

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCE BOARD
CREATING RULES

The Wisconsin Natural Resource Board proposes an order to create chapter NR 852 relating to water conservation and water use efficiency for water withdrawals and affecting small business.

DG-24-10

Analysis Prepared by the Department of Natural Resources

- 1. Statutes Interpreted:** Sections 281.343(4b), 281.346(8), Stats.
- 2. Statutory Authority:** Sections 227.11(2)(a), 281.346(4)(g), 281.346(8) and 281.35(10)(b), Stats.
- 3. Explanation of Agency Authority:** Section 227.11(2)(a), Stats., expressly confers rulemaking authority on the department to promulgate rules interpreting any statute enforced or administered by it, if the agency considers it necessary to effectuate the purpose of the statute.

Section 281.343(4b) directs the department to develop and implement a water conservation and efficiency program and to promote environmentally sound and economically feasible water conservation measures.

Sections 281.346(4)(g) and 281.346(8), Stats., direct the department to promulgate rules to establish water conservation and efficiency measures.

Section 281.35(10)(b), Stats., authorizes the department to promulgate rules for implementing the water loss approval program.

- 4. Related Statute or Rule:** Wisconsin Statutes Sections 30.18, 281.34, 281.343, 281.344, 281.346, 281.35; chapters NR 809, NR 811, PSC 196, PSC 185, Comm 101, Comm 145 and rules under development pertaining to the following: Water Use Registration and Reporting, Water Use Permitting, Water Use Fees, Water Use Public Involvement, Water Loss from Consumptive Uses, Water Supply Service Area Plans, and Requirements for the Operation and Maintenance of Public Water Systems.
- 5. Plain Language Analysis:** This board order creates a new rule that clarifies and further defines new statutory requirements for water conservation and water use efficiency for regulated withdrawals of waters of the state within the Great Lakes Basin, diversions of water from the Great Lakes Basin, and water withdrawals statewide that require a water loss approval. Key provisions of the new law include the following:

- Specifies mandatory water conservation and efficiency measures for regulated withdrawals and diversions of waters of the Great Lakes Basin and withdrawals statewide that require a water loss approval.
- Promotes voluntary statewide water conservation through the identification of water conservation and efficiency measures.
- Guides other department regulatory, planning, resource management, liaison and financial aid determinations.

Persons subject to this chapter are categorized into one of 3 levels:

- Tier 1 includes new and increased withdrawals in the Great Lakes Basin that average 100,000 gallons per day or more in any 30-day period but that do not equal at least 1,000,000 gallons per day for any 30 consecutive days.
- Tier 2 includes new and increased withdrawals in the Great Lakes Basin that equal 1,000,000 gallons per day or more for any 30 consecutive days.
- Tier 3 includes new and increased diversions in a community or county that straddles the sub-continental divide and water loss approval applications statewide. A water loss approval is required for withdrawals that will result in a water loss averaging more than 2,000,000 gallons per day in any 30-day period.

This tiered approach is being used to differentiate between the requirements for different types and levels of regulated activities. The level of water conservation and efficiency requirements are increased from Tier 1, to Tier 2, to Tier 3.

In addition to completing a Water Conservation Plan, there are four mandatory water conservation and efficiency measures (CEMs) for all persons for whom water conservation and efficiency requirements are mandatory under this chapter. These CEMs have been determined to be cost-effective, environmentally sound and economically feasible for all water use sectors. Implementation of additional CEMs is required for Tier 2 and Tier 3 only.

The rule sets forth definitions, sector specific water conservation and efficiency measures, elements of a water conservation plan, procedures for conducting environmental soundness and economic feasibility analyses and cost effectiveness analyses, processes for approval, reporting, and enforcement.

- 6. Federal Regulatory Analysis:** There are no comparable federal regulations pertaining to water conservation and water use efficiency. However, in passing the Great Lakes – St. Lawrence River Basin Water Resources Compact (Compact), each of the Great Lakes states have similar

requirements to establish a water conservation and efficiency program that is consistent with the goals and objectives identified by the Great Lakes Compact Council.

7. Comparison with Rules in Adjacent States:

The following table compares regulatory requirements for water conservation and efficiency in adjacent states:

Water Conservation and Water Use Efficiency Comparison				
Wisconsin	Illinois	Iowa	Michigan	Minnesota
Specifies mandatory water conservation and water use efficiency measures within user sectors for certain levels of new or increased withdrawals and diversions from waters of the Great Lakes Basin and for water withdrawals statewide that require a water loss approval. Promotes voluntary statewide water conservation through the identification of water conservation and efficiency measures.	Specifies all water withdrawals over 100,000 gallons per day in the Great Lakes Basin to obtain a permit. Conservation practices within the user category are specified through permitting process. Requires permittees to submit a plan to reduce wasteful water and unaccounted for water by 8 percent. Requires permittees to submit an annual water use audit form.	Specifies all persons making a water withdrawal of at least 25,000 gallons per day to obtain a water use permit. Iowa statute provides for a water allocation (permit) system based on beneficial use preventing waste, unreasonable use and unreasonable methods of use of water resources. Conservation is expected.	Specifies all persons making large quantity withdrawals averaging 100,000 gallons a day for 30-days to evaluate generic water conservation measures applicable to their sector for review and acceptance by the Dept. of Nat. Resources and Environment. Requires legislative review of the status and preparation and acceptance of water user sector conservation measures by April 1, 2010.	Specifies mandatory efficient use and conservation of water through permitting process for all water users withdrawing water at a rate of 10,000 gallons a day or a million gallons per year. Water conservation must be addressed in water supply plans required for public water systems serving more than 1000 people. Requires mandatory conservation rate structures for all public water utilities located within the basin. Specifies voluntary measures including information and education, retrofitting water fixtures and encouraging water reuse.

8. Summary of the Factual Data and Analysis that Support the Proposed Rule:

Published scientific literature, industry manuals, information from other states, consultation with the Department of Commerce and Public Service Commission, and input from an advisory committee were used as the basis for developing the water conservation plan requirements and required water conservation and efficiency measures.

9. Analysis and Supporting Documentation in Support of the Determination of the Rule’s Effect on Small Business:

Any person who diverts any amount of water, has a new or increased withdrawal averaging 100,000 gallons per day or more in any 30-day period from the Great Lakes Basin, or a withdrawal with a water loss over 2,000,000 gallons per day must complete a water conservation plan and implement water conservation and efficiency measures. To comply, small businesses follow the same requirements as other persons who withdraw water in the same quantity. The water conservation and water use efficiency

requirements are clearly identified in this rule and do not include requirements to retrofit existing equipment. Water conservation and efficiency measures that are not environmentally sound or economically feasible or cost effective do not need to be implemented.

10. Effect on Small Business: This rule will affect small businesses located in the Great Lakes Basin that supply their own water with water supply systems that actually withdraw water in amounts averaging 100,000 gallons per day or more in any 30-day period or have a new or increased withdrawal statewide that will result in a water loss averaging more than 2,000,000 gallons per day in any 30-day period. Water conservation and efficiency measures that are not environmentally sound or economically feasible or cost effective do not need to be implemented. Small businesses that receive water from a public water supply will not be impacted by this rule.

11. Agency Contact Person:

Steven Elmore, Water Resources Management Specialist
Wisconsin Department of Natural Resources
Bureau of Drinking Water & Groundwater
(608) 264-9246
Steve.Elmore@wisconsin.gov

12. Place where comments are to be submitted and deadline for

submission: Comments are to be submitted to Kristy Rogers, Bureau of Drinking Water and Groundwater, P.O. Box 7921, Madison, WI 53707 by July 7, 2010.

SECTION 1. Chapter NR 852 is created to read:

CHAPTER NR 852
WATER CONSERVATION AND WATER USE EFFICIENCY

NR 852.01 Purpose
NR 852.02 Applicability
NR 852.03 Definitions
NR 852.04 Required Elements – All
NR 852.05 Required Elements – Tier 2 and Tier 3
NR 852.06 Required Elements – Tier 3 Only
NR 852.07 Water Conservation Plans
NR 852.08 Water Conservation and Efficiency Measures
NR 852.09 Cost-Effectiveness Analysis
NR 852.10 Environmental Soundness and Economic Feasibility Analysis
NR 852.11 Approval and Reporting Process
NR 852.12 Enforcement

NR 852.01 Purpose. The purpose of this chapter is to establish a statewide water conservation and efficiency program, as required by s. 281.346(8), Stats.; to specify mandatory water conservation and efficiency measures for withdrawals in the Great Lakes Basin and water loss approvals statewide; to promote voluntary statewide water conservation through the identification of water conservation and efficiency measures; and to guide other department regulatory, planning, resource management, liaison and financial aid determinations.

NR 852.02 Applicability. Persons subject to this chapter are categorized into one of three levels, Tier 1, Tier 2, or Tier 3, in order to differentiate between the requirements for different amounts and types of a withdrawal, diversion, or water loss. Unless exempted under sub. (4), this chapter applies to persons applying for a new or increased withdrawal, diversion, or water loss approval according to the following categories:

(1) Tier 1: Persons applying for a new or increased withdrawal regulated under s. 281.346(4s), Stats.

Note: Section 281.346(4s), Stats., requires coverage under a general permit for withdrawals from the Great Lakes basin that average 100,000 gallons per day or more in any 30-day period but that do not equal at least 1,000,000 gallons per day for any 30 consecutive days.

(2) Tier 2: Persons applying for a new or increased withdrawal regulated under s. 281.346(5), Stats.

Note: Section 281.346(5), Stats., requires an individual permit for withdrawals from the Great Lakes basin that equal 1,000,000 gallons per day or more for any 30 consecutive days.

(3) Tier 3:

(a) Persons applying for a new or increased diversion regulated under s. 281.346(4)(c), (d), and (e), Stats.

Note: Section 281.346(4)(c), Stats., regulates diversions to a straddling community, s. 281.346(4)(d), Stats., regulates intrabasin transfers within a straddling community, and s. 281.346(4)(e), Stats. regulates diversions to a community in a straddling county.

(b) Persons applying for a water loss approval under s. 281.35, Stats.

Note: Section 281.35, Stats., regulates withdrawals statewide that will result in a water loss averaging more than 2,000,000 gallons per day in any 30-day period.

(4) This chapter does not apply to water withdrawals for any of the following purposes:

(a) To supply vehicles, including vessels and aircraft, for the needs of the persons or animals being transported or for ballast or other needs related to the operation of the vehicles.

(b) To use in a noncommercial project that lasts no more than 3 months for fire fighting, humanitarian, or emergency response purposes.

(c) Temporary pit or trench dewatering including construction pits, sewer extension construction, pipe trenches, and other similar operations.

NR 852.03 Definitions. In this chapter:

(1) "Commercial and institutional water use sector" means water users that supply their own water and use water for commercial and institutional uses, including entities such as motels, hotels, restaurants, office buildings, hospitals, schools and other institutions, both civilian and military. Water use in the commercial and institutional water use sector includes water used for air conditioning and other similar uses and for amusement and recreational purposes, such as snowmaking and water slides.

(2) "Consumptive use" has the meaning specified in s. 281.346(1)(e), Stats.

Note: Section 281.346(1)(e) defines "consumptive use" to mean "a use of water that results in the loss or failure to return some or all of the water to the basin from which the water is withdrawn due to evaporation, incorporation into products, or other processes."

(3) "Cost-effectiveness analysis" means a systematic comparison of the total resources costs, including monetary costs and environmental costs, as well as other nonmonetary costs of implementing a conservation and efficiency measure to identify whether avoided costs and environmental benefits exceed the costs of implementing a conservation and efficiency measure over a planning period.

(4) "Department" means the department of natural resources.

(5) "Diversion" has the meaning specified in s. 281.346(1)(h), Stats.

Note: Section 281.346(1)(h), Stats., defines "diversion" to mean "a transfer of water from the Great Lakes basin into a watershed outside the Great Lakes basin, or from the watershed of one of the Great Lakes into that of another, by any means of transfer, including a pipeline, canal, tunnel, aqueduct, channel, modification of the direction of a water course, tanker ship, tanker truck, or rail tanker except that 'diversion' does not include any of the following: 1. The

transfer of a product produced in the Great Lakes basin or in the watershed of one of the Great Lakes, using waters of the Great Lakes basin, out of the Great Lakes basin or out of that watershed. 2. The transmission of water within a line that extends outside the Great Lakes basin as it conveys water from one point to another within the Great Lakes basin if no water is used outside the Great Lakes basin. 3. The transfer of bottled water from the Great Lakes basin in containers of 5.7 gallons or less.”

(6) “Ecosystem” means the interacting components of air, land, water, and living organisms, including humans.

(7) “Environmentally sound” means not destructive to the ecosystem.

(8) “Environmentally sound and economically feasible water conservation measures” has the meaning specified in s. 281.346 (1) (i), Stats.

Note: Section 281.346 (1)(i), Stats., defines “Environmentally sound and economically feasible water conservation measures” to mean “those measures, methods, or technologies for efficient water use and for reducing water loss and waste or for reducing the amount of a withdrawal, consumptive use, or diversion that are, taking into account environmental impact, the age and nature of equipment and facilities involved, the processes employed, the energy impacts, and other appropriate factors, all of the following: 1. Environmentally sound. 2. Reflective of best practices applicable to the water use sector. 3. Technically feasible and available. 4. Economically feasible and cost-effective based on an analysis that considers direct and avoided economic and environmental costs.”

(9) “Great Lakes basin” has the meaning specified in s. 281.346 (1)(je), Stats.

Note: Section 281.346(1)(je), Stats., defines “Great Lakes basin” to mean “the watershed of the Great Lakes and the St. Lawrence River upstream from Trois-Rivieres, Quebec, within the jurisdiction of the parties.”

(10) “Increased diversion” means a diversion that exceeds the interbasin transfer amount specified in an approval issued under s. 281.344(3m), Stats., or the diversion amount specified in an approval issued under s. 281.346(4), Stats.

(11) “Increased withdrawal” means a withdrawal that exceeds the baseline established in accordance with s. 281.346(2)(e), Stats., or the withdrawal amount established under s. 281.346(4g), (4s), or (5), Stats.

(12) “Industrial water use sector” means water users that supply their own water for use in the manufacturing of metals, chemicals, paper, food, beverage, and other products and for use in mining, quarrying and milling. Industrial water use sector does not include water users that supply their own water for use in brine extraction from oil and gas operations.

(13) “Intrabasin transfer” has the meaning specified in s. 281.346(1)(jm), Stats.

Note: Section 281.346(1)(jm), Stats., defines “intrabasin transfer” to mean “the transfer of water from the watershed of one of the Great Lakes into the watershed of another of the Great Lakes.”

(14) “Irrigation water use sector” means water users that supply their own water to apply on lands to assist in the growing of crops and pastures or in the maintenance of recreational lands such as parks and golf courses.

(15) “Livestock water use sector” means water users that supply their own water for use in raising or keeping animals such as fish, horses, cattle, sheep, goats, hogs, and poultry.

(16) “Meter” has the meaning specified in s. PSC 185.12 (11).

Note: Section PSC 185.12(11) defines “meter” to mean “an instrument installed to measure the volume and/or rate of flow of water delivered through it.”

(17) “New diversion” means a diversion that started on or after December 8, 2008.

(18) “New withdrawal” means a withdrawal that started on or after December 8, 2008, and averages 100,000 gallons per day or more in any 30-day period, and a withdrawal that was occurring before December 8, 2008 but was not eligible for a baseline, and that has increased the rate of withdrawal so that it averages 100,000 gallons per day or more in any 30-day period.

Note: Withdrawals not eligible for a baseline include those that were less than the minimum regulated amount of an average of 100,000 gallons per day in any 30-day period.

(19) “Other water use sector” means water users that supply their own water and that are not a public water supply water use sector, commercial and institutional water use sector, irrigation water use sector, livestock water use sector, industrial water use sector, or power production water use sector. Water use in the other water use sector includes water used for fish or wildlife, environmental, navigation and water quality purposes.

(20) “Power production water use sector” means water users that supply their own water for use in generating electricity or power. Water use in the power production water use sector includes water used for thermoelectric once-through cooling, thermoelectric re-circulated cooling, and hydroelectric.

(21) “Public water supply water use sector” means public water supply systems that distribute water to the public through a physically connected system of treatment, storage and distribution facilities serving a group of largely residential customers that may also serve industrial, commercial and other institutional customers.

(22) “Public water system” has the meaning specified in s. NR 809.04(57).

Note: Section NR 809.04(57) defines “public water system” to mean “a system for the provision to the public of piped water for human consumption through pipes or other constructed conveyances, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A public water system is either a “community water system” or a “non-community water system”. A system: (a) Includes any collection, treatment, storage and distribution facilities under control of the operator of the system and used primarily in connection with the system. (b) Includes any collection or pretreatment storage facilities not under the system’s control which are used primarily in connection with the system. (c) Does not include any “special irrigation district.”

Note: The definition of public water system in this chapter is broader and includes more water systems than those governed by the public service commission under its definition of a public utility in ch. 196, Stats.

(23) “Retrofit or retrofitting” means to modify or replace existing fixtures, appliances or equipment that is already in service.

(24) “System losses” means the difference between the volume of water entering the distribution system and the volume of water that is sold or otherwise authorized for system uses.

(25) “Water conservation and efficiency measures” or “CEMs” means structural or non-structural measures, practices, techniques or devices employed to reduce water use, or increase water reuse or water use efficiency.

(26) “Water loss” has the meaning specified in s. 281.346(1)(wm), Stats.

Note: Section 281.346(1)(wm), Stats., defines “water loss” to mean “the amount of water that is withheld from or not returned to the basin from which it is withdrawn as a result of a diversion or consumptive use or both.”

(27) “Water reuse” means the collection and adequate treatment of clear water, storm water or other wastewater for subsequent use in toilet flushing, irrigation, or other processes that do not require water to meet drinking water quality standards.

(28) “Water use audit” means an examination of water use and reuse data that tracks the flow of water in the system from the point of withdrawal or, if the water is provided to the water supply system through a third party, the point of entry into the system, through any treatment and distribution to the end use. The water use audit assesses the quantitative efficiency of a water supply system, and evaluates impacts to water resources and operational and financial aspects of the system, and identifies and quantifies system losses.

Note: The water use audit for a public water supply water use sector includes tracking the water up to the customer service connection.

(29) “Water use intensity” means a measure of water use per unit production, sales unit, or customer served.

(30) “Water use sector” means one of the following types of water use sectors: commercial and institutional, industrial, irrigation, livestock, other, power production, or public water supply.

(31) “Withdraw” has the meaning specified in s. 281.346 (1)(y), Stats.

Note: Section 281.346(1)(y), Stats., defines “withdraw” to mean “to take water from surface water or groundwater.”

(32) “Withdrawal” has the meaning specified in s. 281.346 (1)(z), Stats.

Note: Section 281.346(1)(z), Stats., defines “withdrawal” to mean “the taking of water from surface water or groundwater, including the taking of surface water or groundwater for the purpose of bottling the water.”

NR 852.04 Required Elements – All. All persons identified in Tier 1, Tier 2 or Tier 3 shall submit with the application for a new or increased withdrawal, diversion, or water loss approval all of the following:

(1) A water conservation plan meeting the requirements in s. NR 852.07.

(2) Written documentation showing that the person has implemented or completed the CEMs in Table 1 that do not require retrofitting, as applicable for each water use sector.

Table 1
Mandatory Conservation and Efficiency Measures

CEM #	DESCRIPTION	REQUIRED ELEMENTS
Public Water Supply Water Use Sector (PWS)		
PWS-1	Water Use Audit	Perform a water use audit and prepare written documentation of the audit results using the process outlined in one of the following: 1. Public water systems regulated by the Public Service Commission shall follow the water audit procedures indicated in ch. PSC 185. 2. Public water systems not regulated by the Public Service Commission, shall submit water audit results with the water conservation plan required in s. NR 852.07.
PWS-2	Leak Detection and Repair Program	Prepare a written program to control system losses in accordance with one of the following: 1. Public water systems regulated by the Public Service Commission shall follow the procedures indicated in ch. PSC 185 regarding system losses. 2. If a public water system not regulated by the Public Service Commission has 1,000 or more service connections and system losses greater than 15%, or has fewer than 1,000 service connections and system losses greater than 25%, the public water system shall complete a survey of leaks using one of the available technical methods and complete a corrective action plan.
PWS-3	Information and Education Outreach	1. Provide information to employees and customers regarding water conservation and water use efficiency. Include all of the following items: reasons water conservation is necessary, consequences of not conserving water, and actions needed to achieve the water conservation goals of the community. Provide information and education in an effective format to customers and employees specific to landscape watering practices. Public water systems regulated by the Public Service Commission shall follow the utility billing procedures indicated in ch. PSC 185. 2. Develop and deliver a training plan to educate and train employees on the implementation of water conservation and efficiency measures at public water system facilities. Information and education materials shall be made available to the department.
PWS-4	Source Measurement	Measure or estimate all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time. Public water systems regulated by the Public Service Commission shall follow the metering requirements provided in ch. PSC 185.
Commercial and Institutional Water Use Sector (CI)		
CI-1	Water Use Audit	Conduct a water use audit and prepare written documentation of the audit results.
CI-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks and develop a corrective action plan.
CI-3	Information and Education	Develop and deliver training to educate and train employees on the implementation of water conservation and efficiency measures at the facility. Information and education materials shall be made available to the department.
CI-4	Source Measurement	Measure or estimate all water sources at a frequency that allows for identifying and understanding variability in water use over time.

Irrigation Water Use Sector (IR)		
IR-1	Water Use Audit	Conduct a water use audit, including the system's application efficiency or distribution uniformity as applicable and prepare written documentation of the audit results.
IR-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks that includes an account of the general condition of the irrigation system and develop a corrective action plan.
IR-3	Information and Education	Develop and deliver training to educate employees on the implementation of water conservation and efficiency measures at the facility. Information and education materials shall be made available to the department.
IR-4	Source Measurement	Measure or estimate all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time.
Livestock Water Use Sector (LS)		
LS-1	Water Use Audit	Conduct a water use audit and prepare written documentation of the audit results.
LS-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks and develop a corrective action plan.
LS-3	Information and Education	Develop and deliver training to educate employees on the implementation of water conservation and efficiency measures at the facility. Information and education materials shall be made available to the department.
LS-4	Source Measurement	Measure or estimate all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time.
Industrial Water Use Sector (IN)		
IN-1	Water Use Audit	Conduct a water use audit, determine water inflow and outflow from the facility and prepare written documentation of the audit results. Facilities shall identify once-through cooling processes in the audit report.
IN-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks and develop a corrective action plan.
IN-3	Information and Education	Develop and deliver training to educate employees on the implementation of water conservation and efficiency measures at the facility. Information and education materials shall be made available to the department.
IN-4	Source Measurement	Measure or estimate all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time.
Power Production Water Use Sector (PP)		
PP-1	Water Use Audit	Conduct a water use audit, determine water inflow and outflow from the facility and prepare written documentation of the audit results. Facilities shall identify once-through processes in the audit report.
PP-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks and develop a corrective action plan.
PP-3	Information and Education	Develop and deliver training to educate employees on the implementation of water conservation and efficiency measures at the facility. Information and education materials shall be made available to the department.
PP-4	Source Measurement	Measure or estimate all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time.

Other Water Use Sector (OR)		
OR-1	Water Use Audit	Conduct a water use audit and prepare written documentation of the audit results
OR-2	Leak Detection and Repair Program	Establish a protocol to repair leaks in a timely manner. Conduct a survey of leaks and a corrective action plan.
OR-3	Information and Education	Develop and deliver training to educate employees on the implementation of water conservation and efficiency measures at the facility.
OR-4	Source Measurement	Estimate or measure all water withdrawals monthly or more frequently to allow for identifying and understanding variability in water use over time.

NR 852.05 Required Elements – Tier 2 and Tier 3. (1) Persons identified in Tier 2 and Tier 3 shall complete the elements specified in s. NR 852.04 and the elements specified under either sub. (2) or (3).

(2) A person identified in Tier 2 or Tier 3 shall implement all CEMs identified in Table 2 for the applicable water use sector that do not require retrofitting, except those CEMs that are not cost-effective or environmentally sound and economically feasible, as determined by an analysis conducted by the applicant pursuant to s. NR 852.09 or s. NR 852.10, and approved by the department.

Table 2
Required Conservation and Efficiency Measures

CEM #	DESCRIPTION	REQUIRED ELEMENTS
Public Water Supply Water Use Sector (PWS)		
PWS-R1	Distribution System Pressure Management	Analyze distribution system pressure management to identify opportunities to reduce water use and minimize plumbing fixture leaks.
PWS-R2	Residential Demand Management Program	Establish and publicize a program to complete residential customer water use audits and leak surveys upon customer request based on high or aberrant water use. In developing the program, a waiver of liability and written permission from the customer may be needed.
PWS-R3	Commercial and Industrial Demand Management Program	Establish and publicize a program to complete commercial and industrial customer water use audits and leak surveys upon customer request based on high or aberrant water use. In developing the program, a waiver of liability and written permission from the customer may be needed.
PWS-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse in the operation of the facility. Implement water reuse projects identified by the assessment and allowed under current state law.
Commercial and Institutional Water Use Sector (CI)		
CI-R1	Cleaning and Dust Control	Implement procedures to reduce or eliminate water use for cleaning or dust control. For example, use microfiber or sponge mops in place of cotton mops.
CI-R2	Cooling Process Sensors	Install sensors in cooling processes that use water to allow the cooling process to operate only when needed.
CI-R3	Towel and Bed Linen Reuse	Encourage lodging guests to reuse towels and bed linens in order to reduce laundry water use, if applicable.

CI-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.
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Irrigation Water Use Sector (IR)

IR-R1	Irrigation scheduling	Use the most current version of Wisconsin Irrigation Scheduling Program (WISP) or comparable program to determine the timing and quantity of irrigation. The scheduling program shall include rainfall, irrigation, and soil moisture monitoring in the field. Note: The Wisconsin Irrigation Scheduling Program (WISP) is a University of Wisconsin – Extension research-based program that uses a water budget approach to irrigation scheduling.
IR-R2	Crop/Turf Maintenance	1. Crop Residue Management. As appropriate, implement residue management and conservation tillage to enhance the ability of the soil to retain moisture. 2. Turf Maintenance. Implement recommended practices for proper turf maintenance. Examples of practices include integrated pest management, frequency of mower blade sharpening, and height of mower cut.
IR-R3	Target Areas	Eliminate or minimize non-target irrigation including drift caused by wind and irrigation of impervious surfaces and non-targeted areas to the extent practicable.
IR-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.

Livestock Water Use Sector (LS)

LS-R1	Cleaning and Dust Control	Pre-clean animal living and production areas prior to washing with water. Reduce or eliminate the use of “new” water for cleaning and dust control.
LS-R2	Determine Water Needs	Conduct a technical assessment of the requirements for fresh water inputs for healthy livestock production. Appropriately size, control, and distribute the watering system based upon the requirements.
LS-R3	Animal Cooling	Cycle a water-based animal cooling system based on temperature, if applicable.
LS-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.

Industrial Water Use Sector (IN)

IN-R1	Cooling Towers	Conduct an evaluation of the existing cooling tower system operation. The evaluation shall review all phases of cooling tower operation including the amount of water used for make up and release as blowdown, water quality characteristics, treatment application and chemicals used, metering, use of automated monitoring and controls, repair and maintenance schedules and procedures. A complete evaluation will consider the installation of sub-meters to the cooling tower makeup water line. Installation of any new cooling towers shall incorporate the measures identified in IN-R1.
IN-R2	Sub-measuring	Implement sub-measuring to account for water usage in specific processes to determine water use and loss in a process and to identify additional water efficiency goals.
IN-R3	Steam Systems	Implement steam system conservation by assessing the system operation and maintenance. Repair system leaks, maximize condensate recovery, and consider installation of continuous blowdown heat recovery.
IN-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.

Power Production Water Use Sector (PP)		
PP-R1	Cooling Towers	Conduct an evaluation of the existing cooling tower system operation. The evaluation shall review all phases of cooling tower operation including the amount of water used for make up and release as blowdown, water quality characteristics, treatment application and chemicals used, metering, use of automated monitoring and controls, repair and maintenance schedules and procedures. A complete evaluation will consider the installation of sub-meters to the cooling tower makeup water line. Installation of any new cooling towers shall incorporate the measures identified in PP-R1.
PP-R2	Sub-measuring	Implement sub-measuring to account for water usage in specific processes to determine water use and loss in a process and to identify additional water efficiency goals.
PP-R3	Steam Systems	Implement steam system conservation by assessing the system operation and maintenance. Repair system leaks, maximize condensate recovery, and install continuous blowdown heat recovery.
PP-R4	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.
Other Water Use Sector (OR)		
OR-R1	Water Reuse	Conduct a technical assessment to evaluate the feasibility of water reuse. Implement water reuse projects identified by the assessment and allowed under current state law.

(3) A person identified in Tier 2 or Tier 3 shall implement CEMs selected from Table 2 in par. (a), the Optional CEM list in s. NR 852.08(2), or other CEMs as proposed by the applicant and approved by the department, which can be shown to reduce water use or increase water reuse or efficiency by 10 percent, in accordance with all of the following:

(a) The percent reduction in water use or increase in water reuse or efficiency in this subsection shall be based upon a comparison of the water use or water use intensity from the most recent complete year. Water use and water use intensity shall be adjusted to account for unique facility, economic, or weather variability.

(b) The calculation of the 10 percent reduction in water use or increase in water reuse or efficiency shall be in addition to any reduction in water use or increase in water reuse or efficiency achieved through implementation of the CEMs set forth in s. NR 852.04(2) and shall not be included in the calculated percent reduction.

(4) For persons other than persons applying for a new or increased diversion, the person shall implement the CEMs identified under sub. (1) within 2 years of the date of the department approval under s. NR 852.11.

(5) For persons applying for a new or increased diversion, the person shall implement the CEMs identified under sub. (1) prior to submitting an application.

NR 852.06 Required Elements – Tier 3 Only. (1) In addition to the required elements specified in s. NR 852.04 and s. NR 852.05, persons identified in Tier 3 shall conduct the appropriate analysis pursuant to s. NR 852.09 or s. NR 852.10 to identify additional CEMs that are cost-effective or environmentally sound and economically feasible and implement the identified CEMs following the applicable timeframes under s. NR 852.05(2) and (3).

(2) Persons applying for a new or increased diversion shall also document the efficient use and conservation of existing water supplies by providing an analysis of community water use over the past 5 years, at a minimum. The analysis shall quantitatively describe water use through time and how it has changed with the implementation of CEMs. The analysis shall include quantitative calculations of water use including but not limited to, the ratio of peak daily demand to average daily demand and per capita residential water use.

NR 852.07 Water Conservation Plans. (1) A person who is required to submit a water conservation plan under s. NR 852.04(1) shall submit a plan in a form provided by the department and shall provide all of the information requested on the form and accompanying instructions.

(2) A water conservation plan required by this chapter shall, at a minimum, contain all of the following:

(a) A description and quantification of current water use and reuse as identified by a water use audit, including a calculation of water use intensity appropriate to the water use sector. Those public water systems regulated by the public service commission shall follow applicable procedures to account for water use as provided in ch. PSC 185 and the calculations shall be included in the water use audit.

(b) A description of the water conservation and water use efficiency goals, including quantifiable goals.

(c) Documentation of the implementation of the CEMs set forth in s. NR 852.04 (2) and a description of any other existing conservation, efficiency, and reuse measures, including when they were implemented.

(d) A monitoring plan to assess the impact of the implemented CEMs.

(3) Persons identified in Tier 2 shall submit all of the following information in the water conservation plan, in addition to the information required under sub. (2):

(a) An implementation timeline for implementing the CEMs or documentation of the implementation of the CEMs in s. NR 852.05, as appropriate.

(b) If applicable, the results of an analysis conducted under s. NR 852.09 to determine if a CEM required in Table 2 is cost-effective.

(c) If applicable, the results of an analysis conducted under s. NR 852.10 to determine if a CEM required in Table 2 is environmentally sound and economically feasible.

(4) Persons identified in Tier 3 shall submit all of the following information in the water conservation plan, in addition to the information required under sub. (2):

(a) An implementation timeline for implementing the CEMs or documentation of the implementation of the CEMs in s. NR 852.05, as appropriate.

(b) If applicable, the results of an analysis conducted under s. NR 852.09 to determine if a CEM required in Table 2 is cost-effective.

(c) If applicable, the results of an analysis conducted under s. NR 852.10 to determine if a CEM required in Table 2 is environmentally sound and economically feasible.

(d) The results of the analysis to identify additional CEMs as required by s. NR 852.06(1).

(e) An implementation timeline for implementing the CEMs or documentation of the implementation of the CEMs identified in s. NR 852.06(1), as appropriate.

(f) If applicable, the analysis in s. NR 852.06(2).

NR 852.08 Water Conservation and Efficiency Measures. (1) Persons subject to this chapter shall implement CEMs in compliance with the CEM required elements in s. NR 852.04(2) Table 1, s. NR 852.05(1)(a) Table 2, the optional list in sub. (2), or additional CEM required elements as identified by the department.

(2) The department shall maintain a list of optional CEMs by water use sector that have been determined to be adequate and effective to reduce water use or increase water reuse or efficiency. The optional list may be used to meet the requirements in ss. NR 852.05(1)(b) and 852.06(1) and the optional list may include retrofitting options.

NR 852.09 Cost-Effectiveness Analysis. (1) Persons identified in Tier 2 or Tier 3 applying for a new or increased withdrawal not subject to the Compact decision-making standard under s. 281.346(6), Stats., and persons applying for a water loss approval under s. 281.35, Stats., may conduct a cost-effectiveness analysis to determine if a CEM in s. NR 852.05 or 852.06 is cost-effective, considering direct and avoided economic and environmental costs over a 5-year planning period. The cost effectiveness analysis shall at a minimum include all of the following and be reflective of the costs to the withdrawer:

(a) Actual energy and operational costs to pump, treat, transmit water, and treat and dispose of wastewater.

(b) Estimated avoided economic and environmental costs resulting from pumping less water and using less energy.

(c) Estimated capital and operating costs associated with developing new sources of water for this specific new or increased withdrawal.

(d) Estimated capital and operating costs associated with implementing required CEMs.

(e) All other estimated costs or fees associated with obtaining or disposing of the water.

(2) The department may require an independent review of the analysis submitted under sub. (1).

Note: The Compact decision-making standard under s. 281.346 (6), Stats., applies to new or increased withdrawals that will equal at least 10,000,000 gallons per day for any 30 consecutive days, unless the water loss associated with the new or increased withdrawal will average less than 5,000,000 gallons per day in every 90-day period.

NR 852.10 Environmental Soundness and Economic Feasibility Analysis. Persons identified in Tier 2 or Tier 3 applying for a new or increased withdrawal subject to the Compact decision-making standard under s. 281.346(6), Stats., or a diversion, may conduct an analysis to determine if a CEM in s. NR 852.05 or 852.06 is environmentally sound and economically feasible. The analysis shall make a determination as to whether the CEM is all of the following:

(1) Environmentally sound.

(2) Reflective of best practices applicable to the water use sector.

(3) Technically feasible and available.

(4) Economically feasible.

(5) Cost-effective, based on an analysis under s. NR 852.09.

NR 852.11 Approval and Reporting Process. (1) The department's review of an application for a new or increased withdrawal, diversion, or water loss approval shall include a review of the water conservation plan required under s. NR 852.04(1).

(2) The department may not issue an approval for an application for a new or increased withdrawal, diversion, or water loss approval unless the water conservation plan meets the applicable requirements under this chapter.

(3) A water use permit, diversion approval, or water loss approval may include conditions or requirements to ensure the implementation of the water conservation plan. The water conservation plan approval will be in the form of a finding of fact in a permit, or a statement in an approval.

(4) The department shall follow the review timelines set forth in the associated department permit or approval process applicable to an activity that requires compliance with this chapter.

(5) An application for new or increased withdrawal, diversion, or water loss approval shall not be considered complete until information required by this chapter has been submitted and all applicable requirements of the Wisconsin environmental policy act, s. 1.11, Stats., have been met.

(6) Persons with an approved water conservation plan shall report all of the following annually in the manner prescribed by the department:

(a) A summary of the impact of the implemented CEMs, including quantifiable impacts to water use intensity.

(b) A description of any additional CEMs implemented.

(c) For Tier 2, in addition to the information required under pars. (a) and (b), documentation of the implementation of CEMs required under s. NR 852.05, if applicable.

(d) For Tier 3, in addition to the information required under pars. (a) and (b), documentation of the implementation of CEMs required under ss. NR 852.05 and 852.06, if applicable.

NR 852.12 Enforcement. (1) Violations of this chapter may be prosecuted by the department under Chapter 281, Stats., and other applicable department authorities.

(2) Any violation of this chapter shall be treated as a violation of the statutes they interpret or under which they are promulgated.

(3) Violations may result in forfeitures, abatement of nuisance, and restoration.

SECTION 2. EFFECTIVE DATE. This rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2) (intro.), Stats.

SECTION 3. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on August 10, 2010.

Dated in Madison, Wisconsin _____

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____

(SEAL)

Matthew J. Frank, Secretary