

**WATER MANAGEMENT PROGRAM REVIEW
WISCONSIN DEPARTMENT OF NATURAL RESOURCES**

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GENERAL INFORMATION

Lead agency: State of Wisconsin Department of Natural Resources (WDNR)

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Citations to Wisconsin water management program implementing laws, regulations and policies

The Wisconsin Legislature ratified the *Great Lakes–St. Lawrence River Basin Water Resources Compact* (Compact) in 2007 Wisconsin Act 227. Provisions in Act 227 related to water use permitting were modified in 2009 Wisconsin Act 28. Section 281.346 of the Wisconsin Statutes details Wisconsin’s program for managing and regulating new or increased water withdrawals and consumptive uses consistent with the provisions of the Compact. Additional detail is provided in the table below.

COMPACT	AGREEMENT	IMPLEMENTING LAWS*
Compact Section 3.4	Agreement Article 300	§281.343(3)(d); §281.346(11); NR 852
Compact Section 4.1	Agreement Article 301	§281.343(4); §281.346(3); §281.346(11); NR 856
Compact Sections 4.2(2), 4.2(4), and 4.2(5)	Agreement Article 304	§281.343(4b)(b),(d) & (e); §281.346(8); NR 852; NR 860
Compact Section 4.3	Agreement Article 200	§281.343(4d); §281.346; NR 850; NR 852; NR 856; NR 860
Compact Sections 4.8, 4.9, and 4.13	Agreement Articles 200, 201 and 208	§281.343(4m); §281.343(4n); §281.343(4v); §281.346(4); §281.346(7); NR 852; NR 856

Compact Section 4.10	Agreement Article 206	§281.343(4p); §281.346; NR 860
Compact Section 4.11	Agreement Article 207	§281.343(4r); §281.346(6); NR 860.31(3)

* NR references refer to chapters or sections of the Wisconsin Administrative Code; § references refer to sections of the Wisconsin Statutes.

WATER MANAGEMENT PROGRAM REPORT

Summary description of Wisconsin’s water management program scope and thresholds

The Wisconsin Department of Natural Resources’ (WDNR) Water Use Program was created to implement the Compact and *Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement* (Agreement) and to focus on sustainable and efficient water use. Wisconsin’s Compact implementing legislation (2007 Wisconsin Act 227) and related regulatory and case law provide the foundation for the Water Use Program. While most of the program applies statewide, there are specific requirements for water users in the Great Lakes Basin. Information related to the Water Use Program is available on the WDNR website: <http://dnr.wi.gov/topic/wateruse/>.

The Water Use Program is focused on achieving Wisconsin’s goal to:

“Sustainably manage the quantity and quality of water in the state to ensure that water is available to be used to protect and improve our health, economy and environment now and into the future.”

Water Use Program components include:

- Documenting and monitoring water use through registration and reporting;
- Implementing the Compact through water use permitting and regulating diversions of Great Lakes Basin waters;
- Helping communities plan water supply needs;
- Reviewing the construction and impact of high capacity wells;
- Building a statewide water conservation and efficiency program; and
- Developing and maintaining a statewide water resources inventory, including a better understanding of water loss and consumptive use in Wisconsin.

Statewide water use registration and reporting

Wis. Stat. s. 281.346(3) and Chapter NR 856, Wis. Adm. Code, establish requirements for property owners including registration of water withdrawals and reporting of water withdrawal data annually to the WDNR to support management of the state’s water resources.

Registration

Any person who proposes to begin a withdrawal from waters of the state using a water supply system¹ with the capacity to withdraw 100,000 gallons per day (gpd) (\approx 70 gallons per minute) or more in any 30-day period, or to increase the capacity of a water supply system so that it will have the capacity to withdraw an average of 100,000 gpd or more in any 30-day period, must register the withdrawal with the WDNR. Examples of water supply systems that may fall under this category include:

- All high capacity well properties;²
- Permitted (Wis. Stat. Chapter 30) surface water withdrawals;
- Any other properties statewide on which there is a water supply system with the capacity to withdraw an average of 100,000 gpd or more in any 30-day period from surface water or groundwater.

Prior to December 8, 2008—the effective date of the Compact—WDNR approved and permitted water supply systems with a capacity to withdraw at least 100,000 gpd through several programs. These pre-Compact approvals and permits were merged into one database and automatically registered with the WDNR on December 8, 2008. Following implementation of the Compact, all new or increased withdrawals that meet the withdrawal threshold must register with the WDNR prior to withdrawing groundwater or surface water. This is typically done in conjunction with other approval or permitting procedures. Reporting for calendar year 2013 shows that Wisconsin has approximately 14,200 registered withdrawal sources throughout the state, of which approximately 13,200 are wells and 1,000 are surface water sources.

Reporting

In addition to registering water withdrawals, persons who make withdrawals from the waters of the state that average 100,000 gpd or more in any 30-day period must annually report to the WDNR the monthly volumes of the withdrawal.³

Methods for measuring water for reporting purposes are outlined in s. NR 856.31, Wis. Adm. Code. Persons with registered withdrawals must measure or estimate their monthly withdrawal volumes and report the previous calendar years' monthly water use by March 1 of each year. These reports are collected and analyzed for errors and inconsistencies. The department conducts a summary analysis of reported withdrawals and posts an annual water withdrawal reporting summary on the WDNR website: dnr.wi.gov/topic/WaterUse/WithdrawalSummary.html.

¹ “Water supply system,” when not preceded by “public,” means one of the following: 1. Except as provided in subd. 2., the equipment handling water from the point of intake of the water to the first point at which the water is used. 2. For a system for providing a public water supply, the equipment from the point of intake of the water to the first point at which the water is distributed. Wis. Stat. s. 281.346(1)(wp).

² Section NR 812.07(52), Wis. Adm. Code, defines “high capacity property as “one property on which a high capacity well system exists or is to be constructed.” Further, s. NR 812.07(53) defines “high capacity well system” as “one or more wells, drillholes or mine shafts used or to be used to withdraw water for any purpose on one property, if the total pumping or flowing capacity of all wells, drillholes or mine shafts on one property is 70 or more gallons per minute based on the pump curve at the lowest system pressure setting, or based on the flow rate.

³ Pursuant to Wis. Stat. s. 281.346 and Ch. NR 820, Wis. Adm. Code, high capacity well owners must annually report withdrawals to the WDNR, regardless of withdrawal volume. Further, under Ch. NR 860, Wis. Adm. Code, water use permittees must also annually report withdrawals, regardless of volume.

Individual reports are also provided upon request to governmental partners, researchers, businesses and private individuals.

Following Compact implementation, WDNR upgraded water use data management systems, improved existing registration data and expanded data collection methods. These efforts resulted in an increase in withdrawal report response rates from below 50 percent in 2008 to 79 percent in 2010. These improvements continued so that the reporting response rate for 2012 reached 95 percent and topped 97 percent in 2013.

Water use permitting

Sections 281.346(4m), (4s), and (5), and Chapter NR 860, Wis. Adm. Code, establish the process, requirements and criteria for implementing water use permitting. A water use permit is required before persons may withdraw water in quantities that average 100,000 gpd or more in any 30-day period from groundwater or surface water in the Great Lakes Basin.

Water use permits for pre-existing withdrawals

In Wisconsin, water use permitting requirements began on December 8, 2011. Persons in the Great Lakes Basin with water supply systems with the capacity to withdraw an average of 100,000 gpd or more in any 30-day period—but less than 1 MGD—as of December 8, 2011 were issued an ‘automatic’ Water Use General Permit No. 1 (742 withdrawers). Persons that had a water supply system or systems on one property or a public water supply system that had approval to withdraw at least 1,000,000 gallons of water per day for any 30 consecutive days were granted an ‘automatic’ Water Use Individual Permit (653 withdrawers).

The automatic permits included a baseline, which was the amount of water that was grandfathered to an existing water withdrawer. *See* Wis. Stat. s. 281.346(2). The baseline was set at the maximum hydraulic capacity of the most restrictive component of the water supply system or a withdrawal limit contained in a permit or approval as of December 8, 2008. Wis. Stat. s. 281.346(4e). The automatic permits issued in December 2011 also included an authorized withdrawal amount, which was based on the maximum hydraulic capacity of the most restrictive component of the water supply system or a withdrawal limit contained in an approval or other permit. If a person proposes to modify their authorized withdrawal amount before December 8, 2021 so that it equals 1 MGD or more over the baseline for any 30 consecutive days, the withdrawal must meet the state decision-making standard. Wis. Stat. s. 281.346(5)(f). If a person proposes to modify the withdrawal before December 8, 2021, so that it equals 10 MGD or more over the baseline for any 30 consecutive days, the withdrawal must meet the Compact decision-making standard. Wis. Stat. s. 281.346(5)(f).

In most cases, the baseline is equivalent to the authorized withdrawal amount in the December 2011 Notice of Coverage (NOC) letters. The authorized withdrawal amount in the NOC letters may be a higher amount than the baseline if a source of withdrawal was added to or constructed on a property between December 2008 and November 1, 2011. These increased withdrawals between December 8, 2008 and December 8, 2011 (for example, a new high capacity well installed on a property in July of 2010) were not required to meet the state decision-making standard; however, any increased withdrawals on a property beginning after December 8, 2008 but before December 8, 2011 will be considered for purposes of calculating when the state and

Compact decision-making standards apply after December 8, 2011. *See* Wis. Stat. s. 281.346(5)(d).

Water use permits for new or increased withdrawals in the Great Lakes Basin

Persons proposing new withdrawals averaging 100,000 gpd or more in any 30-day period, or proposing to increase an existing withdrawal so that it will equal 100,000 gpd or more in any 30-day period (but will not equal at least 1 MGD for any 30 consecutive days) after December 8, 2011 must apply for and receive coverage under the Water Use General Permit No. 2. Persons proposing Great Lakes basin withdrawals that will equal at least 1 MGD for any 30 consecutive days must apply for an Individual Water Use Permit and the state decision-making standard and conservation and efficiency measures apply.

If a person proposes to increase a withdrawal above the withdrawal amount authorized in an existing permit, the person must apply for an amended permit and implement water conservation and water use efficiency measures related to the new or increased source. Water use general permits issued after December 8, 2011 are accompanied by a notice of coverage (NOC) letter that includes: an authorized withdrawal amount, requirements for monitoring and reporting water use, the water use reporting form for the property, and a copy of the required water conservation and efficiency measures. Since December 8, 2011, 170 permits (169 general permits, 1 individual permit) have been issued to new or increased withdrawals in the Great Lakes Basin.

Water loss and consumptive use

‘Consumptive Use’ is defined in Wis. Stat. s. 281.346(1)(e), as “a use of water that results in the loss of 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.” The WDNR is currently drafting an administrative rule (Chapter NR 858) which will contain the methodology for calculating consumptive uses and the process for receiving a water loss approval relative to each water use sector. Chapter NR 858 will repeal and recreate the current administrative code (Chapter NR 142, Wis. Adm. Code) governing water loss approvals in Wisconsin. Water loss approvals are required statewide for new or increased withdrawals that will result in a water loss averaging more than 2 MGD in any 30-day period. Persons with Great Lakes Basin withdrawals that existed prior to December 8, 2008, were given an “interim” authorized base level of water loss. Water loss and consumptive use must be reported to the WDNR annually by persons with registered withdrawals.

Diversions

A ‘diversion’ is defined in Wis. Stat. s. 281.346(1)(h), as “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 the ‘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.”

The WDNR issued diversion approvals to public water supply systems that served water outside of the Great Lakes basin prior to December 8, 2008. For diversion approvals that return the diverted water to the Great Lakes basin, the authorized diversion amount identified in the approval was based on the amount of water necessary to provide water for public water supply purposes within a sewer service territory that provides for the return of wastewater to the Great Lakes basin and that is specified in the sewer service area provisions of an area-wide water quality management plan approved by the WDNR before December 31, 2007. The approved diversion amounts for these public water systems were based on approved sewer service areas, and population and related water supply service projections for build-out conditions in those communities. *See Wis. Stat. ss. 281.344(3e) and (3m)*. For diversion approvals that discharge wastewater to the Mississippi River basin, the diversion amount was based on the maximum hydraulic capacity of the most restrictive component of the water supply system. *See Wis. Stat. s. 281.343(4t)(b)*.

Relevant provisions of the Compact and Wis. Stat. s. 281.346(4) govern diversions in the state. No person may begin a diversion, unless as authorized under Wis. Stat. s. 281.346(4), and no person may increase the amount of a diversion over the diversion amount specified in an approval under that subsection without prior approval from the WDNR.

Water withdrawal management

Sector

Each withdrawal source and property is assigned a water use code.⁴ Water use codes that represent specific sectors are assigned based on the purpose for which the majority of the water is used. For the most part, water withdrawals in Wisconsin are not regulated by sector but are regulated based on water source, quantity and location. There are a few exceptions: 1) surface water withdrawals of any amount from a stream for the purposes of agriculture or irrigation are regulated under Wis. Stat. s. 30.18; 2) water conservation and efficiency requirements differ among sectors under Ch. NR 852, Wis. Adm. Code; and 3) the public water supply sector is subject to a separate set of requirements⁵ and is also regulated by the Public Service Commission of Wisconsin (PSC).

Water source

Surface water withdrawals

⁴ A list of the water use codes can be found in the attached Water Use Individual Permit Application Guidance document.

⁵ Including Chs. NR 809, 810 and 811, Wis. Adm. Code.

Certain surface water withdrawals are regulated under Wis. Stat. s. 30.18. Under s. 30.18, WDNR regulates withdrawals of any amount from streams for purposes of agriculture or irrigation (s. 30.18(2)(a)2.); withdrawals of any amount from a stream to maintain or restore lake levels or stream flows (s. 30.18(2)(a)1.); and withdrawals from a stream or lake resulting in a water loss of ≥ 2 MGD in any 30-day period (s. 30.18(5)(b)). An individual permit is required for withdrawals falling into any of the categories above. WDNR evaluates permit applications to ensure that the proposed withdrawals do not injure public rights in navigable waters and either withdraw only surplus water or have the consent of all possibly adversely affected riparian owners (s. 30.18(5)(a)).

Groundwater withdrawals

Groundwater withdrawals are regulated primarily under Ch. 281, Wis. Stats., Chs. NR 812 and 820, Wis. Adm. Code, and related case law. All public and private wells, except those community water system wells that are subject to separate regulations, are subject to Ch. NR 812, Wis. Adm. Code regulations that govern their location and provide standards and requirements for well construction, pump installation, and water treatment. High capacity wells are those with a capacity of $\geq 100,000$ gpd from one or more wells on a single property. Registration and reporting are required statewide for all high capacity wells. Approval criteria for high capacity well approvals vary based on the geographic location of the well, amount of water loss, and the amount of the withdrawal. *See* Wis. Stat. s. 281.34. For example, WDNR must undertake additional environmental review if the proposed well may impact a spring with a normal flow of 1 cubic foot per second; is in a groundwater protection area (i.e., is within 1,200 feet of a trout stream or outstanding or exceptional resource water); or will have a water loss of more than 95 percent of the amount withdrawn. *See* Wis. Stat. s. 281.34(4) and (5). In addition, the 2011 Wisconsin Supreme Court decision in *Lake Beulah Management District v. City of East Troy*, 335 Wis.2d 47, held that the WDNR has the authority and a general duty to consider whether a proposed high capacity well may harm any water of the state, and that the WDNR must consider the environmental impact of a proposed high capacity well when presented with “sufficient concrete, scientific evidence of potential harm to waters of the state.” *Id.* at 88. As a result of the *Lake Beulah* decision,⁶ the WDNR evaluates high capacity well applications for potential adverse impacts on any “water of the state⁷” and will condition or deny applications to avoid significant adverse environmental impacts.⁸

Integrated withdrawals (withdrawals treated the same whether from surface water or groundwater)

⁶ Ongoing litigation and pending legislation could impact how and in what instances WDNR is authorized or required to consider impacts of proposed high capacity wells on waters of the state.

⁷ Wis. Stat. s. 281.01 (18) defines “water of the state” to include “those portions of Lake Michigan and Lake Superior within the boundaries of this state, and all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface water or groundwater, natural or artificial, public or private, within this state or its jurisdiction.”

⁸ Section 820.12(19), Wis. Adm. Code, defines “significant adverse environmental impact” to mean “alteration of groundwater levels, groundwater discharge, surface water levels, surface water discharge, groundwater temperature, surface water temperature, groundwater chemistry, surface water chemistry, or other factors to the extent such alterations cause significant degradation of environmental quality including biological and ecological aspects of the affected water resource.”

Statewide withdrawals that result in a water loss ≥ 2 MGD in any 30-day period are evaluated under the same criteria, whether the source of the withdrawal is surface water or groundwater. A person must apply for a water loss approval, which requires review by the WDNR to determine whether the withdrawal meets a set of seven criteria, including that it will not have a significant adverse environmental impact, that it will incorporate conservation, and that it is not detrimental to the public interest. *See* Wis. Stat. s. 30.18(5), Wis. Stat. s. 281.35(5)(d), and Wis. Adm. Code s. NR 142.06. An approval under Wis. Stat. s. 281.35 must specify the base level of water loss, uses of the withdrawal, amount of return flow, requirements for reporting, and other conditions necessary to protect the environment and public welfare. *See* Wis. Stat. s. 281.35(6)(a). In addition, all new or increased Great Lakes basin withdrawals ≥ 1 MGD for any 30 consecutive days are evaluated under the state decision-making standard criteria. *See* Wis. Stat. ss. 281.346(5), (5m) and (6).

Quantity

Wisconsin uses various quantity thresholds when regulating surface and groundwater both inside of the Great Lakes basin and elsewhere in the state. Any person proposing a withdrawal from surface water or groundwater using a water supply system that has the capacity to withdraw $\geq 100,000$ gpd (≈ 70 or more gallons per minute) in any 30-day period must register the withdrawal statewide. *See* Wis. Adm. Code Ch. NR 856. For any new or increased withdrawal in the Great Lakes Basin that averages $\geq 100,000$ gpd in any 30-day period (but < 1 MGD for any 30 consecutive days), a general permit and conservation and efficiency plan is required. For a new or increased withdrawal in the Great Lakes Basin ≥ 1 MGD for any 30 consecutive days, an individual permit is required and the withdrawal must meet the state decision-making standard. *See* Wis. Stat. s. 281.346(5m). In addition, the Compact decision-making standard applies to new or increased Great Lakes basin withdrawals ≥ 10 MGD that also result in a water loss ≥ 5 million MGD in any 90-day period. *See* Wis. Stat. ss. 281.346(5) and (6).

All persons who make withdrawals from the waters of the state that average 100,000 gpd or more in any 30-day period must annually report to the WDNR the monthly volumes of the withdrawal. The WDNR tracks this information and publishes annual summaries on its website.

Location

The primary geographical distinction affecting water withdrawal management in Wisconsin is that between withdrawals and uses in the Great Lakes basin (Lake Michigan and Lake Superior basins) and withdrawals and uses outside of the basin (i.e., in the Upper Mississippi River basin). Regulations specific to the Great Lakes basin include: water use permits, mandatory conservation and efficiency plans, diversion prohibitions, and regional notification and review procedures. These additional Great Lakes requirements are discussed below.

Standards of review and decision

State decision-making standard

Under Wis. Stat. s. 281.346(5), the WDNR may not approve an application for a new withdrawal that will equal at least 1 MGD for any 30 consecutive days, or for an existing withdrawal that is not covered by a general permit that is proposed to be modified so that it will equal at least 1

MGD for any 30 consecutive days, unless the withdrawal meets the state decision-making standard.

To meet the state decision-making standard, applicants must attach documentation describing how the withdrawal will be implemented such that the following criteria, listed in Wis. Stat. s. 281.346(5m), are met:

- (a) The amount of the withdrawal or increase in the withdrawal is needed to meet the projected needs of the person who will use the water.
- (b) For an increase in a withdrawal, cost-effective conservation practices have been implemented for existing uses of the water, as required under rules promulgated by the department under sub. (8)(d).
- (c) The applicant has assessed other potential water sources for cost-effectiveness and environmental effects.
- (d) Cost-effective conservation practices will be implemented to ensure efficient use of the water, for a new withdrawal, or of the increased amount of an existing withdrawal.
- (e) One of the following applies:
 - 1. No significant adverse environmental impacts to waters of the state will result from the new or increased withdrawal.
 - 2. If the withdrawal is from a surface water body, the applicant demonstrates that the withdrawal will not result in the violation of water quality standards under Wis. Stat. s. 281.15 or impair fish populations.
 - 3. The department has issued a permit under s. 30.18 for the new or increased withdrawal or has issued a permit under s. 30.12 for a structure that will be used for the new or increased withdrawal.
 - 4. The department has issued an approval under s. 281.34, or s. 281.17, 2001 Stats., for the new or increased withdrawal.

Section NR. 860.31(3)(a)12., Wis. Adm. Code contains the following additional criteria for meeting the state decision-making standard:

- a. Documentation that the proposed withdrawal amount is needed to meet the applicant's projected needs.
- b. Documentation of compliance with the applicable provisions of Ch. NR 852 (Water Conservation & Water Use Efficiency).
- c. An alternatives analysis comparing other potential water sources for cost-effectiveness and environmental effects.
- d. A description of the baseline conditions of the source including hydrologic flow, water quality, and for surface water sources, habitat of the source. This information is not required if the department has issued a permit under s. 30.18, Stats.; an approval under s. 281.34,

Stats., for the new or increased withdrawal; or has issued a permit under s. 30.12, Stats., for the structure that will be used for the new or increased withdrawal.

e. An assessment of the potential impacts of the withdrawal on the waters of the state. The department may require modeling to document the anticipated hydrologic impacts of the proposed withdrawal and any return flow or may require a water quality evaluation to determine if the withdrawal or return flow will meet established water quality standards, or may require both. This information is not required if the department has issued a permit under s. 30.18, Stats.; an approval under s. 281.34, Stats., for the new or increased withdrawal; or has issued a permit under s. 30.12, Stats., for the structure that will be used for the new or increased withdrawal.

An applicant must comply with all of the above state decision-making standard requirements prior to the proposed withdrawal.

Since December 8, 2011, one individual permit and one water loss approval related to new or increased withdrawals have been submitted to the WDNR and evaluated against the state decision-making standard.

Compact decision-making standard

Under Wis. Stat. s. 281.346(5), WDNR may not approve an application for a new withdrawal that will equal at least 10 MGD for any 30 consecutive days, or for an existing withdrawal that is not covered by a general permit and that is proposed to be modified so that it will equal at least 10 MGD for any 30 consecutive days, unless the withdrawal meets the Compact decision-making standard.

However, if a person proposing a new or increased withdrawal to which the Compact decision-making standard would otherwise apply, demonstrates, using procedures specified in rules promulgated by WDNR,⁹ that the water loss would average less than 5 MGD in every 90-day period, the state decision-making standard—rather than the Compact decision-making standard—applies to the withdrawal. Wis. Stat. s. 281.346(5)(f).

To meet the Compact decision-making standard, an applicant must demonstrate the following, as required by Wis. Stat. s. 281.346(6):

- (a) All of the water withdrawn from the Great Lakes basin will be returned to the source watershed, less an allowance for consumptive use.
- (b) The withdrawal will result in no significant adverse individual impacts or cumulative impacts to the quantity or quality of the waters of the Great Lakes basin, to water dependent natural resources, to the source watershed, or, if the withdrawal is from a stream tributary to one of the Great Lakes, to the watershed of that stream.
- (c) The withdrawal will be implemented in a way that incorporates environmentally sound and economically feasible water conservation measures.

⁹ The WDNR is in the process of promulgating Ch. NR 858 related to water loss and consumptive use.

(d) The withdrawal will be in compliance with all applicable local, state, and federal laws and interstate and international agreements, including the Boundary Waters Treaty of 1909.

(e) The proposed use of the water is reasonable, based on a consideration of all of the following:

1. Whether the proposed withdrawal is planned in a way that provides for efficient use of the water and will avoid or minimize the waste of water.
2. If the proposal would result in an increased water loss, whether efficient use is made of existing water supplies.
3. The balance of the effects of the proposed withdrawal and use, and other existing or planned withdrawals and water uses from the water source, on economic development, social development, and environmental protection.
4. The supply potential of the water source, considering quantity, quality, reliability, and safe yield of hydrologically interconnected water sources.
5. The probable degree and duration of any adverse impacts caused or expected to be caused by the proposed withdrawal and use, under foreseeable conditions, to other lawful consumptive uses or nonconsumptive uses of water or to the quantity or quality of the waters of the Great Lakes basin and water dependent natural resources, and the proposed plans and arrangements for avoidance or mitigation of those impacts.
6. Any provisions for restoration of hydrologic conditions and functions of the source watershed or, if the withdrawal is from the stream tributary to one of the Great Lakes, of the watershed of that stream.

Section NR 860.31(3)(a)13., Wis. Adm. Code contains the following additional criteria for meeting the Compact decision-making standard:

- a. An assessment of the potential impacts of the withdrawal on the waters of the state and water dependent natural resources including wetlands. The department may require modeling to document the anticipated hydrologic impacts of the proposed withdrawal and any return flow or may require a water quality evaluation to determine if the withdrawal or return flow will meet established water quality standards, or may require both
- b. Documentation of compliance with the applicable provisions of Ch. NR 852.
- c. Documentation of compliance with all applicable local, state, and federal laws, rules, and regulations, and interstate and international agreements, including the Boundary Waters Treaty of 1909.
- d. An analysis of the efficiency of the proposed water use, and if there is an expected increase in water loss, an analysis of the efficiency of the use of existing water supplies. The analysis shall include a comparison of the proposed water use intensity with the

water use intensity of similar facilities or operations. The analysis may include information from the water conservation plan prepared in compliance with s. NR 852.07.

Applicants must comply with all of the above Compact decision-making standard requirements prior to the proposed withdrawal.

Since the effective date of the Compact, no permit applications have been submitted that required compliance with the Compact decision-making standard. The state and Compact decision-making standards are not inconsistent.

Exception standard for diversions

The Exception Standard for Diversions that has been integrated into Wisconsin's Compact implementing legislation mirrors the Exception Standard in the Compact and Agreement with a few additions:

1. The proposal for a diversion must be consistent with an approved water supply service area plan under Wis. Stat. s. 281.348 that covers the public water supply system. *See* Wis. Stat. s. 281.346(4)(e)1.em., and Ch. NR 854, Wis. Adm. Code (draft).
2. The place at which the water is returned to the source watershed must be as close as practicable to the place from which it is withdrawn, unless that place is not economically feasible, not environmentally sound, or not in the interest of public health. *See* Wis. Stat. s. 281.346(4)(f)3m.
3. If the water will be returned to the source watershed through a stream tributary to one of the Great Lakes, the physical, chemical, and biological integrity of the receiving water will be protected and sustained, considering the state of the receiving water before the proposal is implemented and considering both low and high flow conditions and potential adverse impacts due to changes in temperature and nutrient loadings. Wis. Stat. s. 281.346(4)(f)4m.
4. Wisconsin has defined "reasonable water supply alternative" to mean "a water supply alternative that is similar in cost to, and as environmentally sustainable and protective of public health as, the proposed new or increased diversion and that does not have greater adverse environmental impacts than the proposed new or increased diversion." Wis. Stat. s. 281.346(1)(ps).

WDNR is currently evaluating a diversion proposal from the City of Waukesha, a community in a straddling county.

Overview of Wisconsin's reporting and water use database

Registered water users must annually report monthly withdrawal amounts for each calendar year by March 1 of the following year. *See* Wis. Adm. Code. s. NR 856.30(2). Each report contains monthly withdrawal amounts, the primary use of the water and the method code used to measure or estimate the water use, consistent with requirements for reporting to the Great Lakes Commission (GLC). *See* Wis. Adm. Code s. NR 856.30(2). Registered withdrawers have the ability to report water use through a web-based application or using paper forms which are entered into the WDNR's Water Use database.

A totalized flow meter must be used for measuring water withdrawals. All other methods are considered to be estimates and are calculated by such methods as hourly metering, gallon estimates per person or per animal based on use, time to fill a known volume, or the use of a weir. *See* Wis. Adm. Code s. NR 856.31(1). Other methods can be used if approved by the WDNR if none of the existing methods is sufficient. Wis. Adm. Code s. NR 856.31(1)(a)5. and (b)6. A copy of the WDNR's measurement instructions is attached.

Information about the primary use of the withdrawn water enables WDNR to assign water use codes. Water use codes are detailed codes specifying public water supply uses (municipal systems, community water systems, non-transient, non-community systems, transient, non-community systems and K-12 schools), industrial uses, commercial and institutional uses, power generation, irrigation, other agricultural uses, domestic supply and fire protection. Each WDNR water use fits under a more general GLC water sector for annual reporting to the GLC. A list of the water use codes can be found in the attached Water Use Individual Permit Application Guidance document.

The WDNR has determined water loss coefficients for each water use code based on various sources such as USGS published values, Ch. NR 142, Wis. Adm. Code, or assumed general practices. The WDNR is in the process of reviewing and updating the water loss coefficients, which will be integrated into a new water loss administrative rule that will be codified as NR 858, Wis. Adm. Code.

In addition to reporting monthly withdrawal data to the WDNR, persons with approved Great Lakes basin diversions are required to report the monthly volumes diverted and the volume returned back to the Great Lakes basin. Withdrawal, diversion and return flow volumes are tracked and reported to the Great Lakes Commission annually.

All water use data is housed in a dedicated geographic information system database that is updated by WDNR staff through a web-based application. Water use data is used to support WDNR decision-making and serves as the basis for annual withdrawal report summaries and sector specific studies. Governmental partners, university researchers, businesses and private individuals may also request data to be delivered in tabular or spatial formats.

Improved scientific understanding of the waters of the basin

The WDNR has supported a variety of projects to improve the understanding or management of groundwater and surface water quantity in Wisconsin. The following is a list of projects the WDNR has undertaken in the past 5 years:

1. Hydrogeological Dataviewer – A map-based application to access a varied catalog of hydrogeologic data and related information. This application enables efficient and timely access to statewide geologic and hydrogeologic information for evaluation of groundwater-related projects.
2. Enhancement of Long Term Groundwater level monitoring network – The WDNR has partnered with the USGS and the Wisconsin Geological and Natural History Survey to improve the long-term groundwater monitoring network in Wisconsin. In the past 5 years this has included adding flow monitoring equipment at two springs locations, adding 4 new wells to the water level monitoring network in Milwaukee, Waukesha, Brown and Manitowoc

Counties, and inspecting and improving existing monitoring sites. Efforts to improve this network are ongoing.

3. Ecological Limits of Hydrological Alteration – A model to derive daily streamflow statistics for Wisconsin streams, coupled with an improved fish communities model. These models help assess potential ecological impacts (focused on predicted changes in fish communities) related to changes in stream flow resulting from a new high capacity well or surface water withdrawal.
4. Pilot Groundwater flow model – WDNR has funded a pilot groundwater flow model that allows for incorporation of management objectives in a groundwater stressed area of Wisconsin. This model will be used to inform management options and demonstrate the viability of expanding the use of such a model.
5. Improved Wisconsin Springs Inventory – Wisconsin has a statewide springs inventory that was compiled in 2007; however that inventory has significant gaps. The WDNR has contracted with the WGNHS and Beloit College to update and improve the data in this inventory based on field work across the state over the next three years.

WATER CONSERVATION AND EFFICIENCY PROGRAM REPORT

Wisconsin’s water conservation and efficiency goals and objectives

Wisconsin adopted water conservation and efficiency goals and objectives that are consistent with the Basin-wide goals and objectives. The goals and objectives, which were first adopted in 2008 and most recently revised in 2011, can be found on the Department website at:

http://dnr.wi.gov/topic/WaterUse/documents/WDNR_Statewide_WCE_Objectives_2011.pdf.

WDNR reviews these goals and objectives every five years.

Water conservation and efficiency program overview

Citations to implementing laws, regulations and policies

The Wisconsin Legislature ratified the Great Lakes—St. Lawrence River Basin Water Resources Compact (Compact) in 2007 Wisconsin Act 227. Act 227 contains additional water conservation and efficiency requirements that go beyond the minimum required by the Compact. These requirements are codified in s. 281.346(8), Wis. Stat., and Ch. NR 852, Wis. Adm. Code.

Summary description of Wisconsin’s water conservation and efficiency program

The Water Use Section of the WDNR’s Bureau of Drinking Water and Groundwater developed a statewide water conservation and efficiency program that is based on Wisconsin’s adaptation of the Great Lakes Regional Conservation and Efficiency Objectives. The program requires mandatory water conservation and efficiency measures for new or increased withdrawals in the Great Lakes Basin, for any new or increased diversions from the Great Lakes Basin, and for any new or increased withdrawals—statewide—that will result in a water loss averaging more than 2 MGD in any 30-day period. Voluntary water conservation and efficiency measures are encouraged for existing water users throughout the state.

This program is implemented through administrative rules, water use permits, and guidance developed in cooperation with the Public Service Commission of Wisconsin (PSC) and the Wisconsin Department of Safety and Professional Services. Rules implementing the program,

primarily Ch. NR 852, Wis. Adm. Code, outline the necessary conservation and efficiency measures. Under Ch. NR 852, Wis. Adm. Code, conservation and efficiency measures vary depending on the withdrawal amount and calculated water loss:

- For new or increased Great Lakes basin withdrawals averaging 100,000 gpd or more in any 30-day period but less than 1 MGD for any 30 consecutive days, Tier 1 water conservation and efficiency requirements apply. *See* s. NR 852.04, Wis. Adm. Code, including Table 1.
- For new or increased Great Lakes basin withdrawals equaling 1 MGD or more for any 30 consecutive days, Tier 1 (see above) and Tier 2 water conservation and efficiency requirements apply. *See* s. NR 852.05, Wis. Adm. Code, including Table 2.
- For new or increased withdrawals (statewide) resulting in a water loss averaging more than 2 MGD in any 30-day period; or for new or increased Great Lakes diversions, in addition to Tier 1 and Tier 2 requirements, Tier 3 water conservation and efficiency requirements are required—including an analysis to determine whether additional cost-effective conservation and efficiency measures are available (other than those in Tier 1 and Tier 2). *See* s. NR 852.06, Wis. Adm. Code.

The PSC also relies on administrative rules (Chs. PSC 184 and PSC 185, Wis. Adm. Code) for authorizing and monitoring voluntary water conservation programs for municipal water systems. For other withdrawals subject to mandatory water conservation and efficiency, requirements increase as the volume of withdrawal increases. The WDNR is also developing a voluntary program through education and outreach opportunities, identifying leaders in water conservation and efficiency in each of the water use sectors, and establishing procedures to improve the water use efficiency and conservation efforts in state government facilities.

In addition, water supply service area plans for public water supply systems must consider water conservation alternatives when identifying options for supplying water. These plans are required by 2026 for all public water systems in Wisconsin serving populations of 10,000 or more; and are required immediately for any Great Lakes Basin public water systems serving populations of 10,000 or more that are seeking a new or increased withdrawal, and for applicants for diversions of Great Lakes water.

Consistency with regional objectives

As shown in the table below, the Wisconsin program is consistent with the regional objectives in the promotion of environmentally sound and economically feasible water conservation measures.

OBJECTIVES	LEGISLATIVE OR PROGRAM DESCRIPTION
<p>Guide programs toward long-term sustainable water use.</p>	<ul style="list-style-type: none"> ▪ Adoption of Water Conservation and Water Use Efficiency Rules (Wis. Adm. Code Ch. NR 852), 1/1/2011 ▪ Mandatory water conservation plans and conservation and efficiency measures for new or increased Great Lakes Basin withdrawals, all diversions of Great Lakes water, and withdrawals with a water loss of ≥ 2 MGD ▪ Water Supply Service Area Planning (Wis. Stat. s. 281.348), rules still in development
<p>Adopt and implement supply and demand management to promote efficient use and conservation of water resources.</p>	<ul style="list-style-type: none"> ▪ Continued expansion of a statewide water conservation and efficiency information network representing all water use sectors ▪ Establishing water conservation and efficiency guidance by water use sector ▪ Implementing a pilot water use audit and water use efficiency upgrade at Peninsula State Park ▪ Required water conservation plans are in place for approximately 200 water use permittees
<p>Improve monitoring and standardize data reporting among State and Provincial water conservation and efficiency programs.</p>	<ul style="list-style-type: none"> ▪ Developed a new database for water use data ▪ Developed an on-line registration and reporting system, with ongoing system refinement. On-line reporting is available for all registered water users and reporting forms are mailed to those who choose not to report on-line. On-line system automated quality checks continue to improve reporting quality. ▪ The WDNR mails water conservation reporting forms to registered water users with mandatory water conservation requirements ▪ Received grant from USEPA Exchange Network to develop an automated data flow from the WDNR water use database to the Great Lakes Commission and USGS

<p>Develop science, technology and research.</p>	<ul style="list-style-type: none"> ▪ Co-funded a project with the Public Service Commission titled “Water Efficiency Potential Study for Wisconsin,” which was completed in late 2011 ▪ Funded a project titled “Ecological Limits of Hydrologic Alteration” focused on understanding stress to fish populations due to reduced stream flows ▪ Funding a project to develop a hydrogeologic data viewer for Wisconsin hydrogeologic data ▪ Ongoing development of research, pilot project, or information needs ▪ Ongoing delivery of spatial water use data to governmental and university partners for use in modeling projects and scientific research. ▪ Funding a pilot groundwater flow model that allows for incorporation of management objectives in a groundwater stress area of Wisconsin. ▪ Pursuing a project to improve the quality of the statewide Spring Inventory.
<p>Develop education programs and information sharing for all water users.</p>	<ul style="list-style-type: none"> ▪ Promotion of EPA <i>WaterSense</i> Fix-a-Leak, including webpage, promotional video, radio ads, and TV interview appearances ▪ Participation in 2014 Wisconsin DNR State Fair Park Exhibit demonstrating efficient faucet aerators, showerheads, and toilets including handouts of <i>WaterSense</i> labeled aerators, leak detection tablets, showerheads, temporary tattoos, jar openers (aerator removal and tightening tool). ▪ Participation in state conferences with displays and presentation for various water use sectors ▪ Planning an interagency water conservation and efficiency webpage ▪ Initiating a program of water use benchmarks for geographic and sector specific withdrawals. ▪ Promoting irrigation conservation at Farm Technology Days. This includes promotion of irrigation scheduling tools developed by the University of Wisconsin.

Water conservation and efficiency program implementation timeline and status

PROGRAM ELEMENT	STATUS
Goals and Objectives	<ul style="list-style-type: none"> ▪ Completed – December 2008 ▪ Updated for statewide application – June 2011
Administrative rules	<ul style="list-style-type: none"> ▪ Chapter NR 852 , Wis. Adm. Code effective January 2011
Websites	<ul style="list-style-type: none"> ▪ Established DNR water conservation and efficiency page – June 2010 ▪ Developing interagency water conservation and efficiency website – in progress
Fix a Leak Week Promotion	<ul style="list-style-type: none"> ▪ Annually in March
Wisconsin State Fair	<ul style="list-style-type: none"> ▪ Promoted water conservation and efficiency – Annually in August
Implementation Plan	<ul style="list-style-type: none"> ▪ Developed a biannual plan –September 2011
Water Conservation Plan Requirements	<ul style="list-style-type: none"> ▪ Integrated requirements into new water use permit review and issuance process – December 2011
Water Use Audits	<ul style="list-style-type: none"> ▪ Pilot water use audit project at Peninsula State Park – in progress
Sector Guidance	<ul style="list-style-type: none"> ▪ Develop sector specific water conservation and efficiency guidance – in progress