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**Writable Tables from *WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities***

**October 2012**

The worksheets provided in this document are writeable version of Tables 1-4, B-1, B-2, B-3, B-4, and B-5 from *WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities*. These worksheets are designed for easy printing and use. Please refer to the full document (<http://www.epa.gov/watersense/commercial/docs/watersense_at_work/files/assets/common/downloads/WaterSense-at-Work_FINAL_508c3.pdf>) to learn more about how to implement water-efficient products, equipment, and practices in commercial and institutional facilities.

| **Action Plan Water Use Reduction Opportunity Checklist** | | | | | | | | | | |
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| **Water Use Reduction Opportunity/Project** | **Reference Section** | | | **Already Implemented** | | | **Evaluate/ Consider** | | | **Not Applicable** |
| **** | | | **** | | | **** |
| **Water Use Monitoring and Education** | | | | | | | | | | |
| Read water meters and record monthly water use. | 2.2 | | |  | |  | | |  | |
| Install submeters on any major water-using equipment,  systems, or processes. | 2.2 | | |  | |  | | |  | |
| Implement a leak detection and repair program. | 2.3 | | |  | |  | | |  | |
| Educate facility staff, building occupants, employees, and visitors on water management program goals and initiatives. | 2.4 | | |  | |  | | |  | |
| Review, understand, and utilize information in codes, standards,  and voluntary programs for water efficiency. | 2.5 | | |  | |  | | |  | |
| **Sanitary Fixtures and Equipment** | | | | | | | | | | |
| Replace old tank-type toilets with WaterSense labeled models. | 3.2 | | |  |  | | | |  | |
| Replace old flushometer-valve toilets flushing greater than  1.6 gallons per flush (gpf) with high-efficiency models,  and install retrofit dual-flush conversion devices on 1.6 gpf  flushometer valve toilets. | 3.2 | | |  |  | | | |  | |
| Replace old flushing urinals with WaterSense labeled models. | 3.3 | | |  |  | | | |  | |
| Replace lavatory faucets or faucet aerators (for private use)  with WaterSense labeled models and install 0.5 gallons per minute (gpm) faucets or aerators in public-use settings. | 3.4 | | |  |  | | | |  | |
| Replace old showerheads with WaterSense labeled models. | 3.5 | | |  |  | | | |  | |
| Wash only full loads of laundry. | 3.6 | | |  |  | | | |  | |
| Replace old single-load clothes washers with ENERGY STAR  qualified models or consider the water factor when purchasing  larger or more industrial-sized laundry machines. | 3.6 | | |  |  | | | |  | |
| **Commercial Kitchen Equipment** | | | | | | | | | | |
| Replace old ice machines with ENERGY STAR qualified models. | 4.2 | | |  |  | | | |  | |
| Replace old steam cookers with ENERGY STAR qualified models. | 4.4 | | |  |  | | | |  | |
| Load steam cookers, steam kettles, and combination ovens to capacity. | 4.3, 4.4, 4.5 | | |  |  | | | |  | |
| Switch to connectionless combination ovens, steam cookers, and steam kettles. | 4.3, 4.4, 4.5 | | |  |  | | | |  | |
| Replace old water-cooled wok stoves with a waterless model. | 4.6 | | |  |  | | | |  | |
| Install in-line flow restrictor to reduce dipper well flow rate  to 0.3 gpm. | 4.7 | | |  |  | | | |  | |
| Replace existing pre-rinse spray valves with models that use 1.3 gpm or less. | 4.8 | | |  |  | | | |  | |
| Hand scrape food from dishes or install food strainers and compost food waste. | 4.9 | | |  |  | | | |  | |
| Load dishwashers to capacity. | 4.10 | | |  |  | | | |  | |
| Replace old dishwashers with ENERGY STAR qualified models. | 4.10 | | |  |  | | | |  | |
| Use a broom or mop instead of a water broom or high-pressure hose to clean floors. | 4.11 | | |  |  | | | |  | |
| **Outdoor Water Use** | | | | | | | | | | |
| Plant native or drought-tolerant species. | 5.2 | |  | |  | | |  | | |
| Use mulch around trees and plant beds. | 5.2 | |  | |  | | |  | | |
| Install WaterSense labeled weather-based irrigation controllers or consider irrigation controllers with rain or soil moisture sensors. | 5.3 | |  | |  | | |  | | |
| Use drip irrigation to water plant beds. | 5.3 | |  | |  | | |  | | |
| Ensure irrigation schedule is appropriate for climate, soil conditions, plant materials, grading, and season. | 5.3 | |  | |  | | |  | | |
| Have an irrigation professional certified by a WaterSense labeled program conduct an irrigation audit. | 5.3 | |  | |  | | |  | | |
| Check the position and location of spray heads to ensure that they are working properly and water is not being directed onto non-landscaped areas, such as sidewalks. | 5.3 | |  | |  | | |  | | |
| Use pool covers to control evaporation loss. | 5.4 | |  | |  | | |  | | |
| Maintain proper pool chemistry to limit pool cleaning and drainage events. | 5.4 | |  | |  | | |  | | |
| Use friction washing in vehicle washes and consider installing a water reclamation and reuse system. | 5.5 | |  | |  | | |  | | |
| **Mechanical Systems** | | | | | | | | | | |
| Eliminate single-pass cooling. | 6.2 | |  | |  | | |  | | |
| Professionally monitor cooling tower and boiler chemistry and maximize cycles of concentration. | 6.2, 6.5 | |  | |  | | |  | | |
| Install cooling tower meters and control systems to control chemical feed and blowdown based on conductivity. | 6.3 | |  | |  | | |  | | |
| Inspect chillers and air handler coils regularly and remove dirt and scale buildup. | 6.4 | |  | |  | | |  | | |
| Regularly check and maintain boilers, steam lines, and steam traps. | 6.5 | |  | |  | | |  | | |
| **Laboratory and Medical Equipment** | | | | | | | | | | |
| Use water purification only when necessary. | 7.2 | |  | |  | | |  | | |
| Turn off pumps when not in use. | 7.3 | |  | |  | | |  | | |
| Install thermostatically actuated valves to control the flow of cooling water for steam sterilizer condensate discharge. | 7.4 | |  | |  | | |  | | |
| Replace old steam sterilizers and vacuum pumps with newer models that do not use single-pass cooling or condensate discharge tempering water. | 7.3, 7.4 | |  | |  | | |  | | |
| Replace old fume hoods with a filtration system that does not require water (e.g., activated carbon). | 7.6 | |  | |  | | |  | | |
| Inspect and repair worn cage-and-rack washer valves and rinse nozzles. | 7.7 | |  | |  | | |  | | |
| Run glassware and cage-and-rack washers only when full. | 7.5, 7.7 | |  | |  | | |  | | |
| Consider converting from traditional film to digital X-ray equipment. | 7.8 | |  | |  | | |  | | |
| **Onsite Alternative Water Use** | | | | | | | | | | |
| Consider using onsite alternative water for irrigation, cooling tower make-up, toilet and urinal flushing, fume hood scrubbers, and other uses not requiring potable water. | | 8.0 |  | |  | | |  | | |

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| **Building Water Survey Worksheet** | | | | |
| Surveyed by: | | | | |
| Date: | | | | |
| General Information | | | | |
| Name of Building: | Address: | | | |
| Building Contact | Phone: | | | |
| Building Dimensions: | Building wastewater is currently: | | Is recycled water currently used in any of the following areas? | |
| Width: | Treated on site | | Toilets | |
| Length: | Connected to city water system | | Urinals | |
|  | Other | | Cooling Towers | |
|  | | Irrigation | |
| Number of Floors (height): | | | | |
| Building Occupancy Data | | | | |
| Average Number of Occupants: | Number of Women: | | Number of Men: | |
| Occupancy Schedule | | | | |
| Weekdays | From | a.m. | To | p.m. |
| Saturdays | From | a.m. | To | p.m. |
| Sundays | From | a.m. | To | p.m. |
| Holidays | From | a.m. | To | p.m. |

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| **List of Water Meters Worksheet** | | | |
| **Water Account Numbers (for billing)** | **Meter Numbers** | **Size/Type of Meter** | **Meter Locations** |
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| **Water Consumption History Worksheet** | | | | | | | | | | | | |
| **Year** | **Monthly Consumption by Billing Units: Thousands of Gallons or ccf1 (by water account number)** | | | | | | | | | | | |
| **Indoor Uses** | | | | | | **Landscape Uses** | | | | | |
| **Month** | **Account #** | **Account #** | **Account #** | **Account #** | **Billed Days** | **Average GPWD2** | **Account #** | **Account #** | **Account #** | **Account #** | **Billed Days** | **Average GPWD2** |
| January |  |  |  |  |  |  |  |  |  |  |  |  |
| February |  |  |  |  |  |  |  |  |  |  |  |  |
| March |  |  |  |  |  |  |  |  |  |  |  |  |
| April |  |  |  |  |  |  |  |  |  |  |  |  |
| May |  |  |  |  |  |  |  |  |  |  |  |  |
| June |  |  |  |  |  |  |  |  |  |  |  |  |
| July |  |  |  |  |  |  |  |  |  |  |  |  |
| August |  |  |  |  |  |  |  |  |  |  |  |  |
| September |  |  |  |  |  |  |  |  |  |  |  |  |
| October |  |  |  |  |  |  |  |  |  |  |  |  |
| November |  |  |  |  |  |  |  |  |  |  |  |  |
| December |  |  |  |  |  |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average** |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 The abbreviation ccf represents 100 cubic feet, or roughly 748 gallons. | | | | | |  |  |  |  |  |  |  |
| 2 The abbreviation GPWD represents gallons per workday, assuming five days per week. | | | | | | | |  |  |  |  |  |

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| **Existing Plumbing Equipment Worksheet** | | | | | | | | | |
| Use Area | Location | Equipment | # of Units | Type | Mounting (floor/wall) | Make/Model | Average Flow Rate or Consumption | Average Uses per Week per Unit | Comments (leaks, control, etc.) |
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| **Water Use Inventory Worksheet** | | | | | |
| **Item** | **Location** | **Flow (gallons per minute)** | **Operating Time (minutes per day)** | **Flow per Day (gallons per day)** | **Remarks** |
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