

Resource Conservation Audit:

Water Audit

One of the core elements of Water Management is “**Water Audit**”. A Water Audit is a “*Systematic approach of Identifying, Measuring, Monitoring and Reducing the Water Consumption by various activities in an Industry*”

Water Audit study is a qualitative and quantitative analysis of water consumption to identify means of reuse and recycling of water. Water Audits encourage social responsibility by identifying wasteful use, enables estimation of the saving potential. They not only promote water conservation but also deliver cost savings. In addition they help companies safeguarding public health and property, improve external relations and reduce legal liability.

Objective

- Estimation of water consumption in overall facility
- Identification of opportunity to reduce, reuse and recycle of water based on quality at various points of requirements.
- Estimation of water pumping energy at each stage & Identify Energy Saving Potential in Pumps and Pumping Systems
- Identify the sources of water consumption and Wastewater Generation through Field Studies
- Quantification and Characterization of Water and Wastewater by way appropriate sampling and measurements
- Establishment of Specific water Consumption and Wastewater
- Specific Water Consumption/Ton of Product Produced
- Benchmarking of Specific Water Consumption and Wastewater
- Evolve Techno-Economic feasible solutions for recommended measures for implementation

Scope of Work

- Analyze historic water use in the plant
- Identify water flow and quality for each applications
- Identify the areas for water conservation
- Identify the sources of wastewater Generation
- In-depth Process studies for waste quantification and characterization
- Identify for Flow Monitoring, Measurement, Sampling and Analysis
- Identify areas for water conservation and waste minimization measures
- Identify energy saving potential for pumps and pumping systems
- Analyze for Compliance & Legal Requirements
- On-the spot recommendations of General House Keeping measures
- Recommendations of short term measures

- Evolving Options for Medium and Long-Term measures
- Evolving Techno-Economic feasible measures for the options identified
- Recommend the feasible options for recommendations
- Submission of Detailed Audit Report

Methodology/Data Collection:

- Design details of all facilities related to water like Raw water plant, DM plants, Soft water plants, RO Plants, Cooling towers, Chilled water systems, pretreated water plants, waste water treatment plants. Fire water, potable water, bore well water etc.
- Piping layout of each streams.
- Connected and operating load of each stream.
- Design and operating details of various plants in each streams.
- Design and operating details of various pumps used in each streams.
- Operation timing of each stream.
- Quality details at each stream (last 3 years records)
- Last 3 years breakdown details with reasons.
- Last 3 years various optimization details with benefits / losses achieved.
- Last 3 years weather details on hourly basis (for cooling tower calculations)

Analysis & Deliverables

- Flow Chart of Water Supply Distribution System
- Preparations of water balance overall and stream wise.
- Check List for self assessment for determining the water efficiency for facility managers
- Estimation of water pumps actual efficiency and comparison with design efficiency.
- Energy Conservation Measures in Pumps and Pumping Systems
- Estimation of pressure drops at selected locations (pipings).
- Identification of opportunities to reuse, recycle and reduce the water consumption.
- Estimation of water pumping cost and suggestion to reduce the same.
- Detailed Water Audit and Wastewater Audit Report.