

Title:

Condition assessment of TG Foundation Deck, ID,FD,PA Fan & Mill Foundations of Stage-II and Stage-III, NTPC Rihand Nagar-(SSP-44741)

Deliverables

The healthiness of Civil RCC Structures of the identified civil structures of the Stage-II and Stage-III unit of TG Foundation Deck, ID,FD, PA Fan & Mill Foundations at NTPC Rihand Nagar by a Non Destructive Test and recommendation for repair and strengthening measures distressed/damaged structures to put the structures back into use.

Significant Achievements:

The National Thermal Power Corporation (NTPC), Rihand Nagar, entrusted CSIR–Structural Engineering Research Centre (CSIR–SERC), Chennai, with conducting a Non-Destructive Testing (NDT) investigation of the Stage-II and Stage-III Turbo Generator (TG) foundations and associated reinforced concrete (RCC) structures, including the ID, FD, PA, and Coal Mill foundations. In response, a CSIR–SERC team carried out a comprehensive condition assessment of the Stage-II and Stage-III using a range of NDT techniques.

The results of the rebound hammer tests indicate that the concrete exhibits good quality and uniformity across all the structures assessed. Ultrasonic Pulse Velocity (UPV) measurements further confirm that the concrete integrity and homogeneity are satisfactory in all the examined components. However, visual inspection of the TG deck beams revealed the presence of microcracks, which are likely attributable to fatigue loading experienced during service.

To mitigate further deterioration and enhance the structural performance of the affected members, it is recommended that the deck beams be grouted with a low-viscosity epoxy resin. This repair work should be undertaken by a specialized agency with proven expertise in epoxy grouting and structural rehabilitation. In addition, the cracks observed in the deck beam of the FD foundation should be repaired and strengthened in accordance with the recommendations provided in this report.

The report presents the details of the NDT investigation, including the methodologies adopted for the Rebound Hammer and Ultrasonic Pulse Velocity tests, data collection procedures, statistical analyses, test results, observations, and recommendations regarding the current structural condition and necessary remedial measures.

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