



Plant Audit for Optimisation/ Balancing / Benchmarking – ACC Wadi, ACC Chanda & Orient Cement

Being energy intensive process, cement manufacturing needs to emphasize on optimally utilizing the available capacity and enhancing the performance efficiency to reduce the specific energy and cost of production. An effective tool to achieve these objectives is by conducting 'Comprehensive Plant Technical Audit' study and implementation of the identified improvement measures. It includes not only optimising the present operational practices, but also the possibilities to upgrade the available equipment and technologies with optimum capital expenditure (CAPEX).

Through Plant Technical Audits, many cement plants have reduced energy cost thereby reduced cost of production & increasing profit margins.

Holtec conducted plant audits in many Indian & international cement plants till date. Recent audits were conducted at ACC Wadi, ACC Chanda & Orient Cement, for improving Energy efficiency, plant performance & capacity enhancement.

Objectives

- Improving capacity utilization to achieve sustained production.
- Enhancing the plant capacity
- Improving operational efficiency and optimizing unit operation.
- Trouble shooting of problems in raw materials, electrical, instrumentation, mechanical and process engineering sections through diagnostic studies.
- Integrate the maximum capacities of sections to enhance the overall plant productivity.
- Reducing the specific energy consumption
- Effective utilization of available waste heat
- Assuring the quality of product with optimized utilization of resources.
- Exploring each possibility for cost reduction
- To Identify WHR recovery potential
- Increase Thermal Substitution Rate (TSR)

Scope of Consulting Services

- Technical Assessment of the plant for enhancing output and improving productivity of the specific unit operations.
- Short term and long term measures for Improvement.
- Techno Economic Feasibility studies for AFR usage.
- Capital Investments estimation and Implementation schedules.
- Bench marking of technical design / capacity data like heat and power consumption.
- Carry out heat mass and gas balance studies.



Methodology Adopted

- Multifunctional team of specialists conducted a plant visits for an on the spot assessment, process measurement and interaction with the plant personnel.
- Diagnostic study of plant data and identification of bottlenecks.
- Assessment of the potential of various plant equipment.
- Situation analysis and formulation of various alternatives for upgradation of plant.
- Formulation of recommendations in the form of set of Action Plans. These Action Plans, other than spanning all relevant unit operations, include:
 - ☐ Operational de-bottlenecking to enhance equipment outputs and availability within the design parameters.
 - ☐ Design of suitable raw mix, fuel mix to achieve prescribed quality standards, economically
 - ☐ Enunciation of measures in terms of both system and operating practice



modifications for conserving energy (power and fuel)

- ❑ Recommendations for modifications/ additions/ alternations required in various sections/ equipment/ auxiliaries/ Pollution control measures to achieve improved performance and to meet statutory requirement.
- ❑ Work out the total investment cost estimates required for optimizing & upgrading the plant production capacity.
- ❑ Estimation of the time required for implementing various recommendations and the plant downtime caused, if any.
- ❑ Assistance during implementation

Salient Features

- Performance assessment of all the unit companies of the group
- Identification of areas for capacity enhancement with and without incremental investment.
- Carrying through energy balance to identify areas for savings in power and fuel
- Alternative fuels and Raw Materials Usage in Cement plant
- Installation of Waste Heat Recovery systems
- Bench marking of technical design / capacity data like heat and power consumption