

## 1.0 Introduction

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BMPs for industrial water users are a combination of proven management, educational, and physical practices that a water user can use to achieve efficient and economical conservation of water. Water consumption by industries, whether supplied by others or self-supplied from surface or groundwater sources, can be varied in amount of use, rate of use, and opportunities for efficiency. For many industrial water users in Texas, water is an integral part of a product or a process. Another major use of water is for cooling, either removing heat from processes or providing a comfortable safe environment through air conditioning. Some industries use water as a conveyance or for rinsing and cleaning products and containers. Numerous industrial facilities use water for landscape irrigation. The quality of water used by industries in different processes varies widely from ultra-pure treated water to water which does not meet potable water standards.

The wide variety in the types of water uses, the size of facilities and the types of activities at different industrial facilities makes it difficult to compare one water user to another, although there are certain overall comparisons that can be made. In many industries, the water used to produce a product may be divided by the output to calculate the gallons per unit of production. Each industrial water user should evaluate water use and efficiency potential at its own facility(s). As a result, the initial recommended Best Management Practice for all industrial water users is the Industrial Water Audit BMP where the user identifies the relationships between all water coming into the facility and the various uses of water within.

The next Industrial BMP that should be considered is the Industrial Water Waste Reduction BMP, which focuses on the most economical changes to improve efficiency. By implementing the Industrial Submetering BMP, an industry may be able to identify significant opportunities for monitoring ongoing water use within specific parts of its facility.

Additional Industrial BMPs focus on the water uses most common among Texas industries and in which cost-effective measures for increasing water use efficiency are well understood. The Cooling Systems and Cooling Tower BMPs deal with specific measures for reducing water use in cooling.

Many water uses in industrial settings can use water of lower quality than that necessary for human consumption. The Industrial Alternative Sources and Reuse of Process Water BMP addresses reuse of water both within processes of the facility and from other sources that may be available near the facility.

For industrial users who rinse or clean products in their facilities numerous opportunities arise for water conservation through controlling flow rates and reusing water as outlined in the Rinsing/Cleaning BMP. Those with more sophisticated water treatment processes should consider the Water Treatment BMP as a means of increasing efficiency.

For industrial users which use steam as a motive force or in high temperature processes, the Boiler and Steam Systems BMP is provided. The Refrigeration (including Chilled Water) BMP provides a template for those with large cooling operations of greater sophistication than typical cooling towers. For large industrial plants using bays or lakes for cooling, the Once-Through Cooling BMP offers guidance on efficiency for their operations.

All industrial users can benefit from the Management and Employee Programs BMP that includes guidelines for increasing employee support and participation in conservation efforts. Many industrial users also irrigate a large landscaped area. The Industrial Landscape BMP presents approaches for reducing water use or irrigating with alternative sources of water.

For industrial users that do not find their specific process covered among the other BMPs, the Site-Specific Conservation BMP is offered to help in developing a BMP to address their unique needs.

Best-management practices contained in the BMP Guide are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and can be implemented within a specified timeframe. The BMPs are not exclusive of other meaningful conservation techniques that an entity might use in formulating a state-required water conservation plan. At the discretion of each user, BMPs may be implemented individually, in whole or in part, or be combined with other BMPs or other water conservation techniques to form a comprehensive water conservation program. The adoption of any BMP is entirely voluntary, although it is recognized that once adopted, certain BMPs may have some regulatory aspects to them (e.g. implementation of a local city ordinance).