completed in 2021-22. ● Procurement of additional 20 Km HDPE Pipes and Garden Sprinkling System for Fugitive Dust Suppression is in progress. Installation expected to be completed in 2021-22. ● Manual sprinkling through flexible hose pipes is being done in all the

		<p>dykes.</p> <ul style="list-style-type: none"> ● Thin water film is maintained on top of all ash dykes that are in service to prevent fugitive dust emission. ● Disposal of ash in GORBI mines has been started w.e.f 30.06.21 with concurrent monitoring of groundwater in the surrounding areas. ● Action plan is prepared for compliance to other terms and conditions as specified in MPPCB permission and work is in progress to achieve the same.
E.	<p>NTPC- VSTPS shall ensure that the disposal of the fly ash in the abandoned Gorbji mines shall be undertaken in an environmentally sound manner and necessary checks and balances as well as the monitoring of the surrounding ecosystem shall be ensured as outlined in the permission granted to it by MPPCB.</p>	<ul style="list-style-type: none"> ● As per the recommendation, another round of dredging is proposed to be taken up in Aug'22 once water in the Reservoir becomes high enough to support the activity. Contract proposal for the same will be initiated accordingly.
F.	<p>NPTC- Vindhyachal has reported completion of the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke. However as a measure of safety, the dredging pumps installed there should be operated regularly to ensure that no more traces of fly ash remain in the reservoir.</p>	<ul style="list-style-type: none"> ● Ash Mound construction is a highly specialized work that requires very minute detailing in design and construction, particularly with regard to the safety and environment aspects since sliding of ash during construction/stabilization period is a major risk. ● NTPC itself does not have the requisite expertise in the area and availability of outside agencies who have this kind of expertise in India is also very less. However, NTPC has been vigorously exploring all options for carrying out such a construction. Earlier the complete work of ash mound and case study was offered to the known reputed institute/agency, namely M/s ATKINS, Bangalore, M/s Burns and
G.	<p>NTPC- Vindhyachal has completed the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submitted the report, however the conclusions that construction of RCC wall is neither technically feasible nor viable are subject to the final orders by Ld. NGT.</p>	

	Similarly studies / action should be initiated for the construction of Ash mounds.	<p>Mcdonnell, M/s L&T, Sargent & Lundy, IIT-Roorkee and IIT-Delhi.</p> <ul style="list-style-type: none"> Out of them only IIT Delhi agreed for pilot construction after submission of GTI Investigations, rainfall data, Max. & min. flood level etc. As per IIT, Delhi proposal, construction of pilot will again be followed by detailed analysis of data, construction methodology, sequencing of activities & finalization of specifications. In view of the long lead time in IIT-Delhi proposal, as recommended by NTPC's corporate office, NIT Rourkela has also been approached to take up the project since they also are competent to take up such work and their response is awaited.
H.	The CAAQMS to be installed by NTPC behind the Trauma Center building of NTPC shall be completed within 2 months. NTPC shall ensure that apart from the regular parameters on line monitoring of Hg in ambient air shall also be ensured.	<ul style="list-style-type: none"> Installation of CAAQMS work has been completed. Completion of commissioning is pending as electrical connection of required capacity is not available. Matter is being pursued with MPEB and Distt. Administration.
I.	The regular calibration of the CAAQMS and CEMS installed by the TPPs shall be ensured as per the prescribed frequency of calibration.	Being complied.
J.	As far as online continuous mercury monitoring in water is concerned, instead of continuous monitoring of mercury in water bodies like Surya nalla, Rihand reservoir etc., manually monitoring and analysis at least once in a month should be done and reported by NTPC till appropriate online Hg monitoring equipment is available.	Noted for compliance.

मुनीश जैन
 MUNSISH JAIN
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 AGM (EMG)
 एनटीपीसी लिमिटेड - विद्याचल
 NTPC Limited - Vidyachal

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 NTPC Limited - Vidyachal
 अर्थ प्रशासक (सूचना)
 AGM (EMG)
 मुनीश जैन
 MUNSISH JAIN

Annexure 1

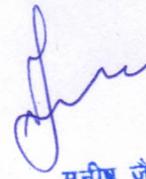
100% ASH UTILIZATION PLAN

UOM: LMT

	2021-22	2022-23	2023-24	2024-25
Expected Ash Gen	88	88	88	88
Supply to Cement Plants through rail transportation including Export	5	10	18	23
Gorbi/Other Mines Filling	3	10	20	26
Utilisation in OB mixing	0	5	15	20
Waste land development	9	8	5	4
Brick Manu. & other Fly ash based industry	3	6	8	6
Road Construction	10	13	9	9
Ash Dyke Raising	8	8	4	0
Total AU	38	60	79	88
AU%	43%	75%	90%	100%

EXTERNAL SUPPORTS REQUIRED:

1. Implementation of Demand side provisions of MoEF notification on fly ash utilization including mandatory use of fly ash bricks and OB mixing with fly ash.
2. Development of requisite rail/road infrastructure to support ash evacuation from the region to ensure 100 % ash utilization.
3. Allotment of additional mine pits for Ash dumping.


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AGM (EMG)
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NTPC Limited - Vindhyachal


NTPC Limited - Vindhyachal
AGM (EMG)

Annexure 1

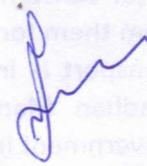
Initiatives & Measures taken by NTPC Vindhyachal to improve ash utilization

1. NTPC Vindhyachal has successfully started backfilling of GORBI mine from 15.07.2021. The one pit of the mine currently allotted to NTPC Vindhyachal has the capacity to cater to the needs of VSTPS for 10 years if 75 % ash utilisation is achieved in other avenues.
2. Cement manufacturers are being given incentive for ash lifting from VSTPS to share the transportation cost and make it financially viable for them. Cement Manufacturers are also being pursued to set up Clinker Grinder Units in the area. UP Government is providing support/subsidies for setting up Cement grinding units. Similar support is solicited from our State Government Authorities.
3. After constant follow-up with NHAI, a requirement of 10 Lac MT has been received from them for use in road construction in Varanasi area and ash supply through road transport is in progress. VSTPS is committed to provide ash to all projects under Pradhan Mantri Gramin Sadak Yojna and asset creation programmes of the Government involving construction of buildings, road, dams and embankments within 300 kms of the Plant as and when the requirement is received.
4. To meet the requirement of NHAI, Ash transportation by RCR mode (Road cum Rail mode) is also envisaged and a pilot project to transport 20,000 MT pond ash is underway. Tendering for the same was already done but since none of the vendors could meet the Qualifying Requirements, retendering is proposed in Dec'21.
5. Infrastructure and Facilities are being developed for start of ash transport through rail route to make the transportation economical and environment friendly. One rack of fly ash was transported to Star Cement, assam in Jan'21. NTPC is procuring 3 rakes of BTAP wagons at a cost of ~ 60 crores. Two racks have already been delivered.
6. Direct rail loading facility for all the six Units of Stage 1 & both the Units of Stage 4 is under commissioning. One rack of fly ash has already been transported to RCCPL Ltd, Maihar by BTAP rake in Oct'21. Regular transport of ash through rail is likely to start in Dec'21.
7. 50 kg Ash Bagging Machines have been installed for transport of ash in bagged form to avoid fugitive dust. Jumbo Bagging Machine (3 Tonne) and Automatic Bagging Machine (1 Tonne) is also under procurement.
8. Ash park has been set up at Rewa where fly ash transported in 50 kg bags from VSTPS is being made available to the ash based industries in the region.
9. Free of cost Door step delivery of fly ash is being made to the ash based industries within 100 kms from the Plant.
10. Supply of fly ash to the ash based industries in 100 - 300 kms radius of the Plant on cost sharing basis is being done, as envisaged in the MoEF notification.

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11. VSTPS is actively following up with Distt Administration for allotting any abandoned quarries which can be developed using ash. Ash filling in one no. of stone quarry allotted to VSTPS in Makrohar region has already been completed (~ 90,000 MT of ash filling was done).
12. VSTPS is also doing free of cost land development using ash, as per CPCB guidelines, at various locations within 100 kms of Plant radius. Total ash utilisation in these contracts is expected to be around 10 LMT this year.
13. VSTPS is making around 75,000 ash bricks/day for its own use. No red brick is used for any construction activity within Plant or township.
14. VSTPS has been constantly requesting NCL for mixing of fly ash with OB as per the provisions of MoEF notification on Fly Ash but positive response from NCL has not been received. NGT/Pollution control authorities support is solicited to facilitate the same.
15. VSTPS is in dialogue with leading consultants for technical studies and feasibility of construction of Ash Mound. IIT, Delhi has agreed to provide consultancy on one pilot project and scope of work for the same is under finalization.



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 NTPC Limited - Vindhyachal



A Maharatna Company

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

विंध्याचल/ VINDHYACHAL

Annexure 2

FGD INSTALLATION WORK PROGRESS

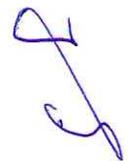
Unit No.	% of work completed	Expected Commissioning
1, 2, 3	23	Sep'23
4, 5, 6	23	
7	23	
8	23	
9	58	June'23
10	58	
11	58	
12	58	

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NTPC Limited - Vindhyachal

Sasan Power Limited – Compliance status of recommendations of the Oversight Committee’s fourth quarterly report

Recom mendat ion no.	Description	SPL's submission
Thermal Power Plants		
A	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	<p>A detailed plan for achieving 100% ash utilization, including use of ash in the coal mine is submitted to MPPCB. It is also intimated that study by Central Institute of Mining and Fuel Research (CIMFR), Dhanbad for Geotechnical stability analysis for over burden dump, during and after ash dumping by mixing it with mine OB in MMAE-OCP is under progress. A pilot project is presently under field trial.</p> <p>After studying the data from the said pilot project, CIMFR will finalize its report giving its recommendations. Recommended scheme would be then implemented after obtaining required approvals.</p> <p>As per our present estimate the erection and commissioning of the scheme is expected to be completed by Q1, FY 2023-24.</p> <p>Regarding fly ash utilization, in the matter CA 3171 of 2020 before Supreme Court, Solicitor General of India apprised the Hon'ble Court that the Government is in the process of bringing out a new Notification in supersession of its earlier Notification dated 25.01.2016. Draft FA notification is also issued on 22.04.2021 for stakeholders comments.</p>
B	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines as notified vide G.S.R. 243(E) dated 31-03-2021.	<p>A letter regarding status and implementation of new emission norms is already submitted vide letter dated 09-Sept-2021.</p> <p>SPL has awarded FGD contract on EPC basis. In principle approval for cost approved by the Regulator. FGD implementation work will start once financing is tied up.</p> <p>NOx norms are now revised by the MoEF&CC and Sasan's NOx emission is less than the revised limits of 450mg/Nm³</p>

Recom mendat ion no.	Description	SPL's submission
C	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	SPL has carried out the Ash Dyke stability study through IIT-BHU & the said report is already submitted to the Committee. In addition to this, another comprehensive ash dyke stability study has been carried out by IIT BHU and report of the same is submitted to the MPPPCB on 20.08.2020 and to CPCB and MoEF&CC on 16.09.2020 It is also submitted to the NGT committee that dyke will be inspected by an expert agency like IIT, every year before monsoon for its strength and stability. In line with the same pre-monsoon inspection report for the current year is also submitted to MPPCB vide letter dated 24-Aug-21
D	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	The ash in the ash dyke is kept in moist form and covered with vegetation to avoid any fugitive emission.
E	NTPC- VSTPS shall ensure that the disposal of the fly ash in the abandoned Gorbi mines shall be undertaken in an environmentally sound manner and necessary checks and balances as well as the monitoring of the surrounding ecosystem shall be ensured as outlined in the permission granted to it by MPPCB.	Not applicable to SPL
F	NPTC- Vindhychal has reported completion of the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke. However as a measure of safety, the dredging pumps installed there should be operated regularly to ensure that no more traces of fly ash remain in the reservoir.	Not applicable to SPL



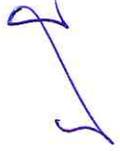
Recom mendat ion no.	Description	SPL's submission
G	NPTC- Vindhyaachal has completed the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submitted the report, however the conclusions that construction of RCC wall is neither technically feasible nor viable are subject to the final orders by Ld. NGT. Similarly studies / action should be initiated for the construction of Ash mounds.	Not applicable to SPL
H	The CAAQMS to be installed by NTPC behind the Trauma Center building of NTPC shall be completed within 2 months. NTPC shall ensure that apart from the regular parameters on line monitoring of Hg in ambient air shall also be ensured.	Not applicable to SPL
I	The regular calibration of the CAAQMS and CEMS installed by the TPPs shall be ensured as per the prescribed frequency of calibration.	Calibration of CAAQMS and CEMS is carried out on a regular basis. Latest calibration certificates were submitted to Oversight Committee and are available in IV Quarterly Report of the Oversight Committee.
J	As far as online continuous mercury monitoring in water is concerned, instead of continuous monitoring of mercury in water bodies like Surya nalla, Rihand reservoir etc., manually monitoring and analysis at least once in a month should be done and reported by NTPC till appropriate online Hg monitoring equipment is available.	Not applicable to SPL



Recom mendat ion no.	Description	SPL's submission
K	<p>M/s Sasan Power Ltd. shall ensure that the huge amount of fly ash and mud that has flown into the local nallas reaching the Rihand river during heavy rains in the region in the month of May- June 2021, shall be cleared from the agriculture fields of the farmers as well as from the local Thargatta nalla, Garra nalla and the Rihand river within in three months time.</p>	<p>It is respectfully submitted that because of the sudden unprecedented heavy intensity rainfall observed at our ash pond area in a very short duration, rain cut occurred at few locations on outer slope where ash was spread for compaction. The part of the upper layer of the said un-compacted ash got washed away with rains, resulting into accumulation of thin layer of ash deposition at nearby lands. It may kindly be appreciated that the occurrence of rain cuts on un-stabilized slope of soil surface is a natural phenomenon until the surface is protected with vegetations or turf. Moreover, compared to soil, the uncovered ash is more vulnerable to rain cut during heavy rainfall.</p> <p>Subsequent to the above incidence SPL has taken immediate steps and cleared majority of spilled over ash from the affected area and only insignificant traces of ash are left which will not impact fertility of the agricultural land. On the contrary such small quantum of ash left out may act as soil conditioner as per the MoEF&CC notification dated 28.08. 2019.</p> <p>Post the said event, SPL has taken following additional measures:</p> <ul style="list-style-type: none"> • In order to protect the erosion of downstream slopes of the raised areas, thick soil cover has been provided on ash surface. This will curb carrying of ash along with water during any downpour. • At critical locations, ash and soil cover has also been protected by covering with impervious HDPE membrane to avoid surface erosion during monsoon. • Extra widening of downstream base beyond design has been ensured at vulnerable locations to get more stability to the downstream section. • Gabion box retaining cum filtration system has been constructed at

S

Recom mendat ion no.	Description	SPL's submission
		<p>several locations so that there shall be fully protected toe without any sliding.</p> <ul style="list-style-type: none"> • In order to avoid any water accumulation on the downstream slopes, temporary pipelines are also provided to channelize the water to the bottom drains. • Katcha drain is being replaced with RCC drain at the critical locations. • Photographs showing various measures taken during ongoing bund raising work are enclosed as Annexure-1. <p>Present Ash Dyke Raising Status:</p> <p>With a view to enhance the capacity of ash dyke, the bund raising activity is being done based on the design and drawing finalized by the expert consultant and vetted by the expert from IIT-BHU.</p> <p>Pre-monsoon inspection of the ash dyke was carried out by the expert from IIT-BHU and as per its report, the dyke is safe and healthy and stable and also mentioned that no threat is envisaged even during monsoon season.</p> <p>We would also like to mention that the monsoon is now over and after taking additional precautionary measures, we have not faced any similar issue of ash spill over till date.</p> <p>Further, we would also like to mention that the cleaning of Thargatwa nalla is completed and a flow of clear water stream is clearly visible through it. We have also started the restoration work of Garra nalla, which is likely to be completed by January, 2022.</p>



Recom mendat ion no.	Description	SPL's submission
L	Also due to the previous accident dated 10-04-2020 in which large volume of fly ash had flown in the Gawaiyya nala and still lying in thick heaps along the banks of the Gawaiyya nala as well as the ash deposited in the Rihand reservoir at should be cleaned by M/s Sasan Power Ltd. within 3 months, and a photographic and video-graphic record of the same shall be submitted from time to time to show the progress.	<p>We would like to submit that the site restoration work has already been completed. Further, site verification has also been done by the Regional Officer, MPPCB, Singrauli on 12.10.2020. Moreover, a detailed letter regarding completion of restoration work has also been submitted to MPPCB on 31.10.2020.</p> <p>Photographs showing the actual status of site restoration work carried out are enclosed as Annexure-2.</p> <p>With regard to the clearing of ash, which is of insignificant quantity, deposited at the edges of the Gawaiyya nalla in the form of a thin layer in a small patch, we would like to submit that the said ash is presently under submergence condition and hence difficult to recover. However, as advised, once water in the said submergence area gets receded, it will also be cleared by June, 2022.</p>
M	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	Public Health Department, GoMP is carrying out checkups for the detection of occupational diseases like silicosis, fluorosis etc. We understand that till date there is no case of fluorosis / silicosis reported by Public Health Department by from any nearby villages.
COAL MINES		
A	Road sweeping machines procured by NCL shall be deployed to regularly sweep the main Jayant Square- Shukla Mod road so as to keep it clean and minimize dust nuisance. Regular sweeping of the all other internal coal transport roads shall also be undertaken to keep them dust free.	<p>Not applicable to SPL</p> <p>Transportation of coal from SPL mines to Sasan power plant is done only through the single flight overland coal conveyer (OLC) and <u>not through roads.</u></p>

Recom mendat ion no.	Description	SPL's submission
B	Strengthening of the road side shoulders of the main Jayant Square- Shukla Mod road shall be undertaken within 3 months and road shall be made dust free in all respects.	Not applicable to SPL Transportation of coal from SPL mines to Sasan power plant is done only through the single flight overland coal conveyer (OLC) and <u>not through roads</u>
C	The NCL should construct oil and grease trap along with sedimentation pit of appropriate capacity at the earliest at the end of the catch drain within 3 months time to further strengthen the existing arrangements.	Not applicable to SPL
D	The alternate route for the transportation of the coal should be developed at the earliest, after completing due process of forest clearance. A time bound action plan in this regard may be prepared and implemented. Help of the District administration to overcome any bottlenecks can be solicited.	Not applicable to SPL Transportation of coal from SPL mines to Sasan power plant is done only through the single flight overland coal conveyer (OLC) and <u>not through roads</u> .
E	Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled "Inventorization of Railway Sidings and Guidelines for their Environment Management- March 2015".	Not applicable to SPL Transportation of coal from SPL mines to Sasan power plant is done only through the single flight overland coal conveyer (OLC) and <u>not through roads</u> .
F	The study being undertaken by the IIT BHU regarding utilization of fly ash in external OB of the mines shall be completed in time and the progress in this regard shall be submitted from time to time.	Not applicable to SPL

Recom mendat ion no.	Description	SPL's submission
G	<p>The construction work of additional capacity CHP in the Jayant Mine is already delayed. The work should be given impetus and is should be completed by March 2022 instead of July 2022, so that coal transportation by road is stopped and maximum quantity of the coal can be loaded in the railway wagons from the mine itself.</p>	<p>Not applicable to SPL</p>
H	<p>The regular callibration of the CAAQMS installed by the mines shall be ensured as per the prescribed frequency of calibration.</p>	<p>Calibration of CAAQMS is carried out on a regular basis. Latest callibration certificates were submitted to Oversight Committee and are available in IV Quarterly Report of the Oversight Committee.</p>
I	<p>The Nigahi coal mine of M/s NCL should clear the OB from the Mudwani dam and M/s Moher & Moher Amlohri captive Coal Mine of M/s Sasan Power Ltd. should clear the OB from the agriculture land of farmers & compensate them within 45 days.</p>	<p>Because some parcels of land in Amlohri village adjacent to external OB Dump area are faced with significant challenges in land acquisition despite intervention from local administration, we are not getting a contiguous flat land for the OB dumping and these external OB dumps are still progressive. This is the reason that we are not able to close Amlohri side of the OB dump for the Bio-reclamation and also not progressing for the construction of gabion wall / permanent garland drains in that area, whereas it is a fact that all other mature OB dump areas of our mine are already provided with gabion wall / garland drain.</p> <p>Our top most priority is relocation of affected villagers, which is presently in process with the help of local administration. Further, deep trenches with high retention berms all along the external OB dumps in the Amlohri area are to be constructed. All these processes (villager resettlement and creation of physical barriers) are planned to be completed before the onset of next monsoon i.e. June, 2022.</p>

Recom mendat ion no.	Description	SPL's submission
J	<p>It has been mentioned by M/s NTPC-Vindhyachal that the Pit 2 & 3 of the abandoned Gorbi mine is being allocated to the other power companies by M/s NCL, which are situated in UP. Since the mines are filled with acidic water and NTPC has started ash filling in Pit 1 on trial basis after a thorough study of various environmental parameters and will be studying the impact of ash filling in long term as well and will be developing facilities for the safe transportation of ash in long term; the allotment of other two pits to other outside parties may result in environmental & safety issues as well as issues related to the "responsibility of whom" in case the environment is adversely affected. Hence no second party shall be allotted the other pits of Gorbi Mines for fly ash filling. The oversight Committee was told by representatives of M/s NCL that they will not go ahead with allotting the mines to any other party. However, M/s NCL should clarify their stand towards the objections raised by M/s NTPC-Vindhyachal.</p>	Not applicable to SPL

SL

Recom mendat ion no.	Description	SPL's submission
K	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. The manifestation among the mine workers as well as the villagers regarding coal dust related diseases shall be diagnosed and treatment provided. Record should be maintained and made available to the district health authorities.	Public Health Department, GoMP is carrying out checkups for the detection of occupational diseases like silicosis, fluorosis etc. We understand that till date there is no case of fluorosis / silicosis reported by Public Health Department by from any nearby villages.
NEERI	NEERI has been entrusted with the studies for the assessment of Environmental Damage Compensation (EDC) due to the ash dyke breach of M/s Essar Power MP Ltd., M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. NEERI should submit the pending reports in cases of M/s Vindhyachal Super Thermal Power Station and M/s Sasan Power Ltd. at the earliest.	A reply from NEERI is already submitted to Oversight Committee

SR

Annexure-1

Photographs showing various measures taken during ongoing bund raising work

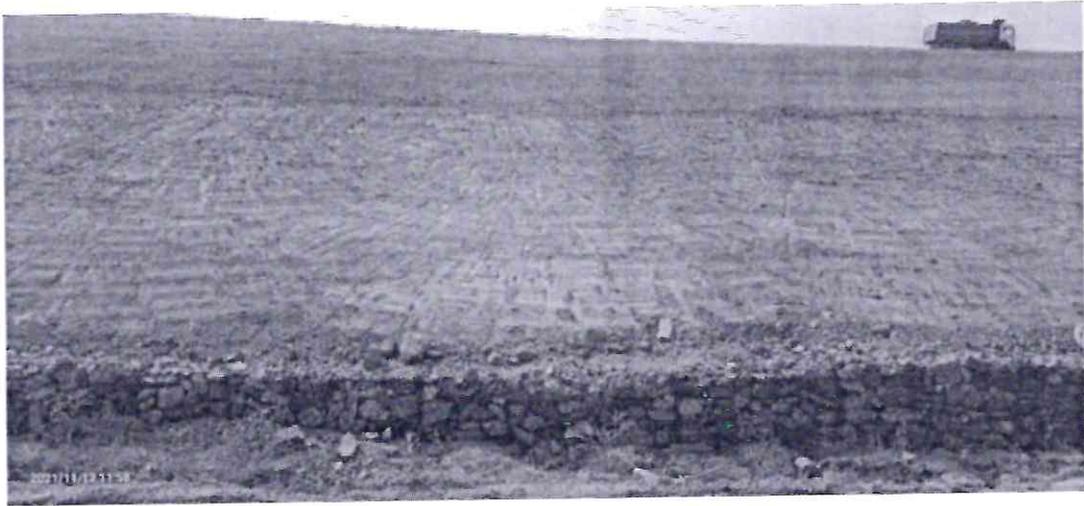


During Monsoon (Pipelines to channelize the water to the bottom drains)

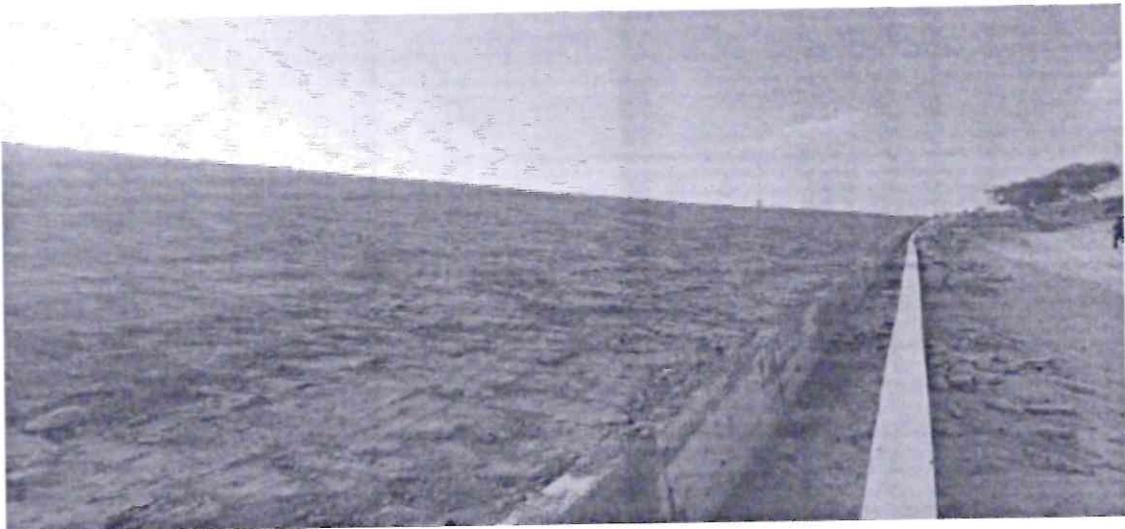


During Monsoon (Covered with HDPE membrane to avoid surface erosion)

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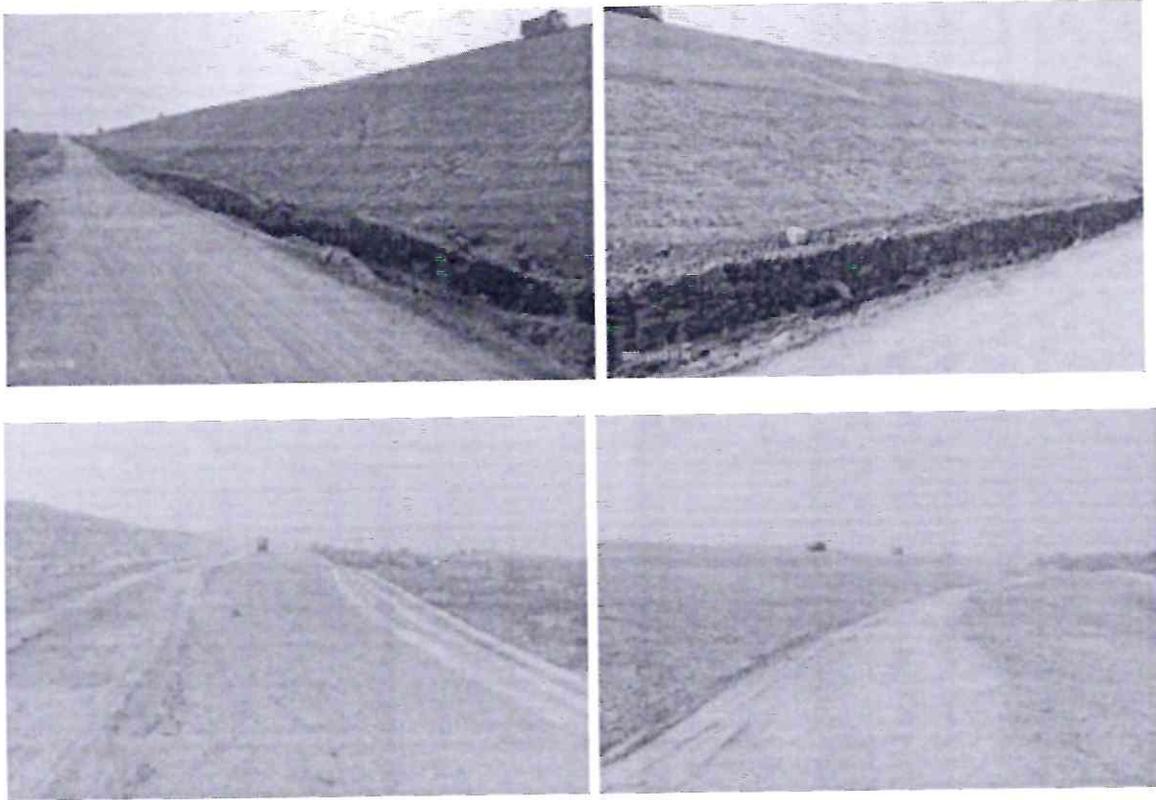


Soil Cover with Gabion Wall



Present Status (Concrete Toe Drain)

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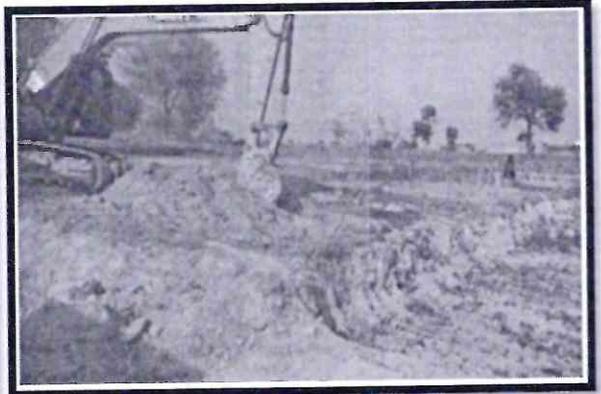


Present Ash Dyke Raising Status

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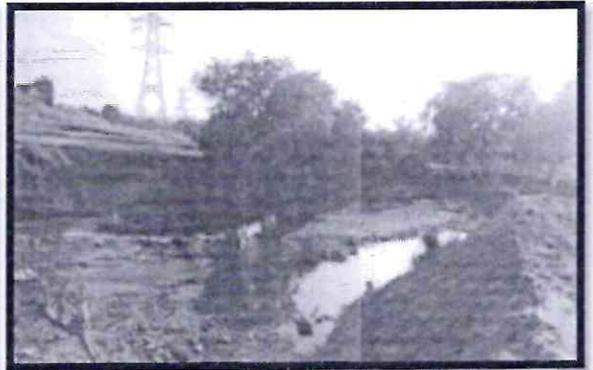
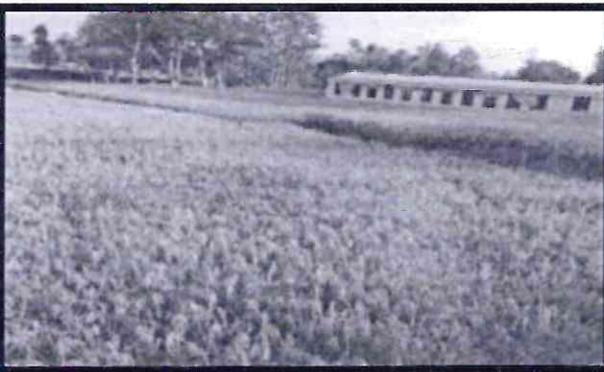
Annexure - 2

Photographs showing the actual status of site restoration work carried out

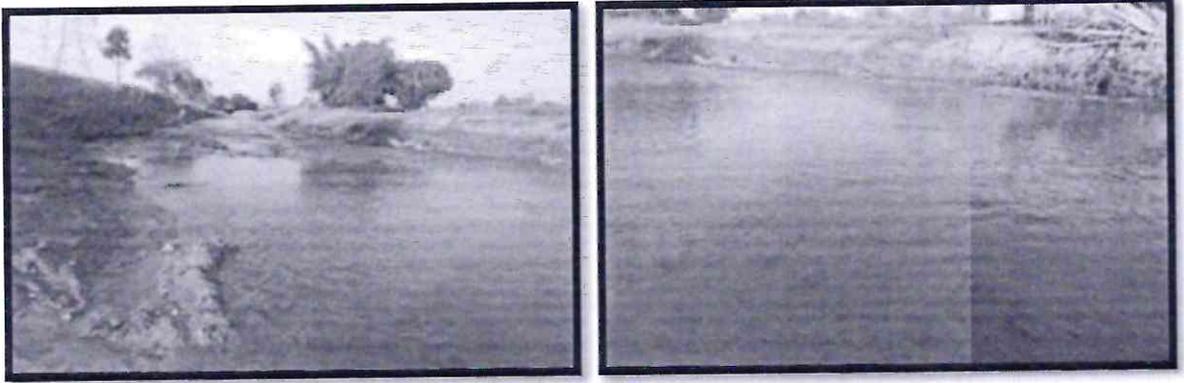


A handwritten signature or mark in blue ink, consisting of a stylized 'S' followed by a diagonal line.

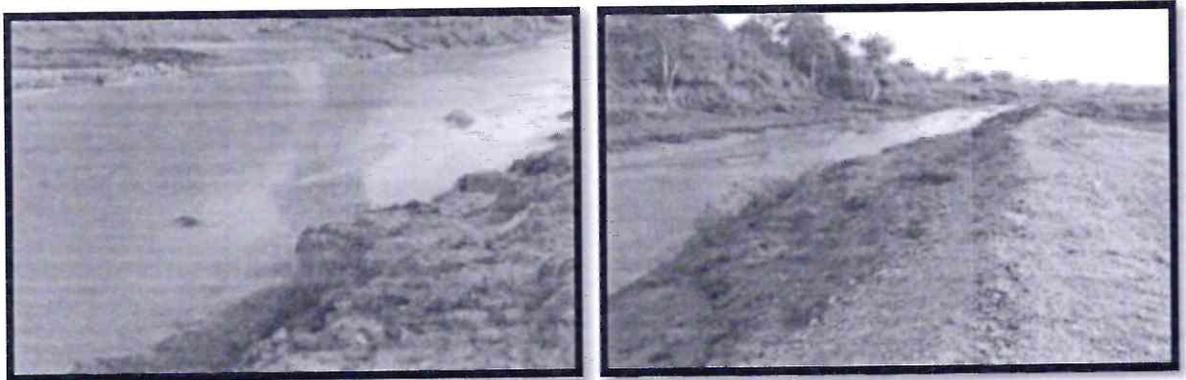
Photographs showing the site status after restoration work carried out



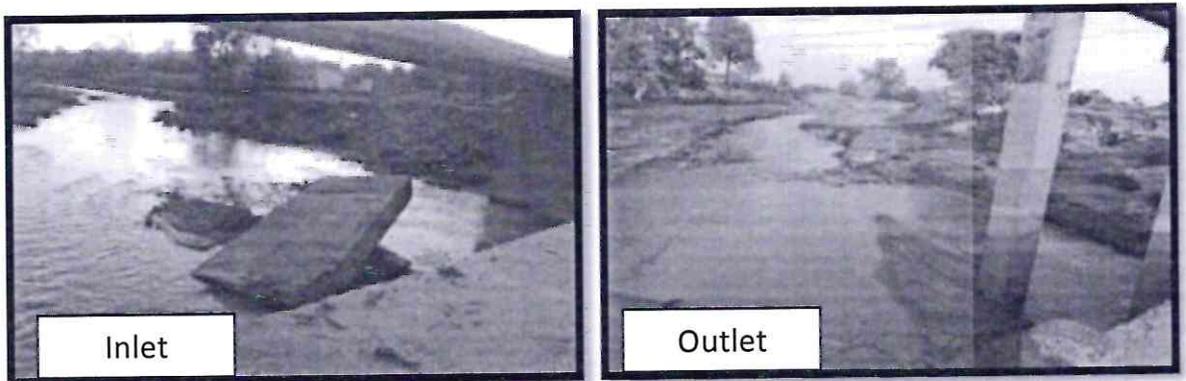
SR



Gabaiya Nalla Upstream



Gabaiya Nalla Mid stream (Before AWRS Culvert)



Gabaiya Nalla Mid stream (AWRS Culvert)

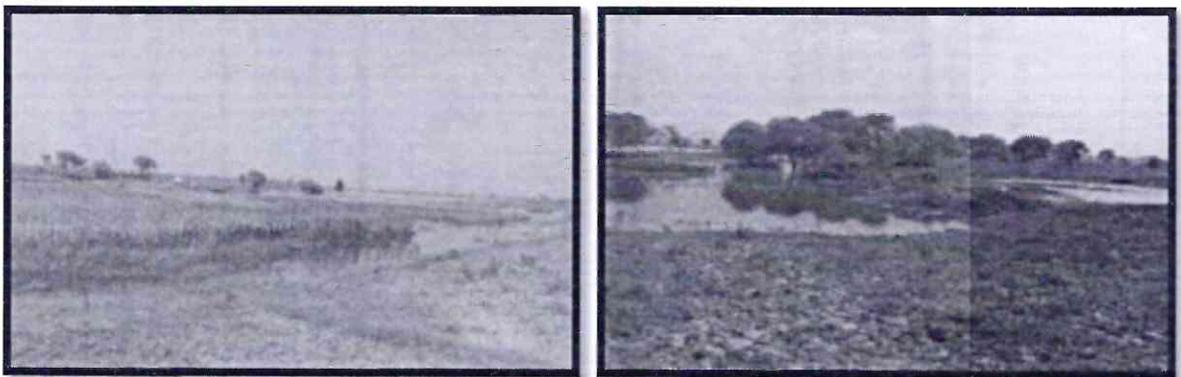
S/R



Gabaiya Nalla Down stream (Before Harrahwa Culvert)



Gabaiya Nalla Downstream (At Harrahwa Culvert)



Photos of Bhadi Tola Area

S/P

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

S. No.	Recommendations of the Oversight Committee	Current Status of action as on 31-10-2021
A.	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	<p>Ash Utilization in the FY 2020 - 21 was 100.04 %.</p> <p>Having long term MoU with the End User (Cement Industry).</p> <p>Efforts have been made to utilize/ dispatch 100% generated fly ash.</p>
B.	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	<p>Action has already been taken to install Wet Lime Stone based FGD on both of the Units, so as to control SO₂ Emission in order to meet New Emission Norms of MoEF&CC Notification dated 07.12.2015 (keeping in view of the timeline as defined in the MoEF & CC gazette notification dated 31-03-2021).</p> <p>FGD Status - NIT issued on dated 31.12.2019 but due to massive outbreak of second wave of pandemic Covid-19 & receipt of request from various bidders for extension of last date of bid submission, the last date of bid submission now has been extended up to 31st December, 2021.</p>
C.	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	<p>Structural Stability Study has been carried out by Competent Third Party Technical Agency on 21.11.2019.</p> <p>SOPs has been prepared and regular checking is being done, recent report with SOPs is attached as Annexure - I.</p> <p>Design of Ash Pond has been done by M/s Development Consultants Pvt. Ltd. (DCPL) a renowned designing agency. M/s DCPL drawing has been submitted to MPPCB vide letter no. JPVL/COORD/POLL/2013-14 dated January 21, 2014. The drawing No. is K6A24-DWG-C-595 Rev.4.</p> <p>Ash pond has been constructed as per above approved drawing.</p> <p>The Ash Dyke has been constructed with upstream & downstream slopes (1V:2H). Ash Dyke has been constructed with HDPE lining on inner side and over that PCC (75mm) layer has been provided to protect it and eliminates any possibility of breach of embankment.</p> <p>Ash Pond is built over an area of 21.2 ha and is consisting of two ponds & equipped with 100% Ash Water Recirculation System to prevent any ash mixed water discharge to outside.</p> <p>The Ash Dyke is situated within intact boundary wall of Power Plant.</p>

D.	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	The bottom ash which is in slurry form is sent through ash disposal pipes to the bottom ash slurry pond i.e. the Ash Dyke. Ash Pond Top layer is always covered with water. Also, mobile water sprinkling arrangement is in place for using as and when required for controlling air borne fly ash. Photographs of Ash Ponds dated 19 th November, 2021 are being attached as Annexure-II .
E.	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorbi mines, and shall complete the related studies at the earliest.	Not Applicable to us.
F.	Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	Free Medical Check-up facility & Free Medicines are being Provided to nearby Villagers as required. Providing Mobile Hospital & Ambulance Service to the nearby affected villages (Nigrie, Niwas, katai & Hardi & Mahua Ganv and Chamrach and Joba).
G.	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd. shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC- Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	Not Applicable to us.
H.	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months time.	Not Applicable to us.
I.	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.	Not Applicable to us.
J.	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	CAAQMS & CEMS installed in the plant have been given on the annual maintenance contract and are being calibrated on quarterly basis by the Equipment Manufacturers itself. The last Calibration of CAAQMS was done from 28 th September, 2021 to 30 th September, 2021 & Calibration of CEMS was done on 11 th July, 2021. Copy of the calibration report is being attached as Annexure - III .


Vinod Sharma
 Sr. President
 Nigrie Super Thermal Power Plant
 (A Unit of Jaiprakash Power Ventures Ltd.)
 Singrauli 431005 (M.P.)

JAYPEE NIGRIE SUPER THERMAL POWER PLANT

Annexure 1



ISSUE NUMBER: 1.0

ISSUE DATE: 20.05.2019

REVISION NUMBER: 0.0

REVISION DATE:

DOC NUMBER: 30-IMS-AHP-35-R

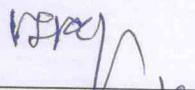
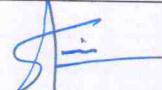
DOC: Check Sheet of Ash Pond Inspection

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

2. Inspection Date: 25.10.2021

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

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

i) Whether any damage is there in the turving protection on the downstream slope.	No	No	Fortnightly	
j) whether the stone pitching / concrete lining on the slopes are dislodged or caved in at any location on:				
1. The upstream slope (concrete lining)	No	No	Fortnightly	
2. The downstream slope (stone pitching)	No	No	Fortnightly	
k) Whether there is any growth of vegetation / bushes on the:				
1. Downstream slope.	Yes	Yes	Fortnightly	Heavy growth of vegetation / bushes.
2. Upstream slope.	Yes	Yes	Fortnightly	Heavy growth of vegetation / bushes.
3. Top of dyke.	Yes	Yes	Fortnightly	Heavy growth of vegetation / bushes.
l) Whether any rat holes are present on the dyke:				
1. On the downstream slope.	No	No	Fortnightly	
2. On the dyke top.	No	No	Fortnightly	
m) If rat holes are present, whether they are being plugged with earth.	No	No	Fortnightly	
n) If rat holes present, whether there are also signs of cracking, sinking or settlement on the top or downstream slope of the dyke near region where rat holes are found.	No	No	Fortnightly	
o) Whether there are any rain cuts on dyke:				
1. Top of dyke.	No	No	Fortnightly	
2. Downstream slope.	No	No	Fortnightly	
p) Whether the rock toe is maintaining its design shape.	Yes	Yes	Fortnightly	
q) Whether the toe drain is clean with no obstruction for flow of water:	Yes	Yes	Fortnightly	
r) Whether any growth of vegetation inside the toe drain.	Regular cleaning	Regular cleaning	Fortnightly	
s) Whether the lining in the toe drain is in good condition.	Yes	Yes	Fortnightly	
t) Whether there is any flow in the toe drain.	Yes	Yes	Fortnightly	
Discharge of Ash Slurry in:				
Pond 1:	No (Ash filledup)			
Pond 2:	Started since 10.05.2021			
SIGNATURE OF INSPECTION OFFICERS				
Ash Handling Plant	Civil		Railway Siding	
Sig: 	Sig: 		Sig: 	
Name: V. J. Rametey	Name: J. K. Srinivas	S. P. SINGH	Name:	
Date: 25/10/2021	Date: 25.10.2021	25/10/2021	Date:	

Photographs of ASH POND -I



Photographs of ASH POND –II



Ambient Air Quality Monitoring Station (AAQMS)**CALIBRATION REPORT**

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

Date: 28.09.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO ₂ (PPB)	1.2	0.00	25.10	26.30	200 PPB	190.20	200.00	1.067	1.122	OK
NO (PPB)	2.5	0.00	37.5	40	151 PPB	134.00	151.00	1.000	1.163	OK
NO _X (PPB)	4.1	0.00	46.1	50	200 PPB	164.00	200.00	1.000	1.197	OK
CO (PPM)	-0.28	0.00	0	-0.28	2 PPM	2.81	2.00	1.000	0.654	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m ³	Remark
PM Analysers	Range	Amplification Factor		
		Old Value	New Value	
PM 10	1000	7347	7254	OK
PM 2.5	1000	7101	7034	OK

Thermo Fisher Scientific



Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

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

Date: 28.09.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	2.5	0.00	27.9	28.4	200 PPB	224.00	200.00	1.41	1.26	OK
NO (PPB)	0.1	0.00	3.4	3.6	150PPB	226.00	151.00	1.18	0.80	OK
NOX (PPB)	0.3	0.00	8.9	8.7	200 PPB	307.00	200.00	1.25	1.31	OK
CO (PPM)	0.316	0.00	-0.19	0.215	2 PPM	2.010	2.00	1.03	1.02	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	Remark
PM Analysers	Range	Amplification Factor		
		Old Value	New Value	
PM 10	1000	7441	7363	OK
PM 2.5	1000	7386	7348	OK

Thermo Fisher Scientific



Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

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

Date: 30.09.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	3.1	0.00	55.1	57.9	200 PPB	177.00	200.00	0.85	1.40	OK
NO (PPB)	4	0.00	29.2	36	151 PPB	135.00	151.00	1.32	1.44	OK
NOX (PPB)	8	0.00	36.4	50.9	200 PPB	175.00	200.00	1.24	1.32	OK
CO (PPM)	-0.066	0.00	0	-0.066	2 PPM	1.61	2.00	1.00	1.70	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	Remark
PM Analysers	Range	Amplification Factor		
		Old Value	New Value	
PM 10	1000	7306	6800	OK
PM 2.5	1000	6828	7156	OK

Thermo Fisher Scientific



Ambient Air Quality Monitoring Station (AAQMS)

CALIBRATION REPORT

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

Date: 29.09.2021

Gas Analyser	Zero Calibration				SPAN VALUE	Span Calibration				Remark
	Zero Reading		Background			Span Reading		Co-efficient		
	Old	New	Old	New		Old	New	Old	New	
SO2 (PPB)	1.5	0.00	15.1	16.6	200 PPB	184.00	200.00	0.65	0.72	OK
NO (PPB)	-0.3	0.00	11.9	11.6	153 PPB	148.00	153.00	1.69	1.75	OK
NOX (PPB)	1	0.00	12.3	13.4	200 PPB	188.00	200.00	1.14	1.17	OK
CO (PPM)	0.2	0.00	0	0.2	2 PPM	1.97	2.00	1.00	1.01	OK

Foil calibration -		Zero value - 0.0	Span value - 1021 ug/m3	Remark
PM Analysers	Range	Amplification Factor		
		Old Value	New Value	
PM 10	1000	7334	7425	OK
PM 2.5	1000	7541	7559	OK

Thermo Fisher Scientific



CALIBRATION REPORT FOR GAS ANALYZERS S710

JAYPEE NIGRIE		Model: S710		SICK INDIA PVT LTD			
Calibration Date: 11.07.2021		Equipment Number : (S.N:715748)		Done by : Salim Gadkari			
<p>1. Model No: S710 Multor.</p> <p>2. Customer Name: Jaypee Nigrie Super Thermal Power Plant, Jalprakash Power Ventures Ltd, Village-Nigrie, Post-Niwas, Tehsil-Sarai, Dist-Singrauli, Madhya Pradesh-486669.</p> <p>3. Instrument Tag No: Unit#1 CEMS analyser.</p> <p>4. Calibration Due Date: 10.01.2022</p>							
S.N.	Cylinder No	Expiry date of calibration cylinder	Component	Cylinder Value	Before Calibration Value	After Calibration Value	Remarks
1	SGC-43109H	23.12.2021	SO2	788 ppm	792Nppm	790 ppm	Calibrated
2	SGC-43109H	23.12.2021	NO	800 ppm	819 ppm	796 ppm	Calibrated
3	SGC-43109H	23.12.2021	CO2	34.53 %	34.81 %	34.53 %	Calibrated

The readings are within standard range according to the used test method. Analyzer system is operating normally.

Date / Place: 11.07.21/JPVL Nigrie.



SICK representative signature

Salim Gadkari

SICK representative Name

S.K. Choudhury

Customer representative signature

Santosh Kumar Choudhury

Customer representative Name

CALIBRATION REPORT FOR GAS ANALYZERS S710

JAYPEE NIGRIE		Model: S710		SICK INDIA PVT LTD			
Calibration Date: 11.07.2021		Equipment Number : (S.N:715246)		Done by : Salim Gadkari			
<p>1. Model No: S710 Multor.</p> <p>2. Customer Name: Jaypee Nigrie Super Thermal Power Plant, Jaiprakash Power Ventures Ltd, Village-Nigrie, Post-Niwas, Tehsil-Sarai, Dist-Singrauli, Madhya Pradesh-486669.</p> <p>3. Instrument Tag No: Unit#2 CEMS analyser.</p> <p>4. Calibration Due Date: 10.01.2022</p>							
S.N.	Cylinder No	Expiry date of calibration cylinder	Component	Cylinder Value	Before Calibration Value	After Calibration Value	Remarks
1	CSL-43109H	23.12.2021	SO2	788 ppm	780 ppm	789 ppm	Calibrated
2	CSL-43109H	23.12.2021	NO	800 ppm	789 ppm	798 ppm	Calibrated
3	CSL-43109H	23.12.2021	CO2	34.53 %	34.20%	34.53 %	Calibrated

The readings are within standard range according to the used test method. Analyzer system is operating normally.

Date / Place: 11.07.21/JPVL Nigrie.



S.K. Choudhury

SICK representative signature

Salim Gadkari

SICK representative Name

Customer representative signature

Santosh Kumar Choudhury

Customer representative Name

CALIBRATION REPORT-DUST

JAYPEE NIGRIE SUPER THERMAL POWER PLANT		Model: DHT-50	SICK INDIA PVT LTD
Calibration date: 11.07.2021	Equipment Number : 14028363 Analyser Installed at : Unit #2 Stack.		Calibration done by : Salim Gadkari
Manual Sampling Done by: M/s Vardan Envirolab, Jaipur, Rajasthan. Details of Manual sampling: DMP/ENV/090721/02 Dated: 10.07.21			
S.NO	Manual sampling Results in (mg/Nm3)	Instrument Reading in mg/Nm3	
1	41.71	33.57	

With reference to the manual sampling results instrument was calibrated.

Old Calibration factor: 165

New Calibration factor: 205



S.K. Choudhury

SICK representative signature

Salim Gadkari

SICK representative Name

Customer representative signature

Santosh Kumar Choudhury

Customer representative Name

CALIBRATION REPORT-DUST

JAYPEE NIGRIE SUPER THERMAL POWER PLANT		Model: DHT-50	SICK INDIA PVT LTD
Calibration date: 11.07.2021		Equipment Number : 14028364	Calibration done by : Salim Gadkari
Manual Sampling Done by: M/s Vardan Enviroiab, Jaipur, Rajasthan.		Analyser Installed at : Unit #1 Stack.	
Details of Manual sampling: DMP/ENV/090721/01 Dated: 10.07.21			
S.NO	Manual sampling Results in (mg/Nm3)	Instrument Reading in mg/Nm3	
1	41.71	51.45	

With reference to the manual sampling results instrument was calibrated.

Old Calibration factor: 586

New Calibration factor:475



S.K. Choudhury

SICK representative signature

Salim Gadkari

SICK representative Name

Customer representative signature

Santosh Kumar Choudhury

Customer representative Name

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

1. **Thermal Power Plants:**

SI	Condition	Status
A	The thermal power plants shall ensure that 100% fly ash utilization of the fly ash shall be ensured by them as per the Fly ash Notification.	Presently, our average fly ash utilization is more than 85% . Fly-ash utilization is being increased by further tie ups and/or long-term agreements with the cement manufacturers / industries, brick manufacturers etc. Moreover, we have installed our own brick plant inside the premises.
B	For the achievement of new emission norms, equipments like FGD, SCR/ SNCR etc shall be got installed as per the time lines provided to them by the CPCB.	We have already commenced the project work required for FGD. Ref: Current progress report is enclosed as <u>ANNEXURE - I</u>
C	Fly ash dyke shall be monitored regularly for their strength through some reputed organizations. The design should be safe and timely maintenance should be regularly ensured.	Experts from reputed IIT-BHU has been organized to study and monitor the ash dyke strength (including other aspects). Detail report has been submitted to your good office along with IV th quarterly report. As per conclusion of IIT-BHU report, our ash dyke is in healthy condition and looks stable. Few recommendations are there, we are in progress to implement those

		recommendations.
D	Air borne fly ash from the ash dykes, specifically during summers should be controlled through arrangements of water sprinkling, vegetation and other scientific measure.	Our ash dyke has vegetation that prevents air borne fly ash from the ash dykes, especially during summers.
E	NTPC- VSTPS shall ensure to start disposal of the fly ash in the abandoned Gorbi mines, and shall complete the related studies at the earliest.	Not applicable
F	Health checkup of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. Record should be maintained and made available to the district health authorities.	Due to the extant COVID-19 pandemic we haven't been able to conduct any medical camp since April, 2020. Recently we have started again the services under CSR initiatives.
G	The thermal power plants namely, M/s Essar Power MP Ltd. and M/s Sasan Power Ltd. shall deposit with MPPCB the remaining amount of environmental compensation of Rs. 9 Cr., and Rs. 8 Cr. respectively out of the levied amount of Rs. 10 Cr. M/s NTPC- Vindhyachal, has however obtained a stay from Hon'ble Supreme Court.	Not applicable
H	NPTC- Vindhyachal shall complete the dredging of the Rihand reservoir for the removal of the ash flown into it due to breach of its ash dyke and to complete it within 3 months' time.	Not applicable
I	NPTC- Vindhyachal should complete the studies of making RCC wall around the ash dyke through IIT Roorkee / IIT Delhi and submit the report for further consideration on its technical viability. Similarly studies / action should be initiated for the construction of Ash mounds.	Not applicable
J	All the TPPs / industries shall calibrate all the CAAQMS and CEMS installed by them in 3 months (if not done recently) and submit the report to the committee. Such reports will be useful in checking the error percentage in the results.	The calibration for all CAAQMS and CEMS are being done regularly. The latest calibration certificates are annexed herewith and marked as <u>ANNEXURE – II</u>



CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/172/C

Date of Issue: 12-10-2021

Customer : M/s. Hindalco Industries ltd Baragawan M.P.

Instrument Details:

Instrument : Onine Stack SPM Analyzer

Make : DURA G

Model : D-R-290

Serial No. : 1285912

Station Name : Stack-1

Date of Calibration : 08-10-2021

Due Date : 07-01-2022

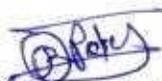
Calibration Details:(Test Data)

Calibration Date	Zero % Opacity	100% opacity	Remarks
08-10-2021	00.02%	98.6%	Dust monitor model noD-R-290 is calibrated successfully

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Operational Checks:-

Normalizing inputs	Temperature	Ok	Serial Comms.	Ok	Plant Status	Ok
	Span Check 100%	Ok	Data Valid	Ok	Contact	Ok
	Alarm Level 1/2	Ok	Alarm Led	Ok		


Calibrated By:
Dhaniram Kachhi
Service Engineer




Reviewed By:
Ram Kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821

E-mail: info@nksquare.com , Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No : NKSS/CEMS/HIL/2021/202/H

Customer : M/s. Hindalco Industries Ltd., Bargawan, Singrauli M.P.

Instrument Details:

Date of Issue : 05-09-2021

Instrument : Online Stack Gas Analyzer (SO₂, NO_x, CO)

Make : SIEMENS

Model : ULTRAMAT-23

Serial No. : B5-009

Station Name : CEMS-1

Date of Calibration: 31-08-2021

Due Date : 29-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂

SO₂ Gas : 740.0 ppm SO₂, Balance N₂

CO Gas : 373 ppm CO, Balance N₂

N₂ Gas : 99.999% purity

Calibration Equipment Details:

Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	18931	19228	18900	18900
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	754.0 ppm	1.85
NO _x	0.0 ppm	0.0 ppm	0	746.0 ppm	737.0 ppm	-1.20
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	374.0 ppm	0.26

Accepted Tolerance: $\pm 2\%$

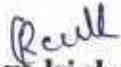
Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:


Dhaniram kachhi
Service Engineer



Reviewed by:


Ram kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821

E-mail: info@nksquare.com, Website : nksquare.com

**TEST AND GUARANTEE CERTIFICATE
OPACITY MONITOR FMDCEM21XX**

Test Cert No: 064/24/03/2021

Customer Name:	HINDALCO INDUSTRIES LTD.						
Customer PO No:	952108138						
FM OA No:	551108349	OA Date: 14-JAN-2021					
Model No:	FMDCEM21XX Opacity Monitor						
Serial No:	21064						
Date of test:	24/03/2021						
Location:	UNIT MAHAN ALUMINIUM, WORKS NH-75E, DIST SINGRAULI, Madhya Pradesh, 486886						
FMDCEM21XX	Serial no's			Batch No/ WO no			Part no
Transceiver 1	FMDCEM 21XX - 21064 TRX1			2021			26-019-1191668
Transceiver 2	FMDCEM 21XX - 21064 TRX2			2021			26-019-1191668
Signal Processor	FMDCEM 21XX - 21064 SPU			2021			26-019-1179378
Power Supply	FMDCEM 21XX - 21064 PSU			2021			26-018-1038364
Display Unit	FMDCEM 21XX - 21064 RCU			2021			26-018-1198961
ACU Unit	NA						
EPROM Set	507-069 B (MASTER)			507-028 C (SLAVE)			507-120 B (RCU)
Cable	Length	Qty	Other	Path length	8.4 m*		
TRANSRECEIVER	10 Mtr	2 Nos	Green	Mounting accessories	1 set (2 Qty)		
SOLENOID	10 Mtr	2 Nos	Red				
Power supply (only for IMOT)	NA						
Interconnecting cable PSU to SPU	1.2 Mtr	1 No					
SPU to RCU	3 Mtr	1 No					
Tag no							

Test data:

Zero % Opacity	100% Opacity
0	99.99

Operation Checks:

Normalizing Inputs	Temperature	✓	Serial Comms.	✓	Plant status	✓
	Oxygen	✓	Data Valid	✓	CONTACT	✓
	Pressure	✓	Alarm LED	✓	CONTACT	✓
	Water Vapor	✓	Alarm level 1/2	✓	Span Check 50%	✓

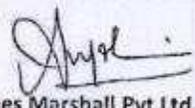
Date On Soak: 22/03/2021	Date Off Soak : 24/03/2021
Final test result: Pass	Signed: ANJALI

* - All instruments are set to default path length of 2 meters at the factory and are valid for site path lengths ranging between 1.5 -6 meters. For Other path lengths exact value is specified in the certificate.

GUARANTEE:

THIS IS TO CERTIFY THAT THE ABOVE MENTIONED PRODUCT IS GUARANTEED AGAINST DEFECTIVE WORKMANSHIP FOR A PERIOD OF 12 MONTHS FROM THE DATE OF COMMISSIONING OR 18 MONTHS FROM THE DATE OF MATERIAL RECEIPT AT SITE WHICHEVER IS EARLIER

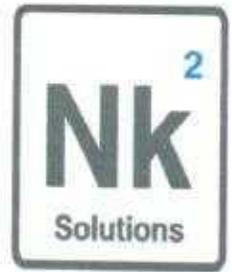
For,


Forbes Marshall Pvt Ltd.
QUALITY ASSURANCE & CONTROL



Format Doc ID:800/11	Rev:3	Issue:A	Date:11 th Oct 2019	Ref: 800/5
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CALIBRATION CERTIFICATE



Certificate No : NKSS/CEMS/HIL/2021/203/H

Customer : M/s. Hindalco Industries Ltd., Bargawan, Singrauli M.P.

Instrument Details:

Date of Issue : 05-09-2021

Instrument : Online Stack Gas Analyzer (SO₂, NO_x, CO)
 Make : SIEMENS
 Model : ULTRAMAT-23
 Serial No. : B5-027

Station Name : CEMS-2
 Date of Calibration : 31-08-2021
 Due Date : 29-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂
 SO₂ Gas : 740.0 ppm SO₂, Balance N₂
 CO Gas : 373.0 ppm CO, Balance N₂
 N₂ Gas : 99.999% purity

Calibration Equipment Details:

Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	15552	15994	18894	18894
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	737.0 ppm	-0.40
NO _x	0.0 ppm	0.0 ppm	0	746.0 ppm	740.0 ppm	-0.81
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	370.0 ppm	-0.81

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:  Dhaniram Kachhi Service Engineer		Reviewed by:  Ram Kishan Pal Sr. Service Engineer
---	---	--

NK SQUARE SOLUTIONS

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 Ph: +91 40 48514821 E-mail: info@nksquare.com, Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/173/D

Date of Issue: 12-10-2021

Customer : M/s. Hindalco Industries Ltd Baragawan M.P.

Instrument Details:

Instrument : Online Stack SPM Analyzer
Make : Forbes Marshall
Model : DCEM 2100
Serial No. : 722

Station Name : Stack- 3
Date of Calibration : 05-10-2021
Due Date : 04-01-2022

Calibration Details:(Test Data)

Calibration Date	Zero % Opacity	100% Opacity	Remarks
05-10-2021	00.01%	96.2%	Dust monitor model no DCEM 2100 is calibrated successfully

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Operational Checks:-

Normalizing inputs	Temperature	Ok	Serial Comms.	Ok	Plant Status	Ok
	Span Check 100%	Ok	Data Valid	Ok	Contact	Ok
	Alarm Level 1/2	Ok	Alarm Led	Ok		

Calibrated By:
Dhaniram Kachhi
Service Engineer



Reviewed By:
Ram Kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821

E-mail: info@nksquare.com , Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No : NKSS/CEMS/HIL/2021/204/H

Customer : M/s. Hindalco Industries Ltd., Bargawan, Singrauli M.P.

Instrument Details:

Instrument : Online Stack Gas Analyzer (SO₂, NO_x, CO)
Make : SIEMENS
Model : ULTRAMAT-23
Serial No. : B5-004

Date of Issue : 05-09-2021

Station Name : CEMS-3
Date of Calibration : 31-08-2021
Due Date : 29-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂
SO₂ Gas : 740.0 ppm SO₂, Balance N₂
CO Gas : 373.0 ppm CO, Balance N₂
N₂ Gas : 99.999% purity

Calibration Equipment Details:

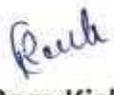
Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	18903	19215	18885	18885
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	742.0 ppm	0.26
NO _x	0.0 ppm	0.0 ppm	0	746.0 ppm	738.0 ppm	- 1.08
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	376.0 ppm	0.79

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:  Dhaniram kachhi Service Engineer		Reviewed by:  Ram Kishan Pal Sr. Service Engineer
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NK SQUARE SOLUTIONS

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Ph: +91 40 48514821

E-mail: info@nksquare.com, Website : nksquare.com

**TEST AND GUARANTEE CERTIFICATE
OPACITY MONITOR FMDCEM21XX**

Test Cert No: 031/18/02/2021

Customer Name:		HINDALCO INDUSTRIES LTD					
Customer PO No:		952106753					
FM OA No:		551106378			OA Date: 20-NOV-2020		
Model No:		FMDCEM21XX Opacity Monitor					
Serial No:		21031					
Date of test:		18/02/2021					
Location:		UNIT MAHAN ALUMINIUM, WORKS NH-75E, DIST SINGRAULI, Madhya Pradesh, 486886					
FMDCEM21XX	Serial no's			Batch No/ WO no		Part no	
Transceiver 1	FMDCEM 21XX - 21031 TRX1			2021		26-019-1191668	
Transceiver 2	FMDCEM 21XX - 21031 TRX2			2021		26-019-1191668	
Signal Processor	FMDCEM 21XX - 21031 SPU			2021		26-019-1179378	
Power Supply	FMDCEM 21XX 21031 PSU			2021		26-018-1038364	
Display Unit	FMDCEM 21XX - 21031 RCU			2021		26-018-1198961	
ACU Unit	NA						
EPROM Set	507-069 B (MASTER)			507-028 C (SLAVE)		507-120 B (RCU)	
Cable	Length	Qty	Other	Path length	2 m*		
TRANSRECEIVER	10 Mtr	2 Nos	Green	Mounting accessories	1 set (2 Qty)		
SOLENOID	10 Mtr	2 Nos	Red				
Power supply (only for IMOT)	NA						
Interconnecting cable PSU to SPU	1.2 Mtr	1 No					
SPU to RCU	3 Mtr	1 No					
Tag no							

Test data:

Zero % Opacity	100% Opacity
0	99.99

Operation Checks:

Normalizing Inputs	Temperature	✓	Serial Comms.	✓	Plant status	✓
	Oxygen	✓	Data Valid	✓	CONTACT	✓
	Pressure	✓	Alarm LED	✓	CONTACT	✓
	Water Vapor	✓	Alarm level 1/2	✓	Span Check 50%	✓

Date On Soak: 16/02/2021

Date Off Soak : 18/02/2021

Final test result: Pass

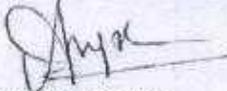
Signed: ANJALI

* - All instruments are set to default path length of 2 meters at the factory and are valid for site path lengths ranging between 1.5 -6 meters. For Other path lengths exact value is specified in the certificate.

GUARANTEE:

THIS IS TO CERTIFY THAT THE ABOVE MENTIONED PRODUCT IS GUARANTEED AGAINST DEFECTIVE WORKMANSHIP FOR A PERIOD OF 12 MONTHS FROM THE DATE OF COMMISSIONING OR 18 MONTHS FROM THE DATE OF MATERIAL RECEIPT AT SITE WHICHEVER IS EARLIER

For,


**Forbes Marshall Pvt Ltd,
QUALITY ASSURANCE & CONTROL**


Format Doc ID:800/11	Rev:3	Issue:A	Date:11 th Oct 2019	Ref: 800/5
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CALIBRATION CERTIFICATE



Certificate No : NKSS/CEMS/HIL/2021/205/H

Customer : M/s. Hindalco Industries Ltd., Bargawan, Singrauli M.P.

Instrument Details:

Date of Issue : 05-09-2021

Instrument : Online Stack Gas Analyzer (SO₂, NO_x, CO)

Make : SIEMENS

Model : ULTRAMAT-23

Serial No. : B5-009

Station Name : CEMS-4

Date of Calibration : 31-08-2021

Due Date : 29-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂

SO₂ Gas : 740.0 ppm SO₂, Balance N₂

CO Gas : 373 ppm CO, Balance N₂

N₂ Gas : 99.999% purity

Calibration Equipment Details:

Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	18893	15559	18913	18913
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	733.0 ppm	-0.95
NO _x	0.0 ppm	0.0 ppm	0	746.0 ppm	747.0 ppm	0.13
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	374.0 ppm	0.26

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:

Reviewed by:


K. Dhaniram
Service Engineer




Ram kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

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CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/173/D

Date of Issue: 12-10-2021

Customer : M/s. Hindalco Industries ltd Baragawan M.P.

Instrument Details:

Instrument : Online Stack SPM Analyzer
Make : Forbes Marshall
Model : DCEM 2100
Serial No. : 723

Station Name : Stack- 5
Date of Calibration : 03-10-2021
Due Date : 02-01-2022

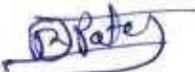
Calibration Details:(Test Data)

Calibration Date	Zero % Opacity	100% Opacity	Remarks
03-10-2021	00.02%	92.5%	Dust monitor model no DCEM 2100 is calibrated successfully

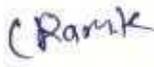
Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Operational Checks:-

Normalizing inputs	Temperature	Ok	Serial Comms.	Ok	Plant Status	Ok
	Span Check 100%	Ok	Data Valid	Ok	Contact	Ok
	Alarm Level 1/2	Ok	Alarm Led	Ok		


Calibrated By:
Dhaniram Kachhi
Service Engineer



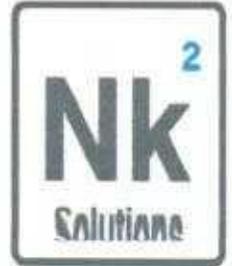

Reviewed By:
Ram Kishan Pal
Sr. Service Engineer

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Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

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CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/206/H

Customer : M/s. Hindalco Industries Ltd., Bargawan, Singrauli M.P.

Instrument Details:

Date of Issue : 05-09-2021

Instrument : Online Stack Gas Analyzer (SO₂,NOX, CO)
Make : SIEMENS
Model : ULTRAMAT-23
Serial No. : B5-008

Station Name : CEMS-5
Date of Calibration : 01-09-2021
Due Date : 30-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂
SO₂ Gas : 740.0 ppm SO₂, Balance N₂
CO Gas : 373.0 ppm CO, Balance N₂
N₂ Gas : 99.999% purity

Calibration Equipment Details:

Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	15616	15555	18927	18927
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	752.0 ppm	1.62
NO _x	0.0 ppm	0.0 ppm	0	746.0 ppm	748.0 ppm	0.26
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	372.0 ppm	-0.26

Accepted Tolerance: $\pm 2\%$

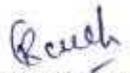
Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:

Reviewed by:


Dhaniram kachhi
Service Engineer




Ram Kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

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CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/173/D
Customer : M/s. Hindalco Industries ltd Baragawan M.P.

Date of Issue: 12-10-2021

Instrument Details:

Instrument : Online Stack SPM Analyzer
Make : Forbes Marshall
Model : DCEM 2100
Serial No. : 732

Station Name : Stack- 6
Date of Calibration : 01-10-2021
Due Date : 31-12-2021

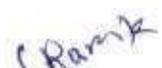
Calibration Details:(Test Data)

Calibration Date	Zero % Opacity	100% Opacity	Remarks
01-10-2021	00.01%	91.3%	Dust monitor model no DCEM 2100 is calibrated successfully

Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Operational Checks:-

Normalizing inputs	Temperature	Ok	Serial Comms.	Ok	Plant Status	Ok
	Span Check 100%	Ok	Data Valid	Ok	Contact	Ok
	Alarm Level 1/2	Ok	Alarm Led	Ok		

 Calibrated By: Dhaniram Kachhi Service Engineer		 Reviewed By: Ram Kishan Pal Sr. Service Engineer
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Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072
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CALIBRATION CERTIFICATE

Certificate No: NKSS/CEMS/HIL/2021/207/H

Customer : M/s. Hindalco Industries Ltd.,Bargawan, Singrauli M.P.

Instrument Details:

Date of Issue : 05-09-2021

Instrument : Online Stack Gas Analyzer (SO₂,NOX, CO)
Make : SIEMENS
Model : ULTRAMAT-23
Serial No. : B5-005

Station Name : CEMS-6
Date of Calibration : 01-09-2021
Due Date : 30-11-2021

Calibration Gas Details:

NO Gas : 746.0 ppm NO, Balance N₂
SO₂ Gas : 740.0 ppm SO₂, Balance N₂
CO Gas : 373.0 ppm CO, Balance N₂
N₂ Gas : 99.999% purity

Calibration Equipment Details:

Details	N ₂ Gas Cylinder	SO ₂ Gas Cylinder	NO Gas Cylinder	CO Gas Cylinder
Sl. No.	15558	15532	18921	18921
Expiry Date	23-02-2022	23-02-2022	23-02-2022	23-02-2022

Calibration Details:

Parameter	Zero Calibration			Span Calibration		
	Standard Gas Concentration	Measured Value	% of Deviation	Standard Gas Concentration	Measured Value	% of Deviation
SO ₂	0.0 ppm	0.0 ppm	0	740.0 ppm	738.0 ppm	- 0.27
NOx	0.0 ppm	0.0 ppm	0	746.0 ppm	744.0 ppm	-0.26
CO	0.0 ppm	0.0 ppm	0	373.0 ppm	372.0 ppm	-0.26

Accepted Tolerance: $\pm 2\%$

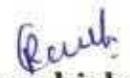
Result: The Calibration of above instrument is performed and it meets the acceptance criteria.

Calibrated By:

Reviewed by:


Dhaniram kachhi
Service Engineer




Ramkishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/218/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -10 Analyzer

Station Name : Town ship

Make: Metone Instruments, U.S.A

Date of Calibration : 10-09-2021

Model: BAM-1020

Due Date : 09-03-2022

Serial No: U11749

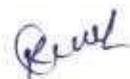
Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	830 $\mu\text{g}/\text{m}^3$	837 $\mu\text{g}/\text{m}^3$	0.84

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821 E-mail: info@nksquare.com, Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/219/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -2.5 Analyzer

Station Name : Town ship

Make: Metone Instruments, U.S.A

Date of Calibration : 10-09-2021

Model: BAM-1020

Due Date : 09-03-2022

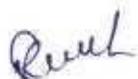
Serial No: U11749

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	834 $\mu\text{g}/\text{m}^3$	840 $\mu\text{g}/\text{m}^3$	0.71

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Service Engineer
--	---	--

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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/220/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P.

Instrument Details:

Instrument: SO2 Analyser

Station Name : Township

Make: Horiba, Japan.

Date of Calibration : 10-09-2021

Model: APSA-370

Due Date : 09-03-2022

Serial No: B4JCHRAL

Calibration Gas Details

Calibration Diluter: CGS-12

SO2 Gas: 99.3 ppm SO2, Balance N2.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

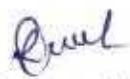
Details	SO2 Gas Cylinder
Serial Number	9940
Expiry Date	03.11.2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
SO2	0.0ppm	0.0ppm	0.450 ppm	0.454ppm	0.88

Acceptable Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
---	---	---

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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/221/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: NOx Analyzer

Station Name: Township

Make: Horiba, Japan:

Date of Calibration: 10-09-2021

Model: APNA-370

Due Date: 09-03-2022

Serial No: TLXMKVT4

Calibration Gas Details:

Calibration Diluter: CGS-12

NO Gas: 99.3 ppm NO, Balance N₂.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

Details	NO Gas Cylinder
Serial Number	10130
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
NO	0.0ppm	0.0 ppm	0.494	0.492	-0.40

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptanceCriteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
--	---	--

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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/222/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: CO Analyzer

Station Name: Township

Make: Horiba, Japan.

Date of Calibration: 10-09-2021

Model: APMA-370

Due Date: 09-03-2022

Serial No: 3PJPNNDQ

Calibration Gas Details:

Calibration Diluter: CGS-12

CO Gas: 100 ppm CO, Balance N₂.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

Details	CO Gas Cylinder
Serial Number	9952
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
CO	0.0ppm	0.0 ppm	0.880 ppm	0.876 ppm	-0.45

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE

Certificate No: **NKSS/AAQMS/HIL/2021/223/H**

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -10 Analyzer

Station Name : ETP SITE

Make: Metone Instruments, U.S.A

Date of Calibration : 10-09-2021

Model: BAM-1020

Due Date : 09-03-2022

Serial No: R13472

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	828 $\mu\text{g}/\text{m}^3$	830 $\mu\text{g}/\text{m}^3$	0.24

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
---	---	---

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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/224/H

Date of Issue: 11-09-2021

Customer: M/s Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -2.5 Analyzer

Station Name : ETP SITE

Make: Metone Instruments, U.S.A

Date of Calibration : 10-09-2021

Model: BAM-1020

Due Date : 09-03-2022

Serial No: R13471

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	806 $\mu\text{g}/\text{m}^3$	810 $\mu\text{g}/\text{m}^3$	0.49

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan Pal Sr. Service Engineer
--	---	--

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CALIBRATION CERTIFICATE

Certificate No: **NKSS/AAQMS/HIL/2021/225/H**

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P.

Instrument Details:

Instrument: SO2 Analyser

Station Name : ETP SITE

Make: Horiba, Japan.

Date of Calibration: 10-09-2021

Model: APSA-370

Due Date: 09-03-2022

Serial No: P60BBGRL

Calibration Gas Details

SO2 Gas: 99.3 ppm SO2, Balance N2.

Calibration Diluter: CGS-12

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

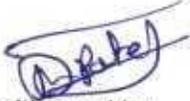
Details	SO2 Gas Cylinder
Serial Number	9940
Expiry Date	03.11.2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
SO2	0.0ppm	0.0ppm	0.480 ppm	0.483 ppm	0.62

Acceptable Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/226/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: NOx Analyzer

Station Name: ETP- SITE

Make: Horiba, Japan.

Date of Calibration: 10-09-2021

Model: APNA-370

Due Date: 09-03-2022

Serial No: SNE8MDK5

Calibration Gas Details:

Calibration Diluter: CGS-12

NO Gas: 99.3 ppm NO, Balance N2.

Serial No:749516

Ratio: 1: 200

Calibration Equipment Details:

Details	NO Gas Cylinder
Serial Number	10130
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
NO	0.0ppm	0.0 ppm	0.490	0.493	0.61

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/227/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: CO Analyzer

Station Name: Smelter ETP

Make: Horiba, Japan.

Date of Calibration: 10-09-2021

Model: APMA-370

Due Date: 09-03-2022

Serial No: 3PJPNDQ

Calibration Gas Details:

Calibration Diluter: CGS-12

CO Gas: 100 ppm CO, Balance N2.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

Details	CO Gas Cylinder
Serial Number	9952
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
CO	0.0ppm	0.0 ppm	0.880 ppm	0.883 ppm	0.34

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE

Certificate No: **NKSS/AAQMS/HIL/2021/208/H**

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P.

Instrument Details:

Instrument: PM -10 Analyzer

Station Name : Cooling Tower

Make: Metone Instruments, U.S.A

Date of Calibration : 09-09-2021

Model: BAM-1020

Due Date : 08-03-2022

Serial No: U11749

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	826 $\mu\text{g}/\text{m}^3$	831 $\mu\text{g}/\text{m}^3$	0.60

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

Calibrated by:
Ram kishan pal
Service Engineer



Reviewed by:
Abdul Razak
Service Engineer

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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/209/H

Date of Issue: 11-09-2021

Customer: M/s Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -2.5 Analyzer

Station Name : Cooling Tower

Make: Metone Instruments, U.S.A

Date of Calibration : 09-09-2021

Model: BAM-1020

Due Date : 08-03-2022

Serial No: U11748

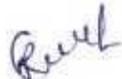
Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	819 µg/m ³	826 µg/m ³	.85

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.Dhani Ram Service Engineer		 Reviewed by: Ram Kishan Pal Service Engineer
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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/210/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P.

Instrument Details:

Instrument: SO2 Analyser

Station Name : Cooling Tower

Make: Horiba, Japan.

Date of Calibration: 09-09-2021

Model: APSA-370

Due Date: 08-03-2022

Serial No: SNSL0J96

Calibration Gas Details:

Calibration Diluter: CGS-12

SO2 Gas: 99.3 ppm SO2, Balance N2.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

Details	SO2 Gas Cylinder
Serial Number	9940
Expiry Date	03.11.2021

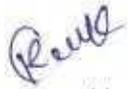
Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
SO2	0.0ppm	0.0ppm	0.500 ppm	0.496 ppm	-0.80

Acceptable Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K. Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/211/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: NOx Analyzer

Station Name: Cooling Tower

Make: Horiba, Japan.

Date of Calibration: 09-09-2021

Model: APNA-370

Due Date: 08-03-2022

Serial No: UW0DJ3TF

Calibration Gas Details:

Calibration Diluter: CGS-12

NO Gas: 99.3 ppm NO, Balance N2.

Serial No:749516

Ratio: 1: 200

Calibration Equipment Details:

Details	NO Gas Cylinder
Serial Number	10130
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
NO	0.0ppm	0.0 ppm	0.480	0.482	0.41

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.DHANIRAM Service Engineer		 Reviewed by: RAM KISHAN PAL Service Engineer
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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/212/H

Date of Issue: 11-03-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: CO Analyzer

Station Name: Cooling Tower

Make: Horiba, Japan.

Date of Calibration: 09-09-2021

Model: APMA-370

Due Date: 08-03-2022

Serial No: S3L9X6KF

Calibration Gas Details:

Calibration Diluter: CGS-12

CO Gas: 100 ppm CO, Balance N2.

Serial No:749516

Ratio: 1: 200

Calibration Equipment Details:

Details	CO Gas Cylinder
Serial Number	9952
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
CO	0.0ppm	0.0 ppm	0.750 ppm	0.754ppm	0.53

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/213/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -10 Analyzer

Station Name : Reservoir

Make: Metone Instruments, U.S.A

Date of Calibration : 09-09-2021

Model: BAM-1020

Due Date: 08-03-2022

Serial No: U11746

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	826 $\mu\text{g}/\text{m}^3$	830 $\mu\text{g}/\text{m}^3$	0.48

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE

Certificate No: NKSS/AAQMS/HIL/2021/214/H

Date of Issue: 11-09-2021

Customer: M/s Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: PM -2.5 Analyzer

Station Name : Reservoir

Make: Metone Instruments, U.S.A

Date of Calibration : 09-09-2021

Model: BAM-1020

Due Date : 08-03-2022

Serial No: U11747

Calibration Details:

Parameter	Span Calibration		
	Standard Value	Measured Value	% of Deviation
Film Value	807 $\mu\text{g}/\text{m}^3$	816 $\mu\text{g}/\text{m}^3$	1.11

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance

Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Service Engineer
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NK SQUARE SOLUTIONS

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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HTL/2021/215/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P.

Instrument Details:

Instrument: SO2 Analyser

Station Name : Reservoir

Make: Horiba, Japan.

Date of Calibration : 09-09-2021

Model: APSA-370

Due Date : 08-03-2022

Serial No: B4JCHRAL

Calibration Gas Details

SO2 Gas: 99.3 ppm SO2, Balance N2.

Calibration Diluter: CGS-12

Serial No : 749516

Ratio: 1: 200

Calibration Equipment Details:

Details	SO2 Gas Cylinder
Serial Number	9940
Expiry Date	03.11.2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
SO2	0.0ppm	0.0ppm	0.480 ppm	0.477ppm	-0.62

Acceptable Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
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CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/216/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: NOx Analyzer

Station Name: Reservoir

Make: Horiba, Japan.

Date of Calibration: 09-09-2021

Model: APNA-370

Due Date: 08-03-2022

Serial No: 1HMMG70X

Calibration Gas Details:

Calibration Diluter: CGS-12

NO Gas: 99.3 ppm NO, Balance N2.

Serial No:749516

Ratio: 1: 200

Calibration Equipment Details:

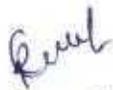
Details	NO Gas Cylinder
Serial Number	10130
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
NO	0.0ppm	0.0 ppm	0.480	0.478	-0.41

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptanceCriteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
--	---	--

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821 E-mail: info@nksquare.com , Website : nksquare.com

CALIBRATION CERTIFICATE



Certificate No: NKSS/AAQMS/HIL/2021/217/H

Date of Issue: 11-09-2021

Customer: M/s. Hindalco Industries Ltd., Bargawan, Singrauli, M.P

Instrument Details:

Instrument: CO Analyzer

Station Name: Reservoir

Make: Horiba, Japan.

Date of Calibration: 09-09-2021

Model: APMA-370

Due Date: 08-03-2022

Serial No: VASVMMT2

Calibration Gas Details:

Calibration Diluter: CGS-12

CO Gas: 100 ppm CO, Balance N2.

Serial No: 749516

Ratio: 1: 200

Calibration Equipment Details:

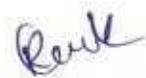
Details	CO Gas Cylinder
Serial Number	9952
Expiry Date	03-11-2021

Calibration Details:

Parameter	Zero Calibration		Span Calibration		% of Deviation
	Standard Gas Concentration	Measured Value	Standard Gas Concentration	Measured Value	
CO	0.0ppm	0.0 ppm	0.850 ppm	0.856 ppm	0.70

Accepted Tolerance: $\pm 2\%$

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

 Calibrated by: K.Dhaniram Service Engineer		 Reviewed by: Ram kishan pal Sr. Service Engineer
--	---	--

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821 E-mail: info@nksquare.com Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No: NKSS/EQMS/HIL/2021/229/H

Date of Issue : 29-10-2021

Customer: M/s. Hindalco Industries Ltd.,Bargawan,Singrauli,M.P

Instrument Details:

Instrument: Online Effluent Monitoring System

Station Name : Smelter- ETP

Make: HORIBA

Date of Calibration : 27-10-2021

Model: OPSA150

Due Date : 26-04-2022

Serial No: UYF038RX

Serial No: M8SD06AN

Instrument User: Quality Assurance Department

Calibration Equipment Details:

Instruments	Standard	Measured Value
Physical Check	Pass/Fail Dimensions & designed Characteristics	Pass
Power supply test	220 Volts A/C	Pass
Diagnostic Checks	Pass/Fail	Pass
OPSA150	Raw Value of UV 0.690Abs.	Reading 0.696Abs.
OPSA150	Raw Value of VIS 0.880Abs.	Reading 0.843Abs.
OPSA150	Raw Value of pH 4.00pH 7.01pH	Reading 4.52pH 7.60pH

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

Calibrated by:

Dhaniram Kachhi
Service Engineer



Reviewed by:

Abdul Razak
Sr.Service Engineer

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821 E-mail: info@nksquare.com , Website : nksquare.com



CALIBRATION CERTIFICATE

Certificate No: NKSS/EQMS/HIL/2021/228/H

Date of Issue: 04-10-2021

Customer: M/s. Hindalco Industries Ltd.,Bargawan,Singrauli,M.P

Instrument Details:

Instrument: Online Effluent Monitoring System

Station Name : CPP-ETP

Make: S:: can

Date of Calibration: 01-10-2021

Model: I::Scan

Due Date : 30-03-2022

Serial No: ISE 15120007

Serial No: ISE 15090020

Instrument User: Quality Assurance Department

Calibration Equipment Details:

Instruments	Standard	Measured Value
Physical Check	Pass/Fail Dimensions & designed Characteristics	Pass
Power supply test	220 Volts A/C	Pass
Diagnostic Checks	Pass/Fail	Pass
I::Scan	Raw Value of TSS 14.306ppm 11.408ppm	Reading 14.64ppm 10.52ppm
I::Scan	Raw Value of COD 64.234ppm 67.141ppm	Reading 63.39ppm 66.68ppm
I::Scan	Raw Value of BOD 7.224ppm 9.014ppm	Reading 6.82ppm 8.32ppm
I::Scan	Raw Value of pH 7pH 14pH	Reading 7.34pH 14.31pH

Result: The Calibration of above instrument is performed and it meets the acceptance Criteria.

Calibrated by:"

Dhaniram kachhi
Service Engineer



Reviewed by:

Ram Kishan Pal
Sr. Service Engineer

NK SQUARE SOLUTIONS

Regd. Office : 83/3, Saraswati Nagar Colony, Lothukunta, Secunderabad, Telangana State - 500 015

Corp. Office : 501 Yashoda Pride, Above South Indian Bank, HIG 541 & 542, 6th Phase, KPHB Colony, Hyderabad - 500 072

Ph: +91 40 48514821

E-mail: info@nksquare.com , Website : nksquare.com

SDFGD -SOX Projects

Status – 31st October , 2021

Semi Dry FGD Project (1X150 MW) – Mahan

Start: 17-Feb-20

Commissioning: 16-Dec-21

Project Partners:

EPC : ISGEC Heavy Engineering

Consultant: Black & Veatch

Progress Highlights:

- Overall Project Progress achieved 69.11% against planned progress of 97.49% as on 31st October-2021.
- Ordering for the major Bought outs completed in September-21.
- Erection of Bag filter hopper, gratings and hand railing platform erection work under progress.
- Erection of all Scrubber support structures, Venturi, Cone completed. Platforms erection also under progress.
- Erection of stairways for MUW tank has been completed.
- Civil superstructures of By-Product Silo completed. Erection of silo started.
- Foundation of Booster Fan -01, 02 & recirculation fan completed. Erection of lower casing of fan under progress.
- Mechanical Completion by Feb-22.
- Electrical Installation Completion by 30-Apr-22.
- C&I work Completion by 30-Apr-22.
- Commissioning completion by May 2021.
- Total man hours in October month till 31st Oct is 1,08,888 hrs.

Semi Dry FGD Project (1X150 MW) – Mahan

Civil Work Progress Status

S.no	Activity	Excavation	PCC	RCC
1	Compressor & ECW Building	26%	70%	21% done
2	Hydrated Lime Silo	Completed	Completed	Raft done, Superstructure work 79% completed.
3	Flue gas duct foundation area	83%	83%	82% completed
4	Scrubber	completed	completed	Completed
5	By Product Silo	completed	Completed	Raft done, column RCC done, Mechanical erection under progress
6	Booster Fan Foundation	Completed	Completed	completed
7	MCC Building	Completed	Completed	Column & 1 st Slab work done
8	Bag Filter	completed	completed	Erection of Bag Filter Hopper no. 04 & platform , hand railings and gratings work under progress
9	Pipe Support & Cable Rack Support Foundation	15% Done	8% Done	8% RCC done
10	Buffer Silo	Completed	Completed	Raft rebar work under progress
11	MUW storage tank	Completed	Completed	RCC work under progress

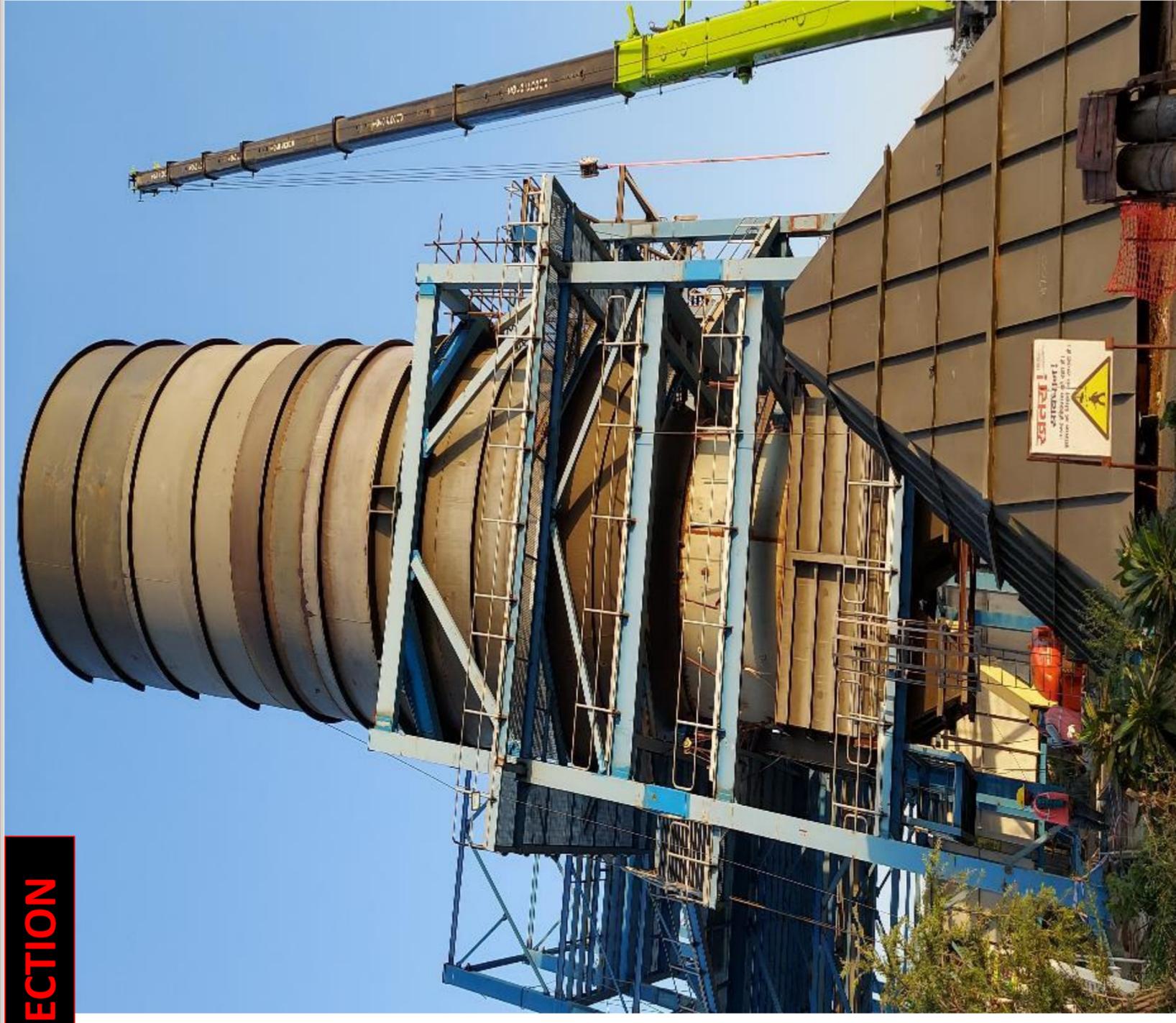
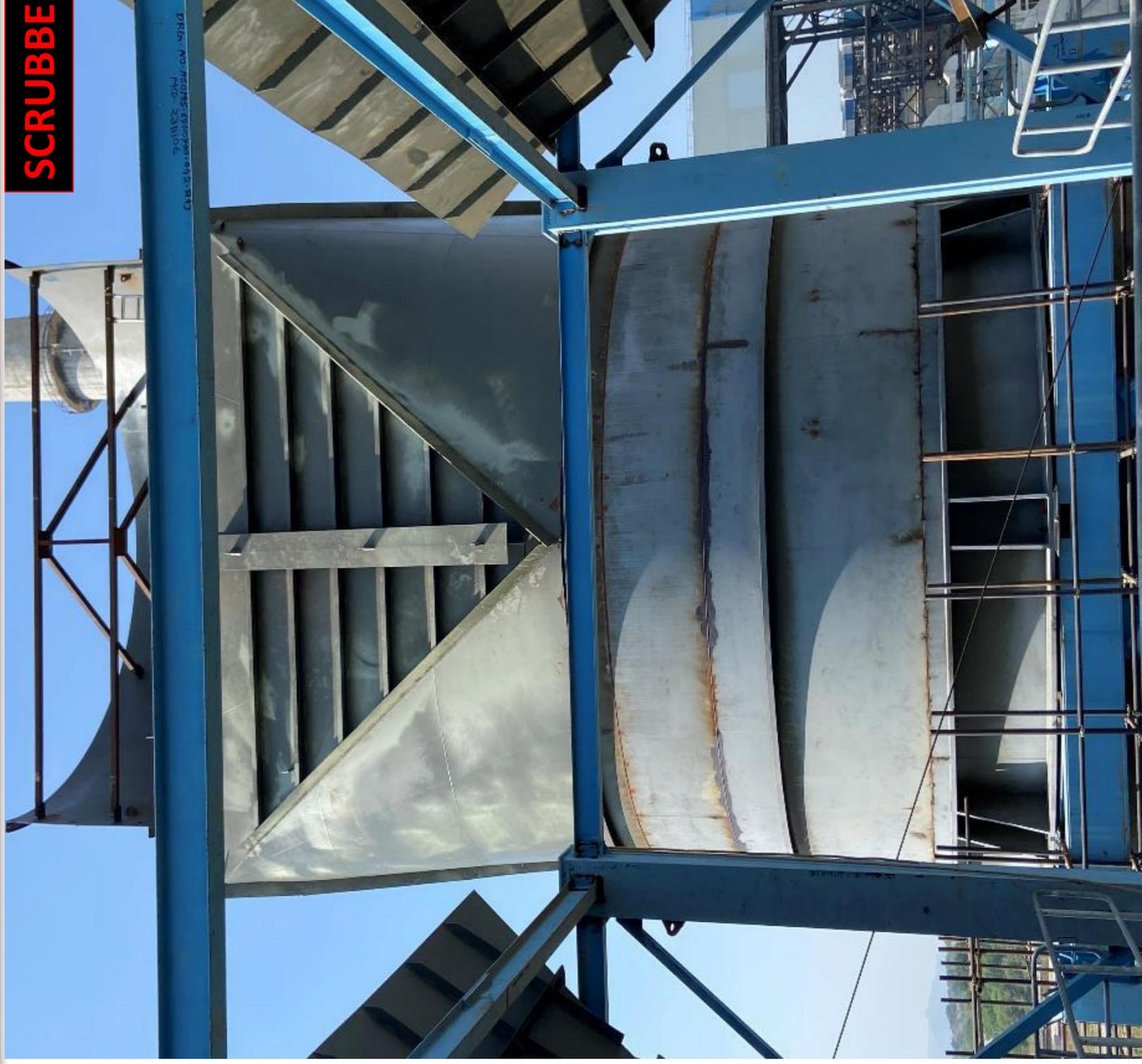
Semi Dry FGD Project (1X150 MW) – Mahan

Overall Progress for Engineering, Procurement, Supply & Erection- October 21				
S.no	Activities	Weightage (%)	Planned	Actual
1	Engineering	20	20.00	19.61
2	Procurement, Manufacturing & Supply	45	45.00	37.06
3	Erection	30	30.00	12.43
4	Commissioning	5	0.00	0.00
	Over All Progress	100	97.49	69.11

Scope of work SDFGD Project		
S.no	Activities	As on date Progress
1	RCC-Cum	3668.5
2	Fabrication -MT	737
3	Structural Erection -MT	779
		Civil work Manpower 159.
		Fabrication work Manpower 200.

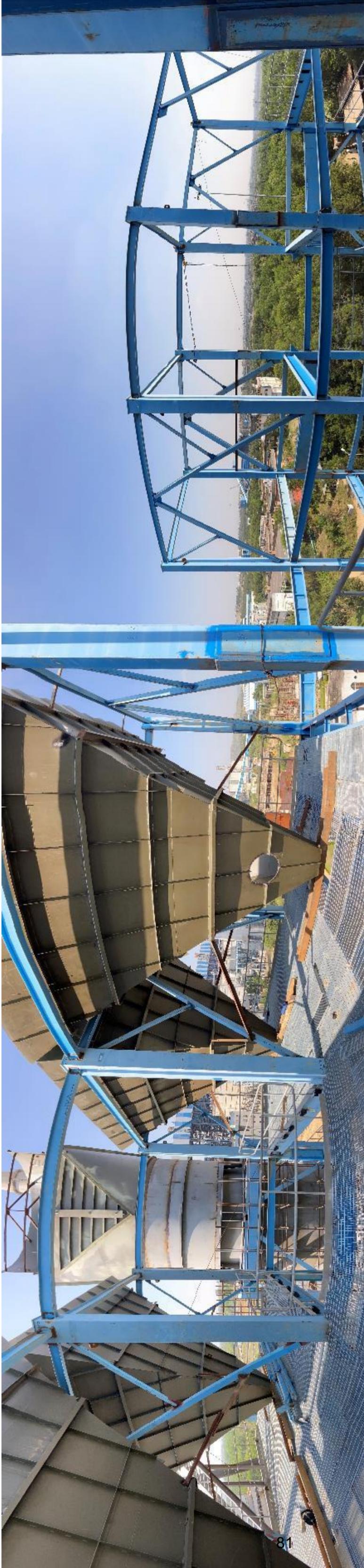
Site Photographs – Mahan FGD Project

SCRUBBER ERECTION



Site Photographs – Mahan FGD Project

BAG FILTER HOPPER & SUPPORTING STRUCTURE



BAG FILTER PLATFORM GRATING



Site Photographs – Mahan FGD Project

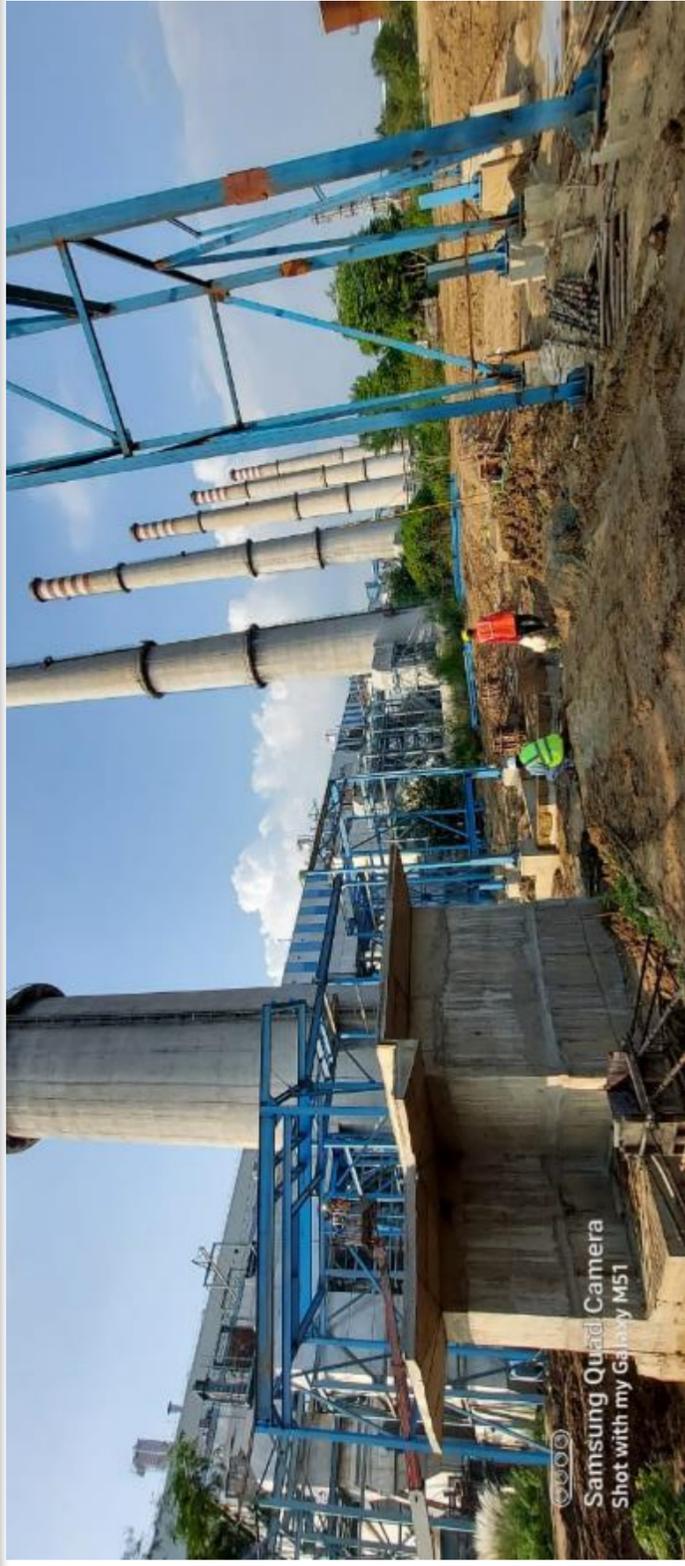
BOOSTER FAN 1 AND 2 FOUNDATION



Site Photographs – Mahan FGD Project



MCC BUILDING AREA



DUCT FOUNDATION AREA



HYDRATED LIME SILO



BOOSTERFAN FOUNDATION AREA

Site Photographs – Mahan FGD Project

BY PRODUCT SILO



MAKEUP WATER TRANSFER TANK



Thank You

क्षेत्रीय कार्यालय
म.प्र.प्रदूषण नियंत्रण बोर्ड

भकुआर, नौगढ, जिला सिंगरौली (म.प्र.)-486887
E-Mail: romppcb.sgrl@gmail.com , Contact No. : 9752497772

ENCLOSURE 2/V

पत्र क्र. 1265 /क्षे.का./प्रनिबो/2021

सिंगरौली, दिनांक: 27/12/2021

प्रति,

श्री हेमंत शर्मा,
(डायरेक्टर पर्यावरण)
मध्य प्रदेश प्रदूषण नियंत्रण बोर्ड,
भोपाल, (म.प्र.) ।

विषय:- IV QUATERLY REPORT OF THE OVERSIGHT COMMITTEE में सम्मलित निम्न बिन्दुओं के आधार पर निरिक्षण प्रतिवेदन भेजने बावत ।

सन्दर्भ:- मुख्यालय के मौखिक निर्देशानुसार ।

उपरोक्त विषयांतर्गत संदर्भित निर्देशानुसार IV QUATERLY REPORT OF THE OVERSIGHT COMMITTEE में सम्मलित निम्न बिन्दुओं के आधार पर निरिक्षण प्रतिवेदन आवश्यक कार्यवाही हेतु सादर प्रेषित हैं ।

संलग्न: उपरोक्तानुसार ।

o/c
(डॉ. नीरज वर्मा)
क्षेत्रीय अधिकारी,
सिंगरौली (म.प्र.)

IV QUARTERLY REPORT OF THE OVERSIGHT COMMITTEE में सम्मिलित निम्न बिन्दुओं के आधार पर निरिक्षण किया गया। जिसकी वर्तमान स्थिति निम्नानुसार है :

1- क्षेत्र के अंतर्गत कोल माइंस के सम्बन्ध में

- 1.1- एन.सी.एल. द्वारा 10 रोड स्वीपिंग मशीन के अतिरिक्त 04 और रोड स्वीपिंग मशीन खरीदी जानी थी जो नहीं खरीदी गयी हैं
- 1.2- एन.सी.एल. कोल ट्रांसपोर्ट स्पर - 1 एवं स्पर -2, सिंगरौली हेतु रिपोर्ट में
- 1- विंड ब्रेकिंग वाल के उपरी भाग में लगायी गयी ग्रीन नेट को जी.आई. शीट से बदला जाना था ।
 - 2- स्पर -1 एवं स्पर -2 दोनों साइड्स के कैच ड्रेन हेतु आवश्यक क्षमता का सेडीमेन्टेशन पिट का निर्माण एवं उसके साथ ऑयल ट्रेप आवश्यक रूप से तीन माह अंदर किया जाना निर्देशित है।

निरिक्षण दिवस को पाया गया कि विंड ब्रेकिंग वाल के उपरी भाग में पूर्वानुसार ग्रीन नेट ही लगी है, उसे जी.आई. शीट के माध्यम से बदला नहीं गया है ।

स्पर -1 एवं स्पर -2 हेतु सेडीमेन्टेशन पिट का निर्माण किया गया है, किन्तु ऑयल ट्रेप सम्बंधित उपचार व्यवस्था नहीं की गयी है । साथ ही कैच ड्रेन तथा सेडीमेन्टेशन पिट का संधारण नहीं किया जा रहा है ।

- 1.3-जयन्त माइन चौराहा से शुक्ला मोड़ के मध्य कोल परिवहन किये जाने के कारण वायु प्रदूषण की स्थिति ठीक नहीं है, साथ ही इस रोड पर कोल डस्ट होने एवं वर्षा एवं जल छिड़काव की परिस्थिति में कीचड़ की स्थिति निर्मित होती हैं एवं सूखने के उपरांत वायु प्रदूषण उत्पन्न होता है, अतः फागिंग मशीन एवं टैंकर के माध्यम से जल छिड़काव की व्यवस्था एवं मैनुअल डस्ट कलेक्शन किया जाना अति आवश्यक है । किन्तु पूर्वानुसार ही अवैज्ञानिक रूप से जल का छिड़काव किया जा रहा है साथ ही मैनुअल डस्ट कलेक्शन भी निरंतर नहीं की जा रहा है ।

(छायाचित्र संलग्न है) – A

2- क्षेत्र के अंतर्गत ताप विधुत गृह के सम्बन्ध में :

- 2.1 एन.टी.पी.सी. विंध्यांचल विन्ध्यनगर, सिंगरौली से ओवरसाइट कमेटी की IV रिपोर्ट के आधार पर सम्बंधित जानकारी मगायी गयी थी । उद्योग द्वारा प्रेषित की गयी जानकारी निम्नानुसार है :

- 2.1.1 - CAAQMS का इंस्टालेशन कार्य पूर्ण किया जा चुका है, परन्तु आवश्यक विद्युत प्रदाय क्षमता अनुसार न होने के कारण कमीशनिंग कार्य पूर्ण नहीं हो पाया है।
- 2.1.2 - Comprehensive Stability Analysis of all Ash Dykes of NTPC Vindhyanchal in 2020-2021 by IIT Hyderabad has conducted. Draft report of the study received by NTPC.
- 2.1.3 -Monitoring report of Rihand Reservoir includes Mercury Analysis also conducted. (उद्योग द्वारा प्रेषित जवाब संलग्न है) 'D'

2.2 M/S Sasan Power Limited Singrauli के सम्बन्ध में :

मई, जून 2021 को उद्योग के राखड बांध के बाहरी भाग में ऐश डाइक रेजिंग हेतु डाली गई फ्लाई ऐश एवं बॉटम ऐश अत्यधिक वर्षा होने के कारण ग्राम एवं नालों में प्रवाहित हो गयी थी, साथ ही दिनांक 10/04/2020 को परिसर के भीतर लो -लाइंग एरिया में उद्योग द्वारा जो फ्लाई ऐश स्लरी भरण किया गया था का बहाव नालों, ग्राम, नदी तथा डैम में प्रवाहित हो गया था, जिसको उद्योग द्वारा पुनः वापस उठाते हुए राखड बांध में रखा जाना था, किन्तु उद्योग द्वारा निरिक्षण दिनांक तक उक्त राखड को नहीं उठाया/ हटाया गया है।

(रगीन मय छायाचित्र संलग्न हैं)

3- बरगवां / गजरा बहरा रेलवे स्टेशन के पास स्थित कोल स्पर साइडिंग के सम्बन्ध में :

- 3.1 बरगवां रेलवे साइडिंग पर विंड ब्रेकिंग वाल यथा स्थिति में हैं, उसमें अन्य कोई प्रगति नहीं की गयी है । वाटर स्प्रींकल भी पूर्वानुसार ही हैं उसमें भी अन्य कोई प्रगति नहीं पाई गई न ही कोई सिल्टरेसन पांड आदि का निर्माण किया गया है ।
- 3.2 गजरा बहरा कोल रेलवे साइडिंग पर भी विंड ब्रेकिंग वाल स्थिति में हैं, उसमें भी हाइट बढ़ाने सम्बन्धी कार्य को नहीं किया गया है । (संलग्न - "D")

4- प्रशासकीय कार्यों के सम्बन्ध में

- 4.1 IV ओवरसाइट कमेटी में जिले में लगाये गये RO प्लांट के संधारण तथा RO प्लांट के द्वारा निष्काषित दूषित जल को उचित तरीके के माध्यम से डिस्पोजड किया जाना था, किन्तु स्थिति पूर्वानुसार ही हैं ।
- 4.2 जिले में निर्माणाधीन सिवेज ट्रीटमेंट प्लांट तथा सीवर लाइनस बिछाने का कार्य भी वर्तमान में यथा स्थिति में है इसमें अन्य कोई प्रगति नहीं पाई गयी है ।

(डॉ. नीरज वर्मा)
क्षेत्रीय अधिकारी,
सिंगरौली (म.प्र.)



Re: Oversight committee meeting held on dated 11.09.2021 - reg.

1 message

Munish Kumar Jain <MKJAIN@ntpc.co.in>
To: romppcb.sgrf <romppcb.sgrf@gmail.com>
Cc: RAJESH MALIK <RAJESHMALIK@ntpc.co.in>

23 December 2021 at 19:04

Dear Sir,

With reference to your trailing mail, Pointwise status is as under:

1. Installation work of CAAQMS has been completed. Completion of commissioning is pending as electrical connection of required capacity is not available. Connection request given to MPEB.
2. IIT-Hyderabad has conducted a comprehensive stability analysis of all Ash Dykes of Vindhyachal in 2020-21. The work included drone surveying and carrying out field tests of all dykes. Draft report of the study is received. Final report expected to be submitted by 31.12.21.
3. Monitoring Report of Rihand Reservoir, which also includes Mercury analysis, for the month of Aug'21 is attached.

Regards,

Munish Jain
AGM-EMG,
NTPC VINDHYACHAL
MOB.NO. 9415342516

From: Munish Jain <mkjn71@gmail.com>
Sent: 23 December 2021 17:58
To: Munish Kumar Jain <MKJAIN@NTPC.CO.IN>
Subject: Fwd: Oversight committee meeting held on dated 11.09.2021 - reg.

CAUTION: This Email has been sent from outside the Organization. Unless you trust the sender, Don't click links or open attachments as it may be a Phishing email, which can steal your Information and compromise your Computer.

----- Forwarded message -----
From: RO MPPCB Singrauli <romppcb.sgrf@gmail.com>
Date: Thu, 23 Dec 2021 at 12:45
Subject: Oversight committee meeting held on dated 11.09.2021 - reg.
To: Munish Jain <mkjn71@gmail.com>, RAJESH MALIK राजेश मलिक <rajeshmalik@ntpc.co.in>

Respected Sir,

- It is to mention that the Oversight Committee Meeting was held on dated 11/09/2021 in NTPC Conference hall. In reference to that please provide the current status of following points:-
- 1- Installation of new CAAQMS at the Trauma Centre of the District Hospital Building.
 - 2- Structural safety study report of ash dyke through IIT Hyderabad.
 - 3- Manual continuous monitoring and analysis of Mercury in water bodies like Surya Nalla, Rihand Reservoir etc.

Regional Officer
MP PCB, Singrauli
Distt. Singrauli-486887



EKO PRO ENGINEERS PVT. LTD.

Environmental Consultants and Analytical Laboratory
(An ISO 9001:2015 Certified Company)

Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA.
Contact No.: 9818405427, 9810240678, 8826344487 E-mail : email@ekopro.in, ekoproengineers@gmail.com, website : www.ekopro.in

TEST REPORT Water Sample Analysis

Test Report No : EKO/153/070821-A

Issue Date : 11/08/2021

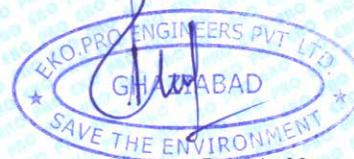
Issued To

: VINDHYACHAL SUPER THERMAL POWER STATION
Vindhya Nagar,
District - Singrauli
Madhya Pradesh

Sample Description : Water Sample
Sample Drawn on : 04/08/2021
Sample Drawn by : EPEPL (Mr. Pramod Mishra)
Sample Received on : 07/08/2021
Sampling Location : Rihand Reservire
Sampling Plan & Procedure : SOP-W/66
Sample Quantity : 3.0 Litre
Environmental Conditions : Normal
Analysis Duration : 07/08/2021 To 11/08/2021
Remark (if any) : NA

RESULTS

S. No.	Parameters	Test Methods	Results	Units	Range of Testing / LOD	Limits as per IS:10500-2012 (Amd.No.3 Feb-2021)	
						Acceptable	Permissible
1	Colour	IS: 3025 (P-4)	ND	Hazen	1.0 to 500.0	5.0	15.0
2	Odour	IS: 3025 (P-5)	Agreeable	-	-	Agreeable	Agreeable
3	Turbidity	IS: 3025 (P-10)	2.6	NTU	1.0 to 500.0	1.0	5.0
4	pH	IS: 3025 (P-11)	6.89	-	1.0 to 13.0	6.5-8.5	No relaxation
5	Total Hardness (as CaCO ₃)	IS: 3025 (P-21)	394.0	mg/L	1 to 10000	200.0	600.0
6	Calcium (as Ca)	IS: 3025 (P-40)	94.5	mg/L	0.5 to 5000	75.0	200.0
7	Chloride (as Cl)	IS: 3025 (P-32)	75.9	mg/L	2.5 to 5000	250.0	1000.0
8	Residual Free Chlorine	IS: 3025 (P-26)	ND	mg/L	0.1 to 1.0	0.2	1.0
9	Chloramines (as Cl ₂)	IS: 3025 (P-26)	ND	mg/L	1.0 to 50	4.0	No relaxation
10	Fluoride (as F)	APHA 4500 F-D	0.52	mg/L	0.1 to 50	1.0	1.5
11	Total Dissolved Solids	IS: 3025 (P-16)	460.0	mg/L	5.0 to 20000	500.0	2000.0
12	Total Suspended Solids	IS: 3025 (P-17)	28.0	mg/L	2 - 20000	-	-
13	Magnesium (as Mg)	IS: 3025 (P-46)	38.4	mg/L	0.5 to 2500	30.0	100.0
14	Copper (as Cu)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.05	1.5
15	Sulphate (as SO ₄)	IS: 3025 (P-24)	52.9	mg/L	1 to 5000	200.0	400.0
16	Nitrate (as NO ₃)	IS: 3025 (P-34)	1.92	mg/L	0.1 to 100	45.0	No relaxation
17	Phenolic Compounds (as C ₆ H ₅ OH)	IS: 3025 (P-43)	ND	mg/L	0.001 to 10	0.001	0.002
18	Mercury (as Hg)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.001 to 10	0.001	No relaxation
19	Selenium (as Se)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.01	No relaxation
20	Arsenic (as As)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.01	No relaxation
21	Cyanide (as CN)	APHA 4500 CN-K	Absent	mg/L	-	0.05	No relaxation
22	Lead (as Pb)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.01	No relaxation





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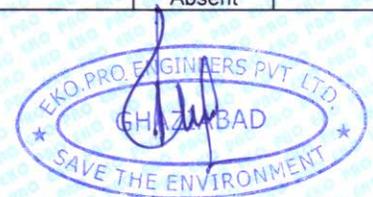
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Test Report No : EKO/153/070821-A

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23	Zinc (as Zn)	EKO/CHEM/SOP-ICPMS/W-01	0.084	mg/L	0.01 to 10	5.0	15.0
24	Barium (as Ba)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.01 to 10	0.7	No relaxation
25	Mineral Oil	IS: 3025 (P-39)	Absent	mg/L	0.1 to 1000	1.0	No relaxation
26	Ammonia (as Total Ammonia-N)	IS: 3025 (P-34)	ND	mg/L	0.5 to 100	0.5	No relaxation
27	Silver (as Ag)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.1	No relaxation
28	Total Chromium (as Cr)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.05	No relaxation
29	Total Alkalinity (as CaCO ₃)	IS: 3025 (P-23)	210.0	mg/L	1.0 to 5000	200.0	600.0
30	Aluminium (as Al)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.03	0.2
31	Boron (as B)	IS: 3025 (P-57)	ND	mg/L	0.25 to 100	0.5	2.4
32	Cadmium (as Cd)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.001 to 10	0.003	No relaxation
33	Anionic Detergents (as MBAS)	APHA 5540	ND	mg/L	0.1 to 100	0.2	1.0
34	Sulphide (as H ₂ S)	IS: 3025 (P-29)	ND	mg/L	0.05 to 20	0.05	No relaxation
35	Nickel (as Ni)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.01 to 10	0.02	No relaxation
36	Polychlorinated biphenyls (PCB)	EKO/CHEM/SOP-GCMSMS/W-02	ND	mg/L	0.0001 to 10	0.0005	No relaxation
37	Polycyclic aromatic hydrocarbons (PAH)	EKO/CHEM/SOP-GCMSMS/W-03	ND	mg/L	0.0001 to 10	0.0001	No relaxation
38	Atrazine	EKO/CHEM/SOP-GCMSMS/W-01	ND	µg/l	0.01 to 1000	2.0	No relaxation
39	Alachlor	EKO/CHEM/SOP-GCMSMS/W-01	ND	µg/l	0.01 to 1000	20.0	No relaxation
40	Aldrin/Dieldrin		ND	µg/l	0.01 to 1000	0.03	No relaxation
41	Alpha HCH		ND	µg/l	0.01 to 1000	0.01	No relaxation
42	Beta HCH		ND	µg/l	0.01 to 1000	0.04	No relaxation
43	Butachlor		ND	µg/l	0.01 to 1000	125.0	No relaxation
44	Chlorpyrifos		ND	µg/l	0.01 to 1000	30.0	No relaxation
45	Delta HCH		ND	µg/l	0.01 to 1000	0.04	No relaxation
46	DDT (o,p and p,p-Isomers of DDT, DDE and DDD)		ND	µg/l	0.01 to 1000	1.0	No relaxation
47	Endosulfan (Alpha, Beta & Sulphate)		ND	µg/l	0.01 to 1000	0.4	No relaxation
48	Ethion		ND	µg/l	0.01 to 1000	3.0	No relaxation
49	Gamma-HCH (Lindane)		ND	µg/l	0.01 to 1000	2.0	No relaxation
50	Malathion		ND	µg/l	0.01 to 1000	190.0	No relaxation
51	Methyl parathion		ND	µg/l	0.01 to 1000	0.3	No relaxation
52	Monocrotophos		ND	µg/l	0.01 to 1000	1.0	No relaxation
53	Phorate	ND	µg/l	0.01 to 1000	2.0	No relaxation	
54	2,4 Dichlorophenoxyacetic acid	EKO/CHEM/SOP-LCMSMS/W-01	ND	µg/l	0.01 to 1000	30.0	No relaxation
55	Isoproturon		ND	µg/l	0.01 to 1000	9.0	No relaxation
56	Total Coliform	IS: 15185	Absent (<1)	cfu/100mL	-	Should be Absent	No relaxation
57	E.coli	IS: 15185	Absent	Per 100mL	-	Should be Absent	No relaxation





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TEST REPORT Water Sample Analysis

Test Report No : EKO/153/070821-B

Issue Date : 11/08/2021

Issued To : VINDHYACHAL SUPER THERMAL POWER STATION
Vindhya Nagar,
District - Singrauli
Madhya Pradesh

Sample Description : Water Sample
Sample Drawn on : 04/08/2021
Sample Drawn by : EPEPL (Mr. Pramod Mishra)
Sample Received on : 07/08/2021
Sampling Location : Rihand Reservire
Sampling Plan & Procedure : SOP-W/66
Sample Quantity : 3.0 Litre
Environmental Conditions : Normal
Analysis Duration : 07/08/2021 To 11/08/2021
Remark (if any) : NA

RESULTS

S. No.	Parameters	Test Methods	Results	Units	Range of Testing / LOD	Limits as per IS:10500-2012 (Amd.No.3 Feb-2021)	
						Acceptable	Permissible
1	Iron (as Fe)	EKO/CHEM/SOP-ICPMS/W-01	0.71	mg/L	0.005 to 10	1.0	No relaxation
2	Manganese (as Mn)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.1	0.3
3	Molybdenum (as Mo)	EKO/CHEM/SOP-ICPMS/W-01	ND	mg/L	0.005 to 10	0.07	No relaxation

Remark :ND-Not Detected

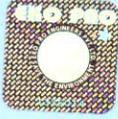
Notes:

- The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
- This test report will not be generated again, either wholly or in part, without prior written permission of the Laboratory.
- The test report will not be used for any publicity/legal purpose.
- The test samples will be disposed off after 15 days from the date of issue of test report, unless until specified by the customer. Sample received for biological tests will be destroyed after 7 days from the date of issue of test report.
- Responsibility of the Laboratory is limited to the invoiced amount only.

****End of Report****

For EKO PRO ENGINEERS PVT. LTD.

PURNIMA CHADHAN
TECHNICAL MANAGER
(Authorised Signatory)



Contact : +91 - 9810243870

EKO PRO ENGINEERS PVT. LTD.

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Test Report No : EKO/153/070821-A

Remark : ND-Not Detected

Notes:

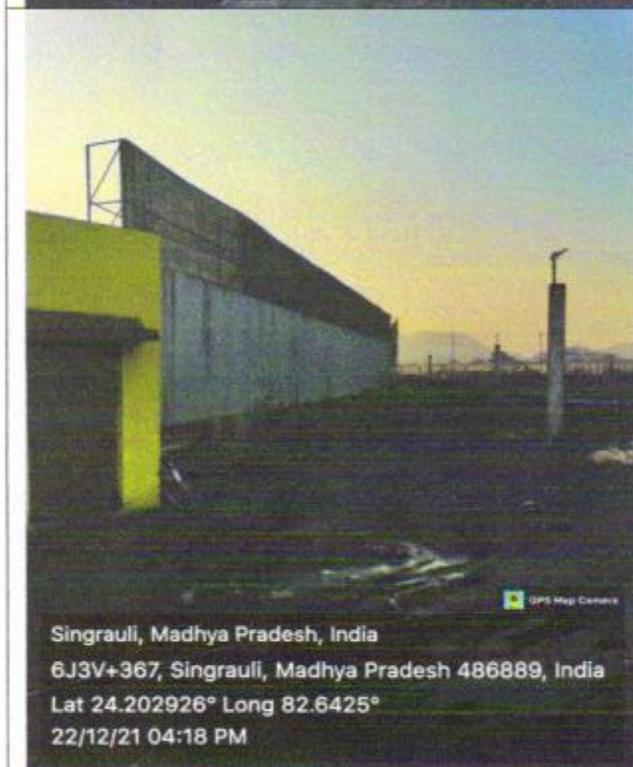
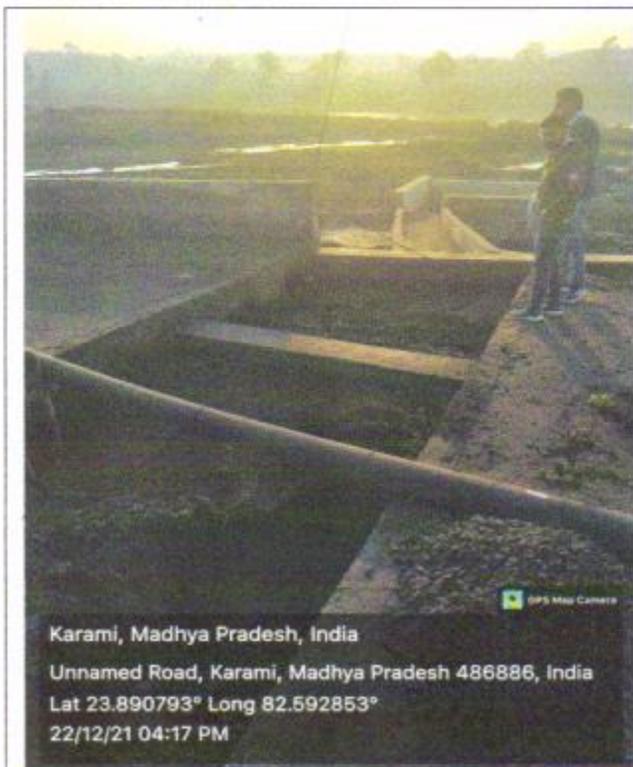
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Issue Date : 11/08/2021

****End of Report****

For EKO PRO ENGINEERS PVT. LTD.
SHIVANGI SINGH RAIZADA
SECTION INCHARGE MICROBIOLOGY
(Authorised Signatory)

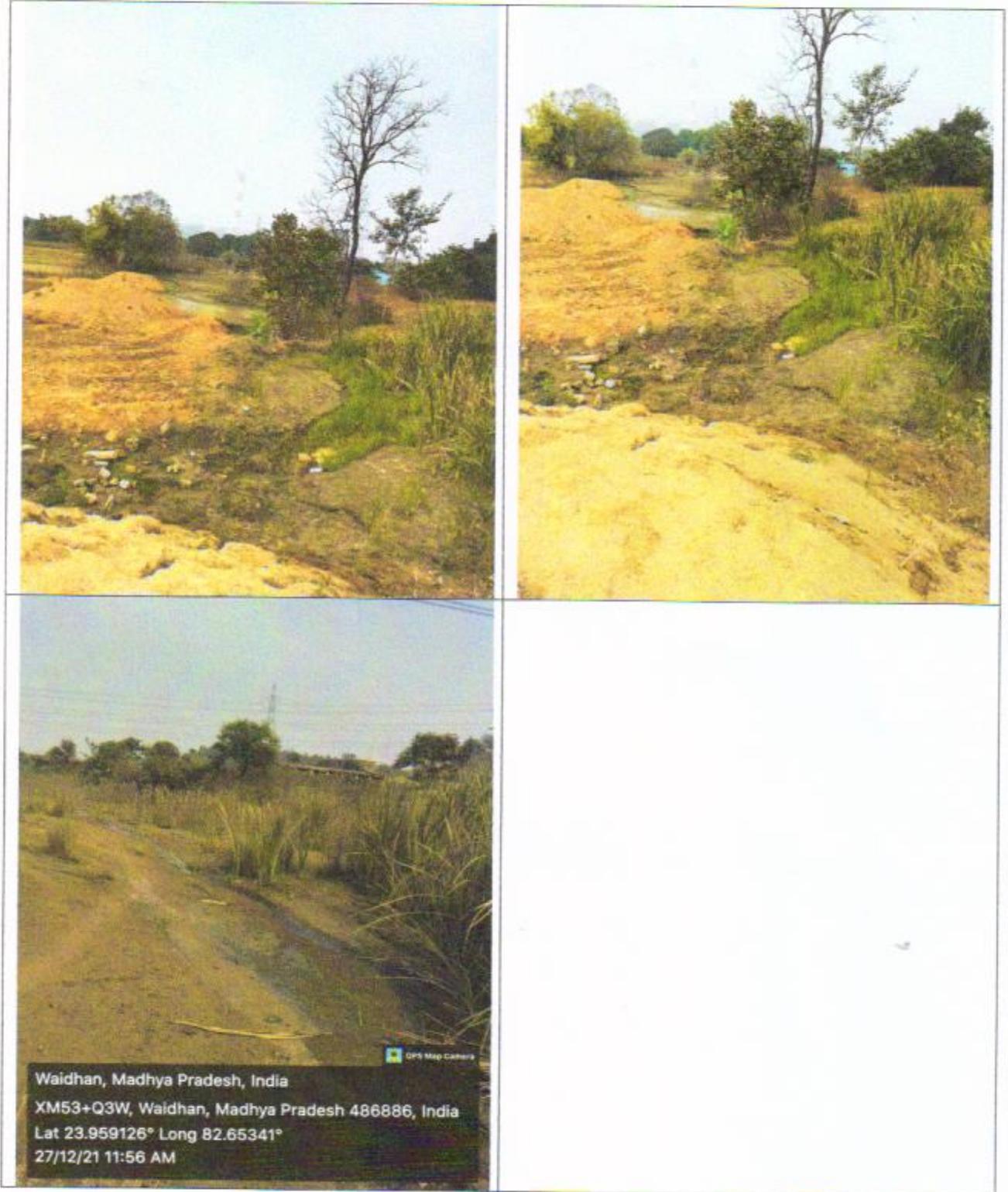
For EKO PRO ENGINEERS PVT. LTD.
PURNIMA CHAUHAN
TECHNICAL MANAGER
(Authorised Signatory)



गवईया नाला

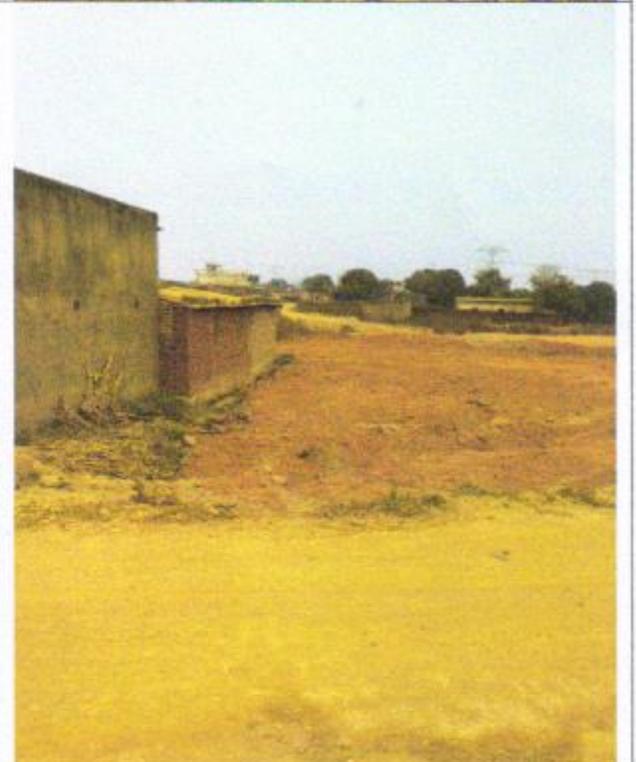
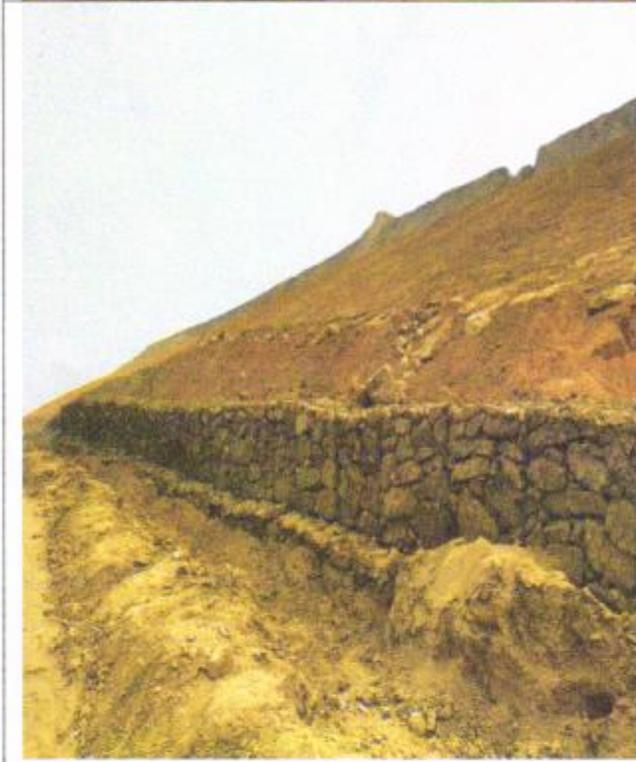
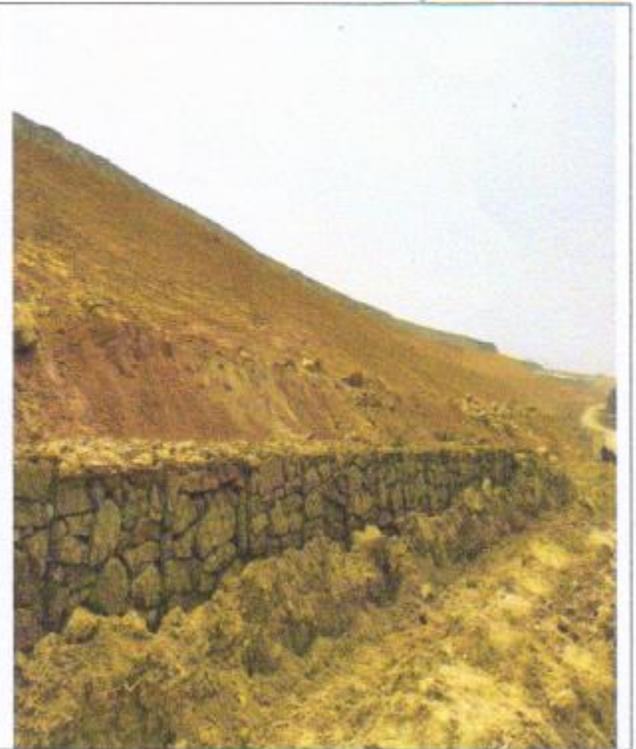


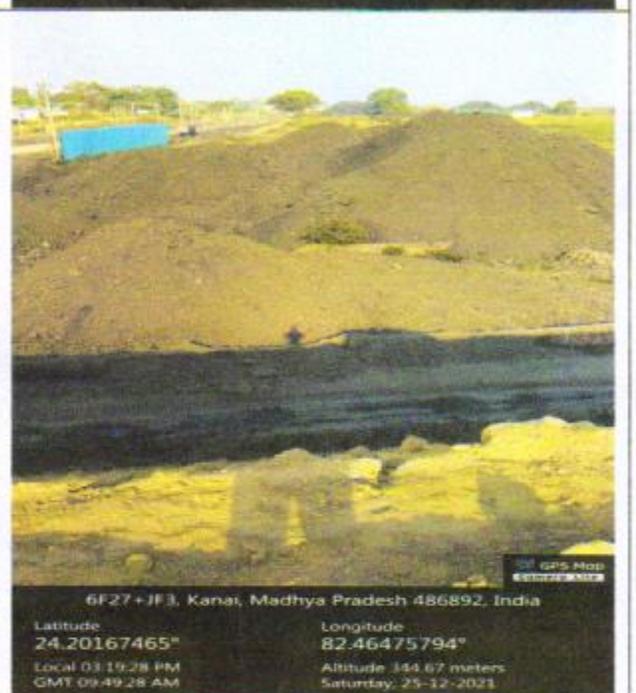
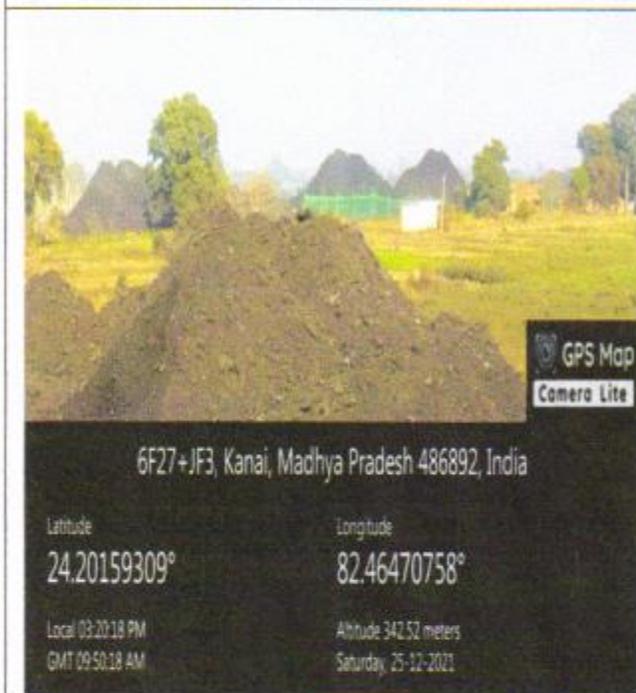
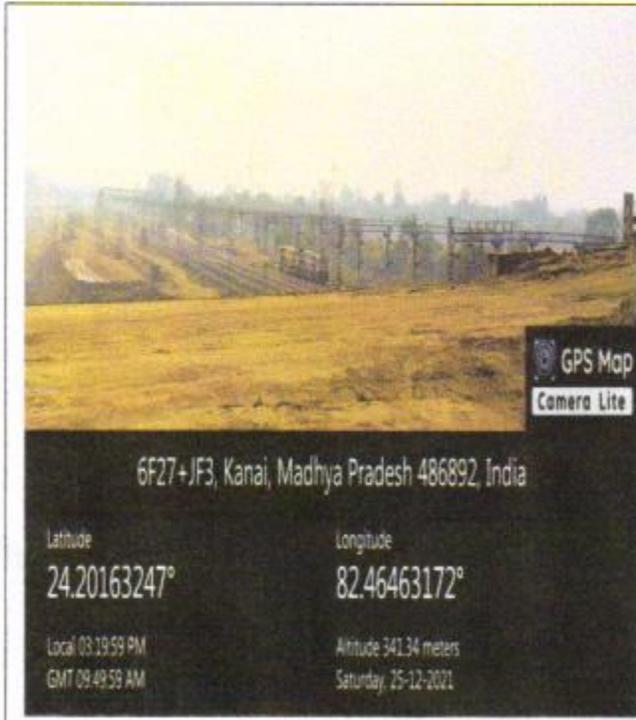
गर्रा नाला



ऐश डाइक







बरगवां रेलवे साइडिंग

Action taken report for Vth Quarterly report of the Oversight Committee for State of MP in compliance with Hon'ble NGT's order dated 14.07.02020 in OA 164/2018

COAL MINES	Remarks as per IVth Quarterly Report of the Oversight Committee	Compliance
A	Road Sweeping machines procured by NCL shall be deployed to regularly sweep the main Jayant Square-Shukla Mod road so as to keep it clean and minimize dust nuisance. Regular sweeping of all other internal coal transportation roads shall also be undertaken to keep them dust free.	One Road sweeping machine is being used to sweep the main Jayant Square – Shukla Mod road so as to keep it clean & minimize dust nuisance. One more road sweeping machine has been procured & will be in operation within a week after its registration with RTO. Dust control on internal coal transportation roads is being done through mobile tankers to keep them dust free.
B	Strengthening of the road side shoulders of the main Jayant Square-Shukla Mod road shall be undertaken within 3 months and road shall be made dust free in all respects.	This Road shall be reconstructed. Estimate for the same is under approval stage.
C	The NCL should construct oil and grease trap along with sedimentation pit of appropriate capacity at the earliest at the end of the catch drain within 3 months time to further strengthen the existing arrangements.	Sedimentation pit has been constructed at the Morwa siding .
D	The alternate route for transportation of the coal should be developed at the earliest, after completing due process of forest clearance. A time bound action plan in this regard may be prepared and implemented. Help of the District administration to overcome any bottle necks can be solicited.	Jayant Project has developed an alternate route through the mine for a distance of 2 kms there by coal trucks are not using the Jayant Mod to Jayant View point stretch of road & is using internal road for coal transportation hence reducing traffic congestion. Permission for tree felling has been obtained for 7.44 Ha. of forest land & process of tree felling will be started shortly. Annexure-I Block- B has also commissioned Silo loading & railway line hence road transport has been minimised.
E	Maintenance of railway sidings operated by NCL shall be undertaken as per the guidelines published by CPCB titled "Inventorisation of Railway Sidings and Guidelines for their Environment Management -March 2015."	Maintenance of railway sidings of NCL is being done as per CPCB guidelines. At Morwa Spur siding the following pollution control arrangements are in operation; 1. Continuous water sprinkling is done by mobile water sprinklers/tankers and fixed water sprinklers provided with automatic functioning for dust suppression. 2. Four numbers of Truck mounted mist/ fogger cannons are under operation from Jayant Mine to Spur railway sidings at Morwa.

		<p>3.Windbreak wall/retaining wall of 620 mtrs x 3 mtrs has been constructed at railway siding for arresting the air borne dust.</p> <p>4.RCC road from main road to Spur siding has been constructed.</p> <p>5.Proper drainage system has been developed at Spur railway siding.</p> <p>Relevant photographs have already been submitted with earlier report.</p>
F	The study being undertaken by the IIT BHU regarding utilization of fly ash in external OB of the mines shall be completed in time and the progress in this regard shall be submitted from time to time.	IIT BHU has collected OB samples and carried out lab tests for the same. Final Study Report is likely to be received in December-2021.
G	The construction work of additional capacity CHP in the Jayant Mine is already delayed. The work should be given impetus and it should be completed by March 2022 instead of July 2022, so that coal transportation by road is stopped and maximum quantity of the coal can be loaded in the railway wagons from the mine itself.	The work for construction of incremental CHP of 15 MTY at Jayant was awarded on 09.08.2019. Construction work is in progress. Overall Physical Progress till 31.10.2021 is 54.98%. All efforts are being made to expedite the work.
H	The regular calibration of the CAAQMS installed by the mines shall be ensured as per the prescribed frequency of calibration.	The latest calibration reports are attached as Annexure-II
I	The Nigahi coal mine of M/s NCL should clear the OB from the Mudwani dam and M/s Moher & Moher Amlohri captive Coal Mine of M/s Sasan Power Ltd. should clear the OB from the agriculture land of farmers & compensate them within 45 days.	<p><u>Time bound action plan</u></p> <p>Protection work along toe of dump to arrest silt near Mudwani Dam and clearing of OB ..by 30.04.2022</p> <p>Stabilisation of OB Dump near Mudwani Dam....by 31.05.2022</p> <p>Making RCC/RRM Retaining wall near bank of Mudwani Dam at Nigahi Project...by 31.05.2022</p> <p>Biological reclamation of the OB dump benches where raincut occurred....by 31.08.2022</p> <p>Detailed reply of GM Nigahi Area ,NCL is attached as Annexure- III</p>
J	It has been mentioned by M/s NTPC-Vindhyachal that the pit 2 & 3 of the abandoned Gorbi mine is being allocated to the power companies by M/s NCL, which are situated in UP. Since the mines are filled with acidic water and NTPC has started ash filling in Pit 1 on trial basis after a thorough study of various environmental parameters and will be studying the impact of ash filling in long term as well and will be developing facilities for the safe transportation of ash in long term; the allotment of other two pits to other outside	<p>Till date NCL has signed MOU with NTPC-Vindhyachal for filling of fly ash in Pit no. 1 at abandoned Gorbi Mine for 1 Million Cu.M initially. Out of this quantity NTPC has filled 13144 Metric Tonnes of fly ash in Pit no.1.till 15.11.2021</p> <p>Till date NCL has not given permission to any other agency of UP for filling of fly ash in Pit no. 2 & 3 of Gorbi abandoned mine.</p>

	<p>parties may result in environmental and safety issues as well as issues related to the “responsibility of whom” in case of environment is adversely affected. Hence no second party shall be allotted the other pits of Gorbi Mines for fly ash filling. The oversight committee was told by representatives of M/s NCL that they will not go ahead with allotting the mines to any other party. However, M/s NCL should clarify their stand towards the objections raised by M/s-Vindhyachal.</p>	
K	<p>Health check up of villagers through mobile medical van be conducted regularly for the detection of the occupational diseases like silicosis, fluorosis etc. and treatment be provided under CSR activities. The manifestation among the mine workers as well as the villagers regarding coal dust related diseases shall be diagnosed and treatment provided. Records should be maintained and made available to the District Health Authorities.</p>	<p>During 2020-21, 20 numbers of Health camps were organized by NCL for surrounding villagers. 3378 villagers attended the camps. No case of Silicosis/Fluorosis was diagnosed. During 2021-22, 4 Health camps for 665 beneficiaries & 49 Nutritional camp for 5222 beneficiaries were organized. No case of Silicosis/Fluorosis was diagnosed.</p>

वनमण्डलाधिकारी,
सामान्य वन मण्डल सिंगरौली,
मध्यप्रदेश।

विषय:- सिंगरौली जिले में जयंत माइन्स से मोरबा रेल्वे साइडिंग तक कोयला परिवहन के लिये मार्ग निर्माण हेतु 7.448 हेक्टेयर वन भूमि नॉर्दर्न कोलफील्ड्स लिमिटेड सिंगरौली को उपयोग पर देने बाबत।

- संदर्भ:- (1) भारत सरकार पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली का पत्र क्रमांक / 8-67/2002-FC Vol. दिनांक 06.09.2021
(2) महाप्रबंधक, जयंत परियोजना, नॉर्दर्न कोलफील्ड्स लिमिटेड, सिंगरौली का पत्र क्रमांक / 126 दिनांक 26.10.2021
(3) भारत सरकार पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय नई दिल्ली का पत्र क्रमांक / 11-306/2014-FC दिनांक 08.08.2014
(4) मध्यप्रदेश शासन वन विभाग मंत्रालय वल्लभ भवन भोपाल का पत्र क्रमांक / F-5-11/2006/10-3 दिनांक 31.10.2014.

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उपरोक्त संदर्भित पत्रों का अवलोकन करें, संदर्भित पत्र (1) द्वारा भारत सरकार पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली ने अधिरोपित शर्तों के तहत प्रथम चरण सैद्धांतिक स्वीकृति प्रदान की गई है।

2. संदर्भित पत्र (2) द्वारा आवेदक संस्थान ने विषयांकित प्रकरण में भारत सरकार द्वारा जारी की गई प्रथम चरण स्वीकृति में अधिरोपित समस्त शर्तों का पालन प्रतिवेदन भेजा है। पालन प्रतिवेदन के अनुसार आवेदक संस्थान द्वारा प्रकरण में शर्तों के अनुसार राशि जमा की जा चुकी है।

3. संदर्भित पत्र (3) द्वारा भारत सरकार पर्यावरण एवं वन मंत्रालय नई दिल्ली ने रेखीय प्रस्ताव हेतु प्रथम चरण स्वीकृति में अधिरोपित शर्तों के अनुसार राशि जमा होने एवं गैर वन भूमि वन विभाग को हस्तान्तरण उपरान्त आवेदक संस्थाओं को व्यपवर्तित वन भूमि पर खड़े वृक्षों को काटने तथा कार्य प्रारंभ करने की अनुमति के अधिकार राज्य शासन को दिये हैं।

4. मध्यप्रदेश शासन वन विभाग ने उक्त अधिकार संदर्भित पत्र (4) द्वारा इस कार्यालय को प्रदान किये गये हैं।

5. प्रकरण में प्रथम चरण स्वीकृति में अधिरोपित शर्तों के अनुसार आवेदक संस्थान द्वारा राशि जमा की जा चुकी है। अतः उपरोक्तानुसार भारत सरकार / राज्य शासन द्वारा दिये गये निर्देशानुसार प्रकरण में व्यपवर्तन हेतु प्रस्तावित वन भूमि पर खड़े वृक्षों को काटने एवं कार्य

करने की अनुमति प्रथम चरण स्वीकृति में अधिरोपित शर्त क्रमांक A-i, ii, & v एवं B- v, vii, & xii के अनुपालन में दी जाती है। आवेदक संस्थान वृक्षों का पातन कम से कम हो यह सुनिश्चित करेंगे। वृक्षों के पातन का कार्य आवेदक संस्था से विदोहन की राशि एवं पर्यवेक्षण शुल्क की राशि प्राप्त होने के उपरांत ही प्रारम्भ किया जावे। आवेदक संस्था से विदोहन राशि प्राप्त होने पर विदोहन कार्य के सम्पादन हेतु आवश्यक राशि की मांग निर्धारित प्रपत्र में इस कार्यालय से करें। यदि आवेदक विदोहन कार्य स्वयं करना चाहता है तो अधीनस्थ अमले की ड्यूटी लगाकर उनकी देखरेख में विदोहन का कार्य सम्पादित करावे।

6. वृक्षों के चिन्हांकन तथा पातन हेतु लगने वाली राशि आवेदक संस्थान से मध्यप्रदेश कोषालय की वेबसाईट www.mptreasury.org में ऑनलाईन जमा कराई जावे। आवेदक यदि स्वयं विदोहन करना चाहता है तो कोई राशि प्राप्त करने की आवश्यकता नहीं है।

7. आवश्यकतानुसार चिन्हांकन हेतु बजट शाखा से तथा पातन हेतु बजट उत्पादन शाखा से प्राप्त किया जायेगा। इस हेतु मांग पत्र राशि जमा कराने के प्रमाण के रूप में चालान की प्रति सहित निर्धारित प्रपत्र में प्रस्तुत किया जायेगा।

8. इसके साथ ही प्रथम चरण स्वीकृति में अधिरोपित किसी भी शर्त का उल्लंघन न हो इसका विशेष ध्यान रखें। यह अनुमति वृक्ष काटने एवं कार्य प्रारंभ करने हेतु दी जा रही है।

वनभूमि का औपचारिक हस्तांतरण भारत सरकार की औपचारिक स्वीकृति एवं राज्य शासन की अंतिम स्वीकृति प्राप्त होने के बाद किया जावेगा। यह स्वीकृति दिनांक 09.11.2022 तक ही प्रभावशील रहेगी।



(सुनील अग्रवाल)

प्रधान मुख्य वन संरक्षक (भू-प्रबंध)
मध्यप्रदेश, भोपाल

पृ. क्रमांक/एफ-5/859/2019/10-11/3697

भोपाल, दिनांक 10/11/2021

प्रतिलिपि:-

- 1.- मुख्य वन संरक्षक (क्षेत्रीय) रीवा वृत्त, रीवा, मध्यप्रदेश।
 - 2.- महाप्रबंधक, जयंत परियोजना, नॉर्दर्न कोलफील्ड्स लिमिटेड, सिंगरौली, मध्यप्रदेश।
- की ओर उपरोक्त संदर्भित पत्रों के तारतम्य में सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।



प्रधान मुख्य वन संरक्षक (भू-प्रबंध)
मध्यप्रदेश, भोपाल

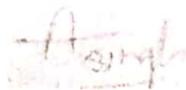
STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL CETI

Date: 12.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.25	10.01	1.03	1.05	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	198.89	200.03	1.25	1.26	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	201.01	201.01	0.95	0.96	OK
	NO ₂	OK						0.18	0.17			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPM	199.01	200.61	0.92	0.93	OK
6	PM10 Analyzer	OK					792 ug/cm ²	803.3 ug/cm ²		0.97	0.98	OK
7	PM 2.5 Analyzer	OK					800 ug/cm ²	790.02 ug/cm ²		0.86	0.88	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:
Engineer CSD





**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS : NCL BLOCK B

Date: 15.09.2021 Calibration

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.21	10.82	0.29	0.30	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	201.16	200.16	1.90	1.89	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.03	200.89	1.31	1.30	OK
	NO ₂	OK						0.17	0.15			OK
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	198.67	200.19	1.24	1.25	OK
6	PM10 Analyzer	OK					817 ug/cm ²	817.24 ug/cm ²		0.90	0.92	OK
7	PM 2.5 Analyzer						839 ug/cm ²	843.31 ug/cm ²		0.92	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty / AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS: INCLINGAHI

Date: 16.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.90	9.20	1.20	1.19	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.85	200.05	0.79	0.80	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	201.82	200.85	1.31	1.32	OK
	NO ₂	OK						0.25	0.24			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	201.52	199.06	1.29	1.3	OK
6	PM10 Analyzer						775ug/cm2	782.28 ug/cm2		0.92	0.90	OK
7	PM 2.5 Analyzer						838 ug/cm2	841.35 ug/cm2		0.90	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:

**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL KAKRI

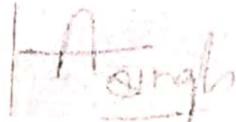
Date:29.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.03	9.50	0.93	0.94	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	200.08	199.08	1.81	1.82	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	201.31	200.06	0.93	0.94	OK
	NO ₂	OK						0.14	0.12			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	200.04	200.96	0.88	0.89	OK
6	PM10 Analyzer						833ug/cm ²	823ug/cm ²		0.90	0.93	OK
7	PM 2.5 Analyzer						805 ug/cm ²	825 ug/cm ²		0.91	0.95	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK

Maintenance Details / Requirement:

Specific Observation(s): All analyzer calibrated satisfactory, NO₂ has no factor, it has defined by NO & NO_x. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.

Signature of Engineer:





STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL JHHINGURDA

Date:14.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.78	10.01	0.71	0.70	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	200.20	198.35	1.58	1.57	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	200.05	199.06	0.99	1.01	OK
	NO ₂	OK	0.00	0.00	0.00	0.00	0.0	0.14	0.11			OK
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	201.07	200.71	0.95	0.96	OK
6	PM10 Analyzer	OK					847 ug/cm ²	851.06ug/cm ²		0.90	0.92	OK
7	PM 2.5 Analyzer	OK					825 ug/cm ²	829ug/cm ²		0.91	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:
Engineer CSD

**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS : NCL CETI

Date: 17.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.25	10.21	1.05	1.04	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.89	200.13	1.26	1.25	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	200.01	201.21	0.96	0.97	OK
	NO ₂	OK						0.29	0.21			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	200.01	201.61	0.93	0.94	OK
6	PM10 Analyzer	OK					792 ug/cm ²	801.3 ug/cm ²		0.98	0.92	OK
7	PM 2.5 Analyzer	OK					800 ug/cm ²	789.02 ug/cm ²		0.88	0.90	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:
Engineer CSD






STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL JAYANT

Date: 02.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.21	9.97	0.64	0.65	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	201.02	199.85	1.26	1.27	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.02	200.98	0.66	0.67	OK
	NO ₂	OK						0.17	0.16			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPM	199.05	200.47	0.68	0.69	OK
6	PM10 Analyzer						775ug/cm ²	783.54 ug/cm ²		0.99	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm ²	841.34g/cm ²		0.94	0.93	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:

**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL KHADIA

Date:03.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.24	10.27	0.99	0.98	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	199.01	200.03	1.37	1.36	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	201.08	200.04	0.96	0.97	OK
	NO ₂	OK						0.18	0.17			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPM	200.09	199.02	0.87	0.88	OK
6	PM10 Analyzer						775ug/cm ²	780.08 ug/cm ²		0.99	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm ²	840.02 ug/cm ²		0.99	0.90	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:

A Singh



STATION PROTOCOL
FOR
CAAQW STATION UNDER Warranty /AMC/CMO/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQWS :NCL BINA

Date: 09.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.72	9.57	1.09	1.11	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	201.03	199.83	2.66	2.68	OK
3	NO ₂ Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	201.85	201.55	0.99	0.97	OK
	NO ₂	OK						0.17	0.13			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	201.53	199.78	0.98	0.99	OK
6	PM10 Analyzer						775 ug/m ²	785.18 ug/m ²		0.95	0.96	OK
7	PM 2.5 Analyzer						535 ug/m ²	543.90 ug/m ²		0.94	0.92	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



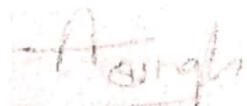
STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL AMLOHRI

Date: 24.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.93	9.86	1.00	1.01	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	201.00	199.73	1.28	1.29	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.98	200.85	1.06	1.07	OK
	NO ₂	OK						0.21	0.16			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	198.69	200.01	1.05	1.04	OK
6	PM10 Analyzer						775ug/cm ²	772.01 ug/cm ²		0.99	0.95	OK
7	PM 2.5 Analyzer						838 ug/cm ²	830.15 ug/cm ²		0.95	0.97	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:





STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL BLOCK B

Date:25.08.2021 Calibration

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.10	11.09	0.28	0.29	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.12	201.03	1.89	1.90	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	198.05	199.36	1.32	1.31	OK
	NO ₂	OK						0.23	0.20			OK
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	200.00	199.09	1.23	1.24	OK
6	PM10 Analyzer	OK					817 ug/cm2	819.14 ug/cm2		0.89	0.90	OK
7	PM 2.5 Analyzer						839 ug/cm2	845.30ug/cm2		0.96	0.92	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL NIGAHI

Date: 10.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.90	10.30	1.19	1.20	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	200.10	199.19	1.78	0.79	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	198.10	199.10	1.30	1.31	OK
	NO ₂	OK						0.11	0.10			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	198.02	200.10	1.28	1.29	OK
6	PM10 Analyzer						775ug/cm ²	780.08 ug/cm ²		0.90	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm ²	840.15 ug/cm ²		0.89	0.90	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



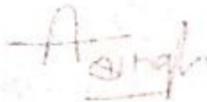
STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL BINA

Date:30.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.52	10.25	1.11	1.10	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.5	200.67	2.68	2.67	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	199.05	200.18	0.97	0.98	OK
	NO ₂	OK						0.14	0.12			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	200.84	199.07	0.99	1.01	OK
6	PM10 Analyzer						775ug/cm2	771.18 ug/cm2		0.96	0.91	OK
7	PM 2.5 Analyzer						638 ug/cm2	633.70 ug/cm2		0.92	0.90	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:





**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty / AMC / CM / O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS : NCL AMLOHRI

Date: 28.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.93	10.86	1.01	1.00	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	200.17	199.08	1.29	1.30	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	200.18	199.75	1.07	1.08	OK
	NO ₂	OK						0.17	0.10			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	201.06	199.05	1.04	1.05	OK
6	PM10 Analyzer						775 ug/cm ²	771.01 ug/cm ²		0.95	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm ²	829.15 ug/cm ²		0.97	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK

Maintenance Details / Requirement:

Specific Observation(s): All analyzer are calibrated satisfactory, NO₂ has no factor, it has defined by NO & NO_x. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.

Signature of Engineer:



STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL BLOCK B

Date: 15.09.2021 Calibration

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.21	10.82	0.29	0.30	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	201.16	200.16	1.90	1.89	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.03	200.89	1.31	1.30	OK
	NO ₂	OK						0.17	0.15			OK
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	198.67	200.19	1.24	1.25	OK
6	PM10 Analyzer	OK					817 ug/cm ²	817.24 ug/cm ²		0.90	0.92	OK
7	PM 2.5 Analyzer						839 ug/cm ²	843.31 ug/cm ²		0.92	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS: NCL INGAHI

Date: 16.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.90	9.20	1.20	1.19	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.66	200.05	0.79	0.80	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	201.82	200.66	1.31	1.37	OK
	NO ₂	OK						0.26	0.24			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	201.62	199.06	1.29	1.3	OK
5	PM10 Analyzer						775ug/m ²	782.28 ug/m ²		0.92	0.90	OK
7	PM 2.5 Analyzer						838 ug/m ²	841.35 ug/m ²		0.90	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL CETI

Date: 06.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.25	10.03	1.04	1.03	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	200.81	199.87	1.25	1.26	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.78	201.21	0.97	0.98	OK
	NO ₂	OK						0.23	0.20			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPM	198.04	200.89	0.94	0.95	OK
6	PM10 Analyzer	OK					792 ug/cm ²	802.3 ug/cm ²		0.92	0.93	OK
7	PM 2.5 Analyzer	OK					800 ug/cm ²	788.02 ug/cm ²		0.90	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:
Engineer CSD





**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS : NCL JHHINGURDA

Date:05.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.07	9.07	0.70	0.71	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	199.60	200.92	1.57	1.56	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	199.05	0.89	1.01	1.02	OK
	NO ₂	OK	0.00	0.00	0.00	0.00	0.0	0.16	0.14			OK
	NOx	OK	0.00	0.00	0.00	0.00	200 PPM	199.87	99.78	0.96	0.97	OK
6	PM10 Analyzer	OK					847 ug/cm ²	853.06ug/cm ²		0.92	0.90	OK
7	PM 2.5 Analyzer	OK					825 ug/cm ²	826.90 ug/cm ²		0.91	0.93	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:
Engineer CSD





STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL NIGAHII

Date:09.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.88	10.82	1.19	1.18	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	201.85	201.85	0.80	0.82	OK
3	NO ₂ Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	198.06	199.28	1.32	1.33	OK
	NO ₂	OK						0.19	0.14			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	200.89	200.67	1.3	1.31	OK
6	PM10 Analyzer						775ug/cm2	786.98.28 ug/cm2		0.90	0.91	OK
7	PM 2.5 Analyzer						838 ug/cm2	843.45 ug/cm2		0.91	0.92	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty / AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS: NCI BLOCK B

Date: 19.10.2021 Calibration

S No	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 1%M	10.89	9.00	0.30	0.31	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 1%N	198.70	199.79	1.89	1.9	OK
3	NO ₂ Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 1%N	200.96	199.37	1.30	1.31	OK
	NO _x	OK	0.00	0.00	0.00	0.00	200 1%N	0.15	0.14			OK
	NO _x	OK	0.00	0.00	0.00	0.00	200 1%N	201.78	99.78	1.75	1.26	OK
6	PM10 Analyzer	OK					817 ug/m ³	818.24 ug/m ³		0.92	0.89	OK
7	PM 2.5 Analyzer						839 ug/m ³	823.31 ug/m ³		0.91	0.88	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
Rain Fall											OK	
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement												
Specific Observation(s): All analyzer calibrated satisfactory. NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer: 





**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL AMLOHRI

Date: 14.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.86	9.58	1.00	1.01	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	199.74	200.89	1.30	1.31	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	198.67	201.02	1.08	1.07	OK
	NO ₂	OK						0.27	0.23			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	200.98	198.96	1.05	1.06	OK
6	PM10 Analyzer						775ug/cm ²	773.01 ug/cm ²		0.97	0.88	OK
7	PM 2.5 Analyzer						838 ug/cm ²	839.15 ug/cm ²		0.91	0.92	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL BINA

Date:20.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.89	10.78	1.10	1.09	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	200.98	200.45	2.67	2.66	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	198.08	200.78	0.98	0.99	OK
	NO ₂	OK						0.15	0.13			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	198.05	200.87	1.01	1.02	OK
6	PM10 Analyzer						775ug/cm ²	778.18 ug/cm ²		0.91	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm ²	839.70 ug/cm ²		0.90	0.89	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer are calibrated satisfactory, NO ₂ has no factor, it has defined by NO & NO _x . PM10 & PM2.5 Analyzer has calibrated & set factor automatically.												

Signature of Engineer:



**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL KHADIA

Date:18.10.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	9.05	9.78	0.97	0.96	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	198.20	201.56	1.35	1.36	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	202.00	20.19	0.96	0.97	OK
	NO ₂	OK						0.28	0.21			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	201.78	199.05	0.89	0.90	OK
6	PM10 Analyzer						775ug/cm2	784.09 ug/cm2		0.90	0.92	OK
7	PM 2.5 Analyzer						838 ug/cm2	851.09 ug/cm2		0.91	0.89	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK

Maintenance Details / Requirement:

Specific Observation(s): All analyzer are calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.





**STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT**

Location of CAAQMS :NCL KHADIA

Date: 22.09.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.24	9.27	0.98	0.97	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	200.82	199.75	1.36	1.35	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	200.84	199.06	0.97	0.96	OK
	NO ₂	OK						0.14	0.13			
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPB	198.06	200.17	0.88	0.89	OK
6	PM10 Analyzer						775ug/cm ²	781.08 ug/cm ²		0.97	0.90	OK
7	PM 2.5 Analyzer						838 ug/cm ²	841.02 ug/cm ²		0.90	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK

Maintenance Details / Requirement:

Specific Observation(s): All analyzer are calibrated satisfactory, NO₂ has no factor, it has defined by NO & NO_x. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.

Signature of Engineer:

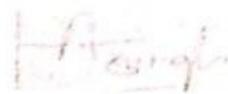
STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS :NCL KAKRI

Date:07.08.2021

S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	11.03	10.50	0.92	0.93	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPB	201.08	200.08	1.80	1.81	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPB	199.09	201.80	0.920	0.93	OK
	NO ₂	OK						0.17	0.15			
	NOx	OK	0.00	0.00	0.00	0.00	200 PPB	198.90	199.09	0.87	0.88	OK
6	PM10 Analyzer						833ug/cm2	823ug/cm2		0.82	0.90	OK
7	PM 2.5 Analyzer						805 ug/cm2	815 ug/cm2		0.99	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK
Maintenance Details / Requirement:												
Specific Observation(s): All analyzer calibrated satisfactory, NO2 has no factor, it has defined by NO & NOx. PM10 & PM2.5 Analyzer has calibrated & set factor automatically												

Signature of Engineer:





STATION PROTOCOL
FOR
CAAQM STATION UNDER Warranty /AMC/CMC/O&M CONTRACT
CALIBRATION REPORT

Location of CAAQMS : NCL JHHINGURDA

Date:11.08.2021

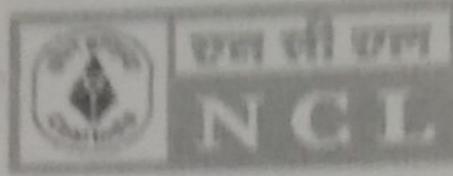
S.No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Per	Post	Span Source	Pre	Post	Pre	Post	
1	CO Analyzer	OK	0.00	0.00	0.00	0.00	10.00 PPM	10.78	11.01	0.72	0.71	OK
2	SO ₂ Analyzer	OK	0.00	0.00	0.00	0.00	200 PPM	201.20	199.04	1.56	1.58	OK
3	NO _x Analyzer											
	NO	OK	0.00	0.00	0.00	0.00	200 PPM	198.05	201.02	0.96	0.99	OK
	NO ₂	OK	0.00	0.00	0.00	0.00	0.0	0.62	0.10			OK
	NO _x	OK	0.00	0.00	0.00	0.00	200 PPM	198.38	199.07	0.93	0.95	OK
6	PM10 Analyzer	OK					847 ug/cm ²	850.06ug/cm ²		0.93	0.90	OK
7	PM 2.5 Analyzer	OK					825 ug/cm ²	819ug/cm ²		0.92	0.91	OK
8	Meteorological Parameter											OK
	Temperature											OK
	Humidity											OK
	Wind Speed											OK
	Wind Direction											OK
	Solar Radiation											OK
	Barometric Pressure											OK
	Rain Fall											OK
9	Computers											OK
10	UPS/ AC / Others											OK
11	Data Display Board											OK

Maintenance Details / Requirement:

Specific Observation(s): All analyzer calibrated satisfactory, NO₂ has no factor, it has defined by NO & NO_x. PM10 & PM2.5 Analyzer has calibrated & set factor automatically.

Signature of Engineer:
Engineer CSD

नॉदर्न कोलफील्ड्स लिमिटेड
(मिनिरेल कंपनी)
(कोल इण्डिया लिमिटेड की अनुबंधी कंपनी)



Northern Coalfields Limited
(A Minibains Company)
(A subsidiary of Coal India Limited)

Office of the General Manager, Nigahi Project

CIN- U10102MP1985GOI003160

An ISO: 9001, ISO: 14001 & OHSAS: 18001 Certified Company

Post- Nigahi Project, Distt- Singrauli, M.P. PIN-486884

Phone: 07805-276306, (FAX) 276306 email: gm@ncl.co.in website: www.ncl.co.in

No.: NGH/GM/SO(M)/Envl/21-22/ 1250

Date: 30.11.2021

To,

The General Manager (Environment/ IMS)

NCL, Singrauli

Subject : Regarding clearing of OB from Mudwani Dam

Ref. : Your letter no. NCL/ENV/HQ/2021/8599 dated 24.11.2021

Dear Sir,

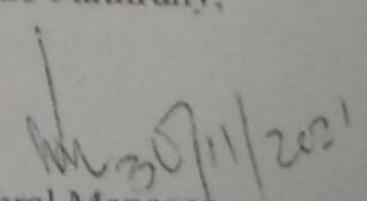
With reference to the above, latest status and detailed action plan were sought from your office regarding clearing of OB from Mudwani Dam. This is to submit that OB has been filled in the top benches (whichever accessible) of the OB dump where raincut occurred. However lower benches of the OB dump where raincut occurred, needs some additional stability measures to be undertaken.

Timebound action plan on above stability measures is as follows :

S.N.	Activity	Timeline of execution
1.	Protection work along toe of dump to arrest silt near mudwani dam and clearing of OB from Mudwani Dam	30.04.2022
2.	Stabilization of OB dump near Mudwani Dam	31.05.2022
3.	Making RCC/RRM Retaining wall near bank of Mudwani Dam at Nigahi Project	31.05.2022
4.	Biological reclamation of the OB dump benches where raincut occurred	31.08.2022

This is for your kind information.

Yours Faithfully,


30/11/2021
General Manager,
Nigahi Area, NCL

2021-12-3 13:22



24°12'14", 82°38'40", 323.1m
3 Dec 2021 01:39:45 pm



24°12'15", 82°38'40", 321.1m
3 Dec 2021 01:28:37 pm



Office of the
Divisional Rly manager (C)
Dhanabd: 826001
Dhanbad, dt.24.11.21

No.C.710/MPPCB/DHN/21

Sri H K Sharma
Director-Environment,
MP Pollution Control Board
Bhopal

Sub: Regarding points for compliance/progress for Vth quarterly report of Oversight Committee for Singrauli (SGRL) and Mahdeiya (MHDA) goods shed.

In terms of the above subject, it is submitted that Dhanbad division has already taken notes of NGT guidelines and conducted inventorisation of Railway goods shed as per guidelines. Accordingly compliance status for pollution control measures of Singrauli (SGRL) and Mahdeiya (MHDA) goods shed as on 31.10.21 for Vth quarterly report of Oversight Committee has been prepared.

It is also inform you that railway has tried to comply with the direction of the statutory body and has taken all possible measures to control dust and other pollutants during loading and unloading as per CPCB guidelines. Most of the coal is delivered to power plants by rail mode of transport. The reliable supply of coal by rail to powerhouses is therefore important for the electric power supply system. In this context, Dhanbad division has developed goods shed to cater Singrauli region where most of the coal mines of Northern Coalfields Limited are located to ensure uninterrupted transportation of coal for various Power Plants/Thermal Plants. Necessary arrangements for pollution control have been made by railways to protect environmental balance.

East Central Railway has taken many steps to streamline its initiatives for environmental balance. Point wise compliance for the above matter is summerised below:-

- Construction of 20 feet height of concrete Boundary wall along with fencing/protection screen for pollution control at Singrauli Railway siding has been started and it is under progress. It is expected to be completed within **06 months**.



- Currently, construction of Boundary wall at Mahdeiya Railway siding is yet to be started due to proposed yard remodeling work. Boundary wall at mahdeiya Railway siding will be constructed with yard remodeling work. For this tender has already been awarded. It will take almost **10 months** to complete the boundary wall work at Mahdeiya.
- Regular water sprinkling through water tanker is being done which covers various points like loading/unloading /stacking areas at Railway sidings to control air pollution. More rigorous compliance will be ensured.



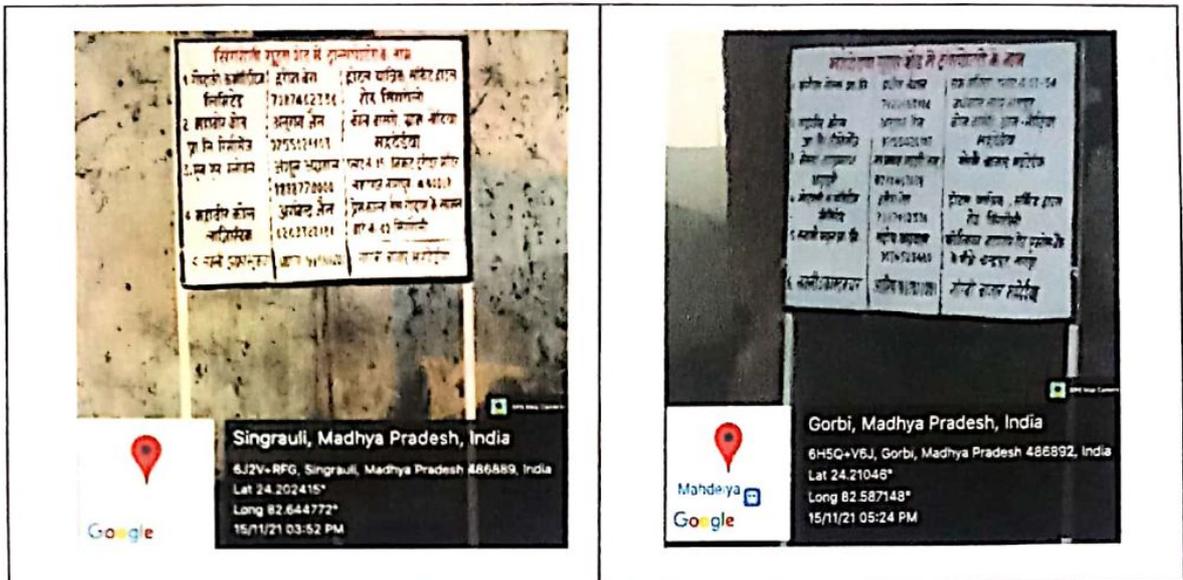


- Small and big trees surrounding the Railway Sidings exists. New plantations will be made in vacant area and some after construction of boundary wall so that saplings are not destroyed. The expected results will be reflected in a couple of months.

- It is ensured to cover the trucks from Tarpaulin which runs for transportation of coal.



- Display board with names and addresses of the transporters has been installed at the site of SGRL & MHDA and they have been advised to follow the guidelines issued by CPCB while loading and unloading of Coal at goods shed.



- Field Supervisors/staff from different department of Railway have been appointed to supervise and take a closer look on loading/unloading activities at the goods shed. Time to time, the activities of the goods shed are communicated by them to the higher authority for smooth functioning of goods shed. They have also been instructed that the loading/unloading parties are following the rule of CPCB guidelines at the goods shed.

Dhanbad division is committed to comply all the norms of Pollution Control and carry out all environmental related work in due course as per availability of funds provided by central Government. The desired result is expected to be visible in coming days.

Muel
24/11/21

for Sr.Div.Commercial Manager
East Central Railway
Dhanbad



MADHYA PRADESH POLLUTION CONTROL BOARD

75
Azadi Ka
Amrit Mahotsav

Paryawaran Parisar, E-5, Arera Colony, Bhopal-462016
Phone (0755)-2466191, 2464428, Fax (0755)-2463742, E- mail:mswmppcb18@gmail.com

No. 174/MSW/HOPCB/2021

Bhopal, Date: 24 /12 /2021

ENCLOSURE 5/V

To,

The Commissioner,
Nagar Palik Nigam,
Singrauli
Distt.- Singrauli (M.P.)

Sub: Execution of the directions passed by Hon'ble National Green Tribunal imposing Environment Compensation for the period 01/07/2020 to 31/12/2020 for violating the provisions of Solid Waste Management Rules 2016.

Ref: 1. NGT orders dated 25.02.2020, 28.02.2020 & 14.12.2020 in OA No. 606/2018 "Compliance of Municipal Solid Waste Management rules, 2016".
2. This office letter No. 62/HOPCB/2021 Bhopal Dated 01/03/2021

WHEREAS MP Pollution Control Board (MPPCB) is a statutory body constituted under section 4 of the Water (Prevention & Control of Pollution) Act, 1974 and has been entrusted with the responsibilities of enforcement of the Environment Laws prevailing in the state.

WHEREAS, the power to issue directions under section-5 of the Environment (Protection) Act, 1986 has been delegated to the Chairman, MPPCB vide notification dated 10.04.2001.

WHEREAS, you are the Urban Local Body- **Nagar Nigam/ Nagar Palika Parishad / Nagar Parishad/ Cantonment Board** and it is the mandatory duty of Urban Local Bodies/ Cantonment Board to comply with the Solid Waste Management Rules, 2016.

WHEREAS, you have not obtained authorization as per the provision of Solid Waste Management Rules, 2016 from the MPPCB.

WHEREAS, in OA No. 606/2018 , "Compliance of Solid Waste Management Rules, 2016 and other environment issues", Hon'ble National Green Tribunal, Principal Bench, New Delhi has directed on 17/01/2020 & 25/02/2020 that :-

1. After 31.03.2020 failure to comply with Rule 22 of SWM Rules, from Serial No. 1 to 10, every local body shall be liable to pay compensation at the rate of Rs. 10 Lakh per month per local body for population of above 10 lakhs, Rs. 5 lakh per month per local body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other local body from 01.04.2020 till compliance.
2. Continued failure of every local body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per local body for population of above 10 lakhs, Rs. 5 lakh per month per local body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other local body.
3. Commencement of setting up of STPs by 31.03.2020 – Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per STP by concerned local bodies/State (in terms of orders dt 28.08.2019 in O.A No 593/2017 and 06.12.2019 in OA. No 673/2018) w.e.f. 01.04.2020.



MADHYA PRADESH POLLUTION CONTROL BOARD

Paryawaran Parisar, E-5, Arera Colony, Bhopal-462016
Phone (0755)-2466191, 2464428, Fax (0755)-2463742, E- mail:mswmppcb18@gmail.com



4. *Interim measures for phytoremediation/bioremediation etc. in respect of 100% sewage to reduce the pollution load on recipient water bodies shall be under taken by 31.03.2020 – Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per drain by concerned local bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.*

WHEREAS, NGT vide its order dated 14/12/2020 has extended the time line for levy of compensation from 01/04/2020 to 01/07/2020.

WHEREAS, State PCB has been directed by NGT vide order dated 28.02.2020 to assess and recover the amount of compensation liable to be paid by the Urban Local Bodies on the basis of above criteria.

WHEREAS, as per report of the site inspection dated **07.01.2021** carried out by Regional Office, MPPCB, **Singrauli**, it is observed that you have not complied with the tasks & timelines given by the Hon'ble NGT for period 30.06.2020 to 31.12.2020 as per details given below :-

Non Compliance									
ULB Name	District	Rule 22of SWM Rules 2016		Legacy Waste disposal Compensation (Rs In lakh)	Bioremediation of Drains		Commencement of STP installation		Total (Rs In lakh)
		S.No of Non Compliance	Compen sation (Rs In lakh)		No of Drains	Compen sation (Rs In lakh)	No of STPs	Compen sation (Rs In lakh)	
Singrauli	Singrauli	0	0	0	9	270	1	30	300

WHEREAS, till date no reply of above referred notice dated 01.03.2021 has been received from you end. Whereas the Commissioner Urban Administration & Development Department, Govt. of MP has been requested vide letter no. 167 dt. 12/11/2021 to direct the Urban local bodies to deposit the amount of environmental compensation. In this respect Additional Commissioner Urban Administration Directorate has directed you vide letter sha-14/SBM/2021/2150 dt.17-12-2021 to take cognizance and comply as per law;

You are hereby directed to pay Environment Compensation of Rs.300 Lakhs for period of violation from 01.07.2020 to 31.12.2020 i.e. 06 months within 15 days from the date of issue these directions, in the P.D. account number 051/1121/2109 of Additioanal Secretary Environment Department in Vindhyachal Treasury, Vindhyachal Bhawan Bhopal.

This issues with the approval of the competent authority. Kindly acknowledge the receipt of this letter.

**For and On Behalf of
M.P. Pollution Control Board**

**(A.A.Mishra)
Member Secretary**

Copy to :-

The Regional Officer, M. P. Pollution Control Board, **Singrauli** for information & necessary action please.