

Title:

Condition assessment of civil structures of main plant at Kaiga Generating Station RB1 and RB2 -**SSP-44341**

Deliverables

The healthiness of Civil RCC Structures of the identified civil structures of the main plant at Kaiga Generating Station (KGS) Units 1 & 2 by a Non Destructive Test and recommendation for repair and strengthening measures of affected structures to put the structures back into use.

Significant Achievements:

The Nuclear Power Corporation of India Limited (NPCIL), Kaiga, entrusted CSIR–Structural Engineering Research Centre (CSIR-SERC), Chennai, with the task of carrying out a visual inspection and Non-Destructive Testing (NDT) assessment of the civil structures identified by Kaiga Generating Station (KGS-1&2).

The investigation included visual inspection and various NDT techniques, namely Rebound Hammer Test, Ultrasonic Pulse Velocity (UPV) Test, measurement of concrete cover thickness, electrical resistivity, half-cell potential, and carbonation depth. The results of the study indicate that the assessed structures are in good condition with respect to concrete integrity, homogeneity, and durability, and that the embedded reinforcement is free from significant corrosion activity.

The data obtained during the present investigation were compared with the corresponding data collected in 2013. The comparison reveals an improvement in the condition of the concrete in terms of hardness, integrity, and homogeneity, which may be attributed to the continued maturation and natural aging of the concrete over time.

However, special attention is required for the repair and rehabilitation of the stack structure. It is also recommended to enhance the concrete cover thickness up to a height of 5 m from the base to improve long-term durability and protection of the reinforcement. Based on the findings of the investigation, the overall condition of the assessed structures is satisfactory. Continued routine inspection and maintenance activities are recommended to preserve the structural health and ensure the long-term serviceability of the facilities.

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