

Saving Money with a Best Practice Evaluation

By James McDonald, PE, CWT, Technical Resource Engineer

A Best Practice Evaluation (BPE) of an industrial water system is a comprehensive study of “water in” to “water out” and all the water in between. BPE’s are more comprehensive, detailed, and technical than a typical survey. While a standard survey may be conducted by one or two people in a day or less, a BPE can involve a team of people with different expertise for several days.

The goal of a BPE is to gain an understanding of the water systems and all plant operations impacting them, identify areas of improvement, and recommend solutions that will both save money and improve efficiency. A plan for the future, as it relates to water, will also be developed.

A BPE has a wide focus to cover technology, operations, equipment, chemistry, manpower skills, applications, and mechanical skills. With this balanced approach, real improvements can be made. Sometimes a chemical company focuses mostly on selling chemicals to solve the problem, or an equipment company wants to provide equipment to solve the problem. The actual solution may be chemical, equipment, both, or neither.



Getting Started

BPE’s start with the completion of a BPE Pre-Questionnaire by the customer. This questionnaire asks about water qualities, uses, requirements, equipment, operations, utilities, costs, etc. The customer may not know all the answers up front, but they will know what kinds of questions to expect when the BPE team arrives.

BPE Team

The next step is the arrival of the BPE team, which will consist of technical experts and a coordinator. Their first tasks are to gain an understanding of the plant operations, water systems, any problems, and what the needs are. This includes reviewing:

- Plant Process Flow Diagrams
- Primary Systems: boilers, cooling towers, chillers, process applications.
- Pretreatment Equipment: water sources, reverse osmosis, demineralizers, softeners, dealkalizers, hot/cold lime softening, multimedia filters, microfiltration, ultrafiltration, nanofiltration.
- Chemistry: chemicals used, feed points, make-down procedures.
- Wastewater Treatment: clarifiers, polymers, filtration, sludge handling, discharge requirements.

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- Operations: manpower allotment, expertise.
- Costs: utilities, electric, fuel, water, sewer, discharge fees/penalties, surcharges, chemicals, manpower.

Improvement Opportunities

The BPE team will consider a vast array of improvement opportunities. The actual opportunities will depend upon the industry, but examples include:

- Alternative water sources (well, lake, river, or city)
- Boilers
 - Reverse osmosis makeup to reduce boiler fuel, water, sewer, and chemical costs.
 - Improving condensate return to decrease boiler fuel, water, sewer, and chemical costs.
 - Improved chemistries to increase cycles, prevent scale, and/or improve steam quality.
 - Automatic boiler blowdown control to improve boiler control and reduce fuel consumption, water, sewer, and chemical costs.
- Cooling Towers
 - Evaluating softened or blended makeup to increase cooling tower cycles and decrease water, sewer and chemical costs.
 - Improved chemistries to decrease corrosion and scale and increase cycles.
 - Sidestream filtration to minimize deposits and help control microbiological growth.

- Chillers
 - Improved chemistries to minimize corrosion and scale formation.
 - Sidestream filtration to minimize deposits.
- Wastewater
 - Evaluate different chemistries to improve discharge water quality, reduce sludge generated, and/or reduce costs.
 - Evaluate chemical feed to ensure adequate mix time and functionality.
 - Review equipment to determine effectiveness and needed improvements.
- Recycling
 - Recycling wastewater to a cooling tower or process to reduce water and sewer costs.
 - Recycling reverse osmosis concentrate water to a cooling tower to reduce water and sewer costs.

These are just a few examples of the improvement opportunities that may exist.

BPE Report

Finally, after all the data have been collected, process line diagrams have been agreed upon, improvement ideas have been reviewed, and economic analyses have been conducted, a final BPE report is presented. The report describes the improvement opportunities found and details the justification for each.

If you wish to have a Best Practice Evaluation (BPE) conducted at your facility, please consider asking Crown Solutions.

