

A Checklist of Water Conservation Ideas For

Food Processing Industries

This checklist provides water conservation tips successfully implemented by industrial and commercial users. This list has been revised from the original copy first published and distributed by the Los Angeles Department of Water and Power.

General suggestions

Appoint a water conservation coordinator with the responsibility and authority for a water conservation program.

Make the plant manager and other employees aware of the water conservation coordinator's function.

Increase employee awareness of water conservation:

- Explain the importance of individual actions to the success of the program.
- Seek employee ideas for water conservation using contests, rewards, and suggestion boxes.

Read water meter daily to monitor and report the success of water conservation efforts.

Survey the plant

A plant survey helps to establish facility water savings potential by identifying areas where water is wasted or where water could be re-used.

Identify the major water lines. Determine the quality, quantity, and temperature of water carried by each.

Identify all points where water is used, including hose connections; determine the quantity of water used at each point.

Determine the capacity of each water-containing unit (washers, flumes) and frequency of emptying.

Determine the quality of each continuous discharge not yet being re-used.

Determine flow rates in floor gutters and whether the flows are adequate to prevent solids accumulation.

Evaluate survey

Review the information developed during the survey to identify the major water-using operations and review the water re-use practices currently employed.

Develop plans to improve re-use:

- Evaluate the feasibility of installing cooling towers.
- Study the potential for screening and disinfecting reclaimed water to increase the number of times it can be re-used.



Maximum water-use efficiency

Install high-pressure, low-volume nozzles on spray washers.

Use fogging nozzles to cool product.

Install in-line strainers on all spray headers; inspect nozzles regularly for clogging.

Adjust pump cooling and flushing water to the minimum required.

Use conveying systems that use water efficiently:

- Handle waste materials in a dry state when possible.
- Use conveyor belts for product transport; preference should be given to "rabbit-ear" or "V"-shaped roller supports because these are much easier to clean.
- Use pneumatic conveying systems whenever possible.
- Use flumes with parabolic cross sections rather than flat-bottom troughs.

Establish optimum depth of product on conveyors to maximize wash water efficiency.

Replace water-intensive units with alternatives:

- Rubber-disk units for raw product cleaning and peeling;
- Steam for water blanchers; or
- Evaporative coolers for hydrocooling systems.

Determine whether discharges from any operation can be substituted for fresh water being supplied to an earlier operation:

- Divide the spray wash units into two or more sections and establish a counter flow re-use system.
- Use reclaimed water for flushing floor gutters.

Replace high-volume hoses with high-pressure, low-volume cleaning systems.

As equipment wears out, replace with water-saving models.



Avoid waste

Equip all hoses with spring loaded shutoff nozzles. Be sure these nozzles are not removed.

Instruct employees to use hoses sparingly and only when necessary.

Adjust flows from recirculation systems (washer flumes) by controlling the rate of makeup water:

- Install float-controlled valve on the makeup line.
- Close filling line during operation.
- Provide surge tanks for each system to avoid overflow.

Turn off all flows during shutdowns (unless flow are essential for clean-up). Use solenoid valves to stop the flow of water when production stops. The valves could be activated by tying them to drive motor controls.

Adjust flows in sprays and other lines to meet the minimum requirements.



Evaluate clean-up procedures

Sweep and shovel solid materials from the floor; do not use hoses for this purpose:

- Provide an adequate number of receptacles for collecting solids; and
- Empty the receptacles frequently to prevent odor and insect problems.

Inventory all cleaning equipment (such as hoses) provided in the plant:

- Determine the number and types of units provided;
- Evaluate their frequency of operation; and

- Use more water-efficient equipment where possible.

Inventory all cleaning chemicals used in the facility to determine:

- If they are being used correctly; and
- Their water-use efficiency.

Control belt sprays with a timer to allow for the intermittent application of chlorinated water.

Exterior areas

Discontinue using water to clean sidewalks, driveways, loading docks, and parking lots. Consider using mobile sweepers.

Wash autos, buses, and trucks less often.

Avoid plant fertilizing and pruning that would stimulate excessive growth.

Remove weeds and unhealthy plants so remaining plants can benefit from the water saved.

In many cases, older, established plants require only infrequent irrigation. Look for indications of water need, such as wilt, change of color, or dry soils.

Limit landscaping additions and alterations. In the future, design landscapes requiring less water.

Install soil moisture overrides or timers on sprinkler systems.

Time watering, when possible, to occur in the early morning or evening when evaporation is lowest.

Make sure irrigation equipment applies water uniformly.

Mulch around plants to reduce evaporation and discourage weeds.

Remove thatch and aerate turf to encourage the movement of water to the root zone.

Begin a flexible watering schedule, watering only when needed, and not on windy or rainy days.

Avoid runoff and make sure sprinklers cover just the lawn or garden, not sidewalks, driveways, or gutters.

Do not water on windy days.

Water in winter only during prolonged hot and dry periods (during spring and fall, most plants need approximately half the amount of water that they need during the summer).

For more information, contact: