Performance Improvement of Existing ESP in Cement Plant

Presented at the 8th International Conference on Electrostatic Precipitation

May 14 – 17, 2001

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This paper is based on the actual work done by thc author and his team to usc the existing 10 years old ESPs to meet the revised emission norms with increased plant capacity from 3000TPD to 4200TPD.

A cement manufacturing plant in India was operating 10years old Research Cottrell design ESPs connected to a kiln of 3000 TPD. The emission levels through the stack were around 450mg/Nm3 at a production level of 3000 TPD. They wanted to increase the production to 3800/4200TPD and approached the author and his team to study the system and recommend suitable modifications / additional ESP to meet the requirement.

A thorough study was conducted which revealed that the existing ESPs are having a major gas distribution problem. This was corrected with the help of a physical model study. It was also decided not to change the ESP size but improve the energy levels by replacing the old generation discharge electrodes with high current rigid electrodes. The entire work was completed during a short plant stoppage.

After this modification, the same old ESPs are now operating below 100mg/Nm3 emission level with absolutely clean stack in spite of increase of production from 3000 TPD to 4200 TPD.

Manuscript not available for proceedings.