



Water Conservation Plan

[Entity]

Michigan Chamber of Commerce

February 2008

Submitted by Barr Engineering Company



Water Conservation Plan

Table of Contents

1.0 Introduction.....	2
2.0 Plan Objectives	3
3.0 Characterization of Current Water Usage	4
3.1 Current Water Usage.....	4
3.1.1 Description of Water Use.....	4
3.1.2 Significant Water Use Processes.....	4
3.1.3 Water Metering and Tracking	4
3.1.4 Leak Detection and Repair Programs	4
3.1.5 Reclamation and Reuse.....	4
3.1.6 Means of Discharging Water	4
4.0 Implementation of GAMPs for Water Conservation.....	5
5.0 Evaluation and Modification of the Plan.....	7

1.0 Introduction

Public Act 35 of 2006 (PA 35 of 06) requires that each water use sector develop voluntary guidelines for generally accepted water management practices or environmentally sound and economically feasible water conservation measures. The Act allows for such guidelines to be developed and adopted by an established statewide professional or trade association representing that sector.

In response to PA 35 of 2006, the Michigan Chamber of Commerce (Chamber) has developed this template for a Water Conservation Plan (Plan) to serve as a guide for general industry.

The Chamber and its constituents recognize that the development of the voluntary guidelines as set forth in PA 35 of 2006, also meet the requirements of the Great Lakes Charter Annex Compact, and are consistent with the recommendations of the Groundwater Advisory Council. Specifically, Article 203 of the Proposed Compact (The Decision-Making Standard for Management of Withdrawals and Consumptive Uses within the Great Lakes - St. Lawrence River Basin Sustainable Water Resources Agreement) states:

“The withdrawal or consumptive use shall be implemented so as to incorporate environmentally sound and economically feasible water conservation measures.”

The Groundwater Conservation Advisory Council’s February 6, 2006 Final Report to the Legislature provided several recommendations. Recommendation # 10 of the Report states:

“Each water-use sector should develop its own sector-specific water management practice. These should be reviewed and evaluated by a closely related professional or trade association. Water users within each sector should be encouraged to adopt and implement the water-management practices specific to their sector.”

The guidelines set forth in this Plan exemplify environmentally sound and economically feasible water conservation measures through generally accepted management practices (GAMPs).

2.0 Plan Objectives

The [Entity] has developed the following objectives to help define the strategy for implementing voluntary water conservation GAMPs and improving water efficiency as part of this Plan. The objectives for this Plan include the following:

- Establish an understanding of current water use at the facility.
- Develop, evaluate, and document Generally Accepted Management Practices (GAMPs) for water conservation at the facility, as indicated by cost-benefit considerations that could reduce water withdrawal or consumption from the levels that would exist without conservation efforts. Review Section 3 and Appendix A in the “Water Withdrawal and Conservation Practices” document for assistance with developing and evaluating GAMPs.
- Review and modify the Plan on a periodic basis. Maintain documentation related to implementation of the Plan.

Each of these objectives will be further discussed and outlined in the remainder of this document.

3.0 Characterization of Current Water Usage

An important component of a Water Conservation Plan is the characterization of a facility's current water usage. This includes characterizing how water flows through a facility or system, identifying what purpose the water plays within the system, identifying specific equipment that consumes and uses large quantities of water, identifying how water is discharged from the system, and identifying and quantifying, to the extent practicable, the cost considerations associated with the existing water usage.

3.1 Current Water Usage

The following elements provide a guideline for characterizing water usage as part of the Plan:

[Entity, in ADD sector provides information including, but not limited to:]

- Describe the source of water at the facility.
- Identify significant water use processes, operations and equipment and account for significant sources and losses.
- Describe water metering and water use tracking, if any.
- Describe leak detection and repair program, if any.
- Identify current reclamation and reuse of water, including how much water is consumed and not available for reuse.
- Identify how water is discharged.
- Identify and quantify, to the extent practicable, the cost parameters associated with water usage.

3.1.1 Description of Water Sources

[Entity adds description here]

3.1.2 Significant Water Use Processes

[Entity adds description here]

3.1.3 Water Metering and Tracking

[Entity adds description here]

3.1.4 Leak Detection and Repair Programs

[Entity adds description here]

3.1.5 Reclamation and Reuse

[Entity adds description here]

3.1.6 Means of Discharging Water

[Entity adds description here]

4.0 Implementation of GAMPs for Water Conservation

Implementation of GAMPs for water conservation and improving water use efficiency are an important component of this Plan. This section outlines what GAMPs *[entity]* is currently utilizing to meet the Plan's overall conservation goals.

[Entity] utilizes the following GAMPs for water conservation at their facility located in *[insert city/town]*, Michigan.

(Check those that apply)

- Install water meters in high use areas to encourage conservation and accountability.
- Install cooling towers to reduce once-through cooling water use, where cost-effective and otherwise appropriate.
- Retrofit applications that use once-through cooling water (chillers, compressors, condensers, etc.) with closed-loop recirculation systems.
- Replace water-cooled equipment with air cooled equipment.
- Replace liquid ring vacuum pumps with mechanical seal vacuum pumps.
- Use clean in place technologies.
- Operate pumps to meet, but not exceed, process rates to reduce excessive pumping.
- Calibrate and clean process equipment to enhance thermal and hydraulic performance efficiency.
- Consider the installation of surge tanks to prevent overflow or the installation of float-controlled valves on makeup water lines.
- Turn off water consuming equipment that is not in use and during shutdowns.
- Install flow restrictors, aerators, spring-loaded valves and timers on faucets and nozzles.
- Use fogging nozzles or mist eliminators to minimize water losses in cooling towers.
- Investigate alternative water sources for major processes, including using clarified, cooling or waste water for certain processes.
- Investigate process and equipment upgrades that result in more efficient operations and water use, (e.g. adjusting water intake design and pump speed, increasing efficiency of the whitewater system in the mill).
- Consider opportunities for water reclamation and reuse throughout the process and facility.
- Install high-pressure, low-volume shower heads and low-flow or waterless toilets.
- Consider chemical treatments to reduce the amount of make-up water required for cooling towers, steam boilers, etc.
- Consider landscape alterations that demand less watering and prevent less runoff.

- Monitor drought and water stress conditions regionally and communicate awareness issues throughout the organization.
- Install drip irrigation to reduce watering use.
- Include water conservation policies and procedures into employee training programs.
- Participate in water conservation advisory group or organization to raise awareness.
- Incorporate water conservation practices into employee training programs.
- Implement a leak detection and repair program to mitigate water losses.
- Other

These are examples of GAMPs that might be considered by a specific business at a specific location and should not be considered either a mandatory or complete listing. No one set of GAMPs would be appropriate for, or applicable to, all facilities. Each business will need to review what GAMPs are applicable in its specific circumstance.

5.0 Evaluation and Modification of the Plan

Upon implementation of this Water Conservation Plan, the *[Entity]* will evaluate and update the Plan on a periodic basis. Modifications to the Plan will be based on an evaluation of the water conservation GAMPs previously implemented and upon any new relevant information. This section is intended to satisfy the requirements under the Great Lake Compact for new or increased water withdrawals by demonstrating progress towards achieving improvements in water conservation. Any water conservations measures for existing water uses is considered entirely voluntary.

The *[Entity]* will consider documenting the following information to evaluate the existing Plan:

- A list of dates and descriptions of conservation measures implemented

[Entity adds description here]

- Approximate amounts of water saved for each measure implemented

[Entity adds description here]

- Discussion about whether or not the goals of the plan have been met

[Entity adds description here]

- If objectives were not met, an explanation as to the reason why the objectives were not met and a discussion of the specific revisions to the Plan intended to help meet the objectives in the future.

[Entity adds description here]