Illinois Department of
Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
http://dnr.state.il.us

Pat Quinn, Governor
Marc Miller, Director

December 2, 2009

Mr. David Naftzger
Executive Director
Great Lakes-St. Lawrence River Basin
Water Resources Council
Secretary, Great Lakes-St. Lawrence River
Water Resources Regional Body
c/o Council of Great Lakes Governors
35 E. Wacker Drive, Suite 1850
Chicago, IL 60601

RE: Water Management Program Report and Water Conservation and Efficiency Program Report Submitted on behalf of Illinois

Dear Mr. Naftzger:

On behalf of the State of Illinois, please find enclosed a Water Management Program Report, and a Water Conservation and Efficiency Program Report being sent pursuant to and in satisfaction of the obligations included in Section 3.4 of the Great Lakes-St. Lawrence River Basin Water Resources Compact.

If you have any questions, please do not hesitate to contact Daniel Injerd at 312/793-3123.

Sincerely,

Gary R. Clark
Director
Office of Water Resources

Daniel Injerd
Chief, Lake Michigan Management Section
Office of Water Resources

Alternate of Governor Quinn, Member, Great Lakes-St. Lawrence River Basin Water Resources Council

GRC:DI:cp
Enclosures
cc: Peter Johnson, Program Director, Council of Great Lakes Governors

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Water Management Program Review
Illinois' First Report to the Compact Council and Regional Body

December 8, 2009

Lead Agencies and Contact Persons:

Illinois Department of Natural Resources, Office of Water Resources
Lake Michigan Management Section
Daniel Injerd, Chief
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Illinois State Water Survey
Illinois Water Inventory Program
Tim Bryant, Coordinator
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Laws and Regulations:

A U.S. Supreme Court Decree [Wisconsin v. Illinois, 388 U.S. 426 (1967), as modified, 449 U.S. 48 (1980)] limits Illinois' diversion of Lake Michigan water to an annual average of 3200 cubic feet per second (cfs) or 2.1 billion gallons per day. The law regulating this diversion is the "LEVEL OF LAKE MICHIGAN ACT" (615 ILCS 50). The Department of Natural Resources, Office of Water Resources (IDNR/OWR) implements this law using its Part 3730 Rules "ALLOCATION OF WATER FROM LAKE MICHIGAN". These rules can be found at www.dnr.state.il.us/owr/resman/3730RULE.htm.

The Illinois State Water Survey (ISWS) operates a voluntary surface and groundwater use reporting program. In late 2009, Governor Quinn signed an amendment to the "WATER USE ACT" of 1983. This amendment makes the reporting of all surface and groundwater withdrawals equal to or greater than 100,000 gallons per day mandatory as of January 1, 2010.

Water Management Program Summary:

The current Lake Michigan drainage basin in Illinois is very small, on the order of 75 square miles, and the predominant water supply is Lake Michigan. Groundwater use, from either the deep aquifer or shallow aquifer system, is very limited within the Lake Michigan drainage basin. Since July 1, 1977, no regional organization, municipality, political subdivision, agency or instrumentality, or any other organization, association or individual desiring to use water from Lake Michigan shall divert or use any such water unless it has previously obtained from the IDNR/OWR a valid allocation permit. As of January 1, 2010, all high capacity (100,000 gallons/day or greater) surface and groundwater intakes will be required to report their water use annually to the ISWS.

Sectors:

1) Public Water Supply: all public water supplies which are using Lake Michigan as their water supply are required to have a Lake Michigan water allocation permit. There are 196 current Lake Michigan water allocation permits issued. Public

water supplies using 100,000 gallons/day of surface or groundwater are required to report their annual water use to the ISWS.

2) Self-Supply Commercial and Industrial: requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. Currently there are 6 permits issued. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
3) Self-Supply Irrigation: requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. There are no Lake Michigan water allocation permits issued for this water use sector. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
4) Self-Supply Livestock: requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. There are no Lake Michigan water allocation permits issued for this water use sector. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
5) Self-Supply Industrial: requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. There is currently 1 permit issued for this category. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
6) Self-Supply Thermoelectric Power Production (once through cooling): requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. There are no Lake Michigan water allocation permits issued for this water use sector. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
7) Self-Supply Thermoelectric Power Production (recirculated cooling): requires a Lake Michigan water allocation permit if they are diverting Lake Michigan water. There are no Lake Michigan water allocation permits issued for this water use sector. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
8) Off-Stream Hydroelectric Power Production: not eligible to receive a Lake Michigan water allocation permit. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
9) In-Stream Hydroelectric Power Production: not eligible to receive a Lake Michigan water allocation permit. If they are using 100,000 gallons/day of water from a surface water or groundwater source, they would be required to report annually to the ISWS.
10) Other: the Metropolitan Water Reclamation District of Greater Chicago has a Lake Michigan water allocation to divert Lake Michigan water in order to maintain navigation and water quality standards in the Sanitary and Ship Canal.

Allocation Process:

Illinois' allocation process consists of the following key elements:

- Development of Rules and Regulations that cover both procedural and substantive issues, and which create a level playing field for all applicants. Our goal is to clearly specify the criteria to be used in making allocations so that applicants know what they need to do to justify their request.

- Evaluate available water supply sources. Northeastern Illinois has three primary water supply sources – Lake Michigan, deep aquifer groundwater and shallow aquifer groundwater (and very limited other surface water supply). Illinois requires all applicants to undertake an economic analysis to compare other water supply options to a Lake Michigan water supply.
- Evaluate water demands throughout the entire forecast period. This is accomplished by developing a regression equation for each of our over 200 allocation holders. This equation relates historical water use to three primary variables – population, household size and employment. Each applicant is also required to develop their own long-term water demand forecast.
- Hold formal allocation hearings for all applicants. This process is a quasi-judicial process, and a formal record is established for all applicants. The IDNR/OWR's decision is based on the record.
- Allocation permits are based on an annual average use for a given year, along with conditions/requirements that promote efficient use of the Lake Michigan water allocated.
- This process includes provisions for adjustments in water allocations. For most public water supplies, the primary data used to develop long-term demand forecasts carries a high degree of uncertainty. The allocation program needs to be flexible to accommodate shifts in water demand as time goes on and conditions change.
- All applicants must submit annual water use audit reports each year to monitor compliance with allocation limits and track compliance with water conservation requirements.

Lake Michigan water allocation applicants are divided into the following categories:

- **Category IA** – Applicants whose primary water needs are residential, commercial or industrial and whose future or continued use of Lake Michigan water is the most economical source of supply
- **Category IB** – Applicants whose primary water demands are for the minimum flows necessary to meet navigation requirements and minimum discretionary dilution flows necessary to maintain the Sanitary and Ship Canal in a reasonably satisfactory sanitary condition.
- **Category IIA** – Applicants whose water demands are for the minimum discretionary dilution flows necessary to meet water quality standards in the Sanitary and Ship Canal.
- **Category IIB** – Applicants whose primary water demands are residential, commercial and industrial and whose use of Lake Michigan water would reduce regional use of the deep aquifer.
- **Category III** – Applicants whose water demands do not fall into Categories IA, IB, IIA, or IIB.

In determining priorities within Categories IA and IB, the IDNR/OWR considers the following items:

- Adequacy of supply from sources other than Lake Michigan.
- Economics of alternative supplies.
- A limitation of 320 cubic feet of water per second for discretionary dilution for water quality purposes in the Sanitary and Ship Canal.

- The need to maintain the Sanitary and Ship Canal in a reasonably satisfactory sanitary condition.
- For new users or applicants who have requested an increase over the allocation of Lake Michigan water which these applicants had on July 1, 1980, priority will be given to allocations for domestic purposes.
- The need to meet navigation requirements in the Sanitary and Ship Canal.
- The requirement that the Department shall not allocate less than 320 cubic feet per second for discretionary dilution for water quality purposes in the Sanitary and Ship Canal before October 1, 2000, unless a modification is ordered based on the criteria stated in Section 3730.310(b)(4).

In determining priorities within Categories IIA and IIB, the Department will consider the following items:

- A limitation of 320 cubic feet per second for discretionary dilution for water quality purposes in the Sanitary and Ship Canal.
- The requirement that the Department shall not allocate less than 320 cubic feet per second for discretionary dilution for water quality purposes in the Sanitary and Ship Canal before October 1, 2000, unless a modification is ordered based on the criteria stated in Section 3730.310(b)(4).
- The need to meet water quality standards in the Sanitary and Ship Canal.
- For new users or applicants who have requested an increase over the allocation of Lake Michigan water these applicants had on July 1, 1980, allocations of Lake Michigan water will be made with the goal of reducing the withdrawals from the Cambrian-Ordovician Aquifer.

The IDNR/OWR will normally make allocations to meet the full water needs of any category as determined by the Department before any water is allocated to applicants in categories of a lower priority.

In determining the amount of water available for allocations to Categories I, II and III, the Department will consider the amount of water that must be reserved for storm water runoff, and a reserve for future increases in demands and storm water runoff.

Reporting and Database:

All Lake Michigan water allocation permittees are required to submit to the IDNR/OWR annual reports (LMO-2 Report) which summarize their annual water use. All permittees with an intake structure on Lake Michigan or who are the first Illinois user of water diverted from Lake Michigan outside Illinois must report their water use both annually and monthly (LMO-3 Report) to the IDNR/OWR. The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) submits monthly (LMO-6) reports for the amount of Lake Michigan water they divert for the purpose of maintaining the Sanitary and Ship Canal. The IDNR/OWR maintains a database which stores this information going back to 1989 and has hard copies going back to the 1970s. The IDNR/OWR produces an annual report which summarizes all its permittees LMO-2 reports. This is distributed to all Lake Michigan water allocation holders with an annual newsletter. All pumpage numbers provided on the LMO-2 and LMO-3 reports are metered numbers. The MWRDGC diverts water into the Sanitary and Ship Canal using sluice gates and by

opening the Chicago River Controlling Works and the O'Brien Locks. Therefore, the numbers they report on their LMO-6 reports are not metered but calculated.

For many years, the ISWS has maintained a voluntary reporting program for surface and ground water use. Beginning in January 1, 2010, that program becomes mandatory for all surface and groundwater withdrawals averaging 100,000 gallons/day or greater. The ISWS has its information on a database.

Initiatives:

Over the years, the ISWS has been an active participant in various National Water Use Program studies done by the United States Geological Survey and are now working on the Illinois portion of the 2005 report. The ISWS and the IDNR/OWR have also been involved with the Chicago Metropolitan Agency for Planning in their ongoing work on the "Northeastern Illinois Regional Water Supply Plan".

Illinois Water Inventory Program

Illinois State WATER Survey (1895)

2204 Griffith Drive – Champaign, IL 61820-7495 – Phone (217) 333-0239 – Fax (217) 244-0777

Facility Number:

Facility Name:

Address:

City:

State: Zip:

Contact Person:

Contact Title:

Phone: **Fax:**

E-mail:

Please list wells, surface water intakes, and locational information on the lines below.* Enter your water level (pump test) information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

Water Withdrawals for Year 2009

TOTAL GALLONS PUMPED FROM WELLS AND INTAKES

Well or Intake #	Status	Township	Range	Section and Plot	Depth	Maximum Daily**	Annual Gallons
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
	In-Use						
Total Gallons Withdrawn from Wells and Intakes 0							
Maximum Day Pumpage* (Click on any blank field to display commas)							

*The highest amount pumped from the entire system on the single highest day of the year.

System Name and Number:

Please note that any purchased amount needs to be reported in line 1 under Total Finished Purchased Gallons. This amount if needed to understand the total water use at your facility.

If your facility does not have meterd to calculate total water wirhdrawals directly from the individual wells or surface water intakes, a reasonable estimate for each source or set of sources is acceptable. Our staff can also provide a per-person per-day water use coefficient for your facility based on per-person water use for water systems in your county.

1. Total Finished Self-Supplied Gallons for 2009 : *

   Total Finished Purchased Gallons for 2009 : *

   Grand Total Finished Gallons for 2009:

2. Supplier(s) of Purchased Water:

3. Population directly served (retail) within your city limits:

   Population directly served (retail) outside your city limits:

4. Number of residential service connections for your utility:

   Number of residential gallons billed/metered:

5. Number of commercial (non-manufacturing) service connections for your utility:
   Number of commercial gallons billed/metered: **

6. Number of industrial (manufacturing) service connections for your utility:
   Number of industrial gallons billed/metered:

7. Do you sell bulk water to another public water system? Yes ☐ No ☐

Systems and gallons sold to each system (use additional pages if necessary):

System 1:	Amount Sold:
System 2:	Amount Sold:
System 3:	Amount Sold:
System 4:	Amount Sold:

8. Unaccounted-for-Flow (Total finished self-supplied/purchased water minus billed amounts):***

* Subtracting the amount of process water consumed at the water treatment plant (such as for back-flushing) from your total raw water will provide the amount of finished water.
** Include public uses of water (municipal, schools, library, etc.) in commercial gallons billed/metered under line 5.
*** Subtracting the total amount of water sold to residents, commercial accounts, industrial accounts, and bulk water accounts from your total finished water will provide your unaccounted-for-flow.

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ☐ No ☐ If yes, please list which well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were tested during the calendar year, please provide the following water level information.

Well No.	Airline length (ft.)*	Water Levels						
		Water level date	Nonpumping			Pumping		
			Hours off	Gauge reading (ft.)**	Hours on	Gauge reading (ft.)**	Depth to Water	Pumping Rate (gpm)

*Same as pump setting
**If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ☐ No ☐

If Yes: Because of limited treatment capacity? Yes ☐ No ☐ Because of limited water availability? Yes ☐ No ☐

Other:

Type of restriction: Dates:

Are there plans to increase treatment or supply capacity? Yes ☐ No ☐

Plans:

Do you discharge water? Yes ☐ No ☐

If Yes: To a municipal wastewater treatment system? ☐ Name of system:

To a stream or other surface water body? ☐ Your NPDES permit #:

To a septic system? ☐

Other:

Illinois Water Inventory Program

Illinois State WATER Survey (1895)

2204 Griffith Drive – Champaign, IL 61820-7495 – Phone (217) 333-0239 – Fax (217) 244-0777

Facility Number:

Facility Name:

Address:

City:

State: Zip:

Contact Person:

Contact Title:

Phone: **Fax:**

E-mail:

Please list wells, surface water intakes, and locational information on the lines below.* Enter your water level (pump test) information on the last page, if available. If reported amounts are not in gallons, please indicate units of measurement.

Water Withdrawals for Year 2009

TOTAL GALLONS PUMPED FROM WELLS AND INTAKES

Well or Intake #	Status	Township	Range	Section and Plot	Depth	Annual Gallons
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
	In-Use					
Total Gallons Withdrawn from Wells and Intakes 0						

* If your facility has more than 10 wells or intakes, please add additional wells or intakes on a separate sheet of paper.
**The highest number of gallons pumped on the highest single day of the year.

Water Use Breakdown and Disposal

Please note that any purchased amount needs to be reported in the column Total Gallons Purchased, below. This amount is needed to indicate the water use for your location and your future needs.

If your facility is not equipped with meters to calculate total water pumpage, an estimated figure or other helpful information (such as staff population and visitors, acreage flooded, or time used at estimated pumping rate) is acceptable to help us calculate water usage at your facility.

1. Total Pumpage: 2009	**Total Gallons Purchased**	**Total Gallons Wells/Intakes**
A. **Processing/Washing:**		
Discharge:		
Consumption:		
B. **Cooling & Condensing:**		
Type of Cooling System:	Once-through: ☐	Recirculating: ☐
		Other (specify):
Discharge:		
Consumption:		
C. **Boiler Feed:**		
D. Employee/Sanitary:		
E. Hydroelectric Flows:		
F. Other (Irrigation, Ash Sluice, Blowdown, etc.):		
2. Supplier of Purchased Gallons:		
3. Average number of employees, patrons, etc. daily:		
4. Total annual power generation during 2009:	Net:	Gross:
Units of measurement: kW-h: ☐	MW-h: ☐ GW-h: ☐	Other (specify):

Well Treatment, Water Levels, Conservation, and Discharge

During the last year, have any of your wells had treatment or rehabilitation work? (Examples would include surging, jetting, acidizing, shock chlorination, etc.)

Yes ☐ No ☐ If yes, please list which well numbers and the type of treatment(s) in the following table.

Well No.	Treatment(s)

If your wells were tested during the calendar year, please provide the following water level information.

Well No.	Airline Length (feet)*	Test Date	Nonpumping (Static) Level			Pumping (Dynamic) Level			
			Hours Off	Gauge Reading **	Depth to Water (feet)	Hours On	Gauge Reading**	Depth to Water (feet)	Pumping Rate (gpm)

*Same as pump setting
**If gauge reading is in pounds per square inch (psi), indicate that in the column. If the gauge is direct reading, indicate feet (ft).

During the last year, were water conservation practices requested or imposed? Yes ☐ No ☐

If Yes: Because of limited treatment capacity ☐ Because of limited water availability ☐

Other:

Type of restriction: Dates:

Success or estimated amount of savings:

Are there plans to increase treatment or supply capacity? No ☐ Yes ☐ Plans:

Do you discharge water? Yes ☐ No ☐

If Yes: To a municipal wastewater treatment system ☐ Name of system:

To a stream or other surface water body ☐ Your NPDES permit #:

To a septic system ☐

Other:

ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES
Office of Water Resources

36 S. Wabash Ave., Rm. 1415, Chicago, IL 60603

APPLICATION FOR PERMIT TO WITHDRAW LAKE MICHIGAN WATER

An application for permit to withdraw Lake Michigan Water requires that the applicant express all amounts, usage, demands, etc in units of million gallons per day (MGD) for each accounting year beginning October 1 and ending September 30. The applicant should not include any water that is sold or transferred to any other distribution system unless expressly indicated otherwise in this application. In support of the application, the applicant must complete and answer the following questions, and provide the information that is requested in each of the sections contained in this application. After completing this form, please return it to the Illinois Department of Natural Resources, Office of Water Resources, 36 S. Wabash Avenue, Room 1415, Chicago, IL 60603.

SECTION I - GENERAL INFORMATION

Name, address and phone number of applicant:

_____

_____

_____

_____

Name, address and phone number of the contact person for the applicant:

_____

_____

_____

_____

Authorized Official

Name: _____

Title: _____

Date _____

Subscribed and sworn to before me this ____

day of _____, 20____.

SECTION II - PROPOSED WATER USAGE

The applicant applies for a permit to withdraw Lake Michigan water in the amounts for the years listed below:

Year	Amount (MGD)	Year	Amount (MGD)

SECTION III - HISTORIC WATER USAGE

A. HISTORIC WATER USAGE BREAKDOWN

List the total historic water usage (MGD) for at least 10 consecutive prior years, if available, from the date of the application and the contribution of each water source to that total.

Year	Total Water Usage	Lake Michigan	Deep Aquifer	Shallow Aquifer	* _____

* Specify any other source

B. TYPE OF HISTORIC WATER USAGE

Based on Total Historic Water Usage figures tabulated in Section III A indicate the type of historic water usage (MGD) as shown below. If the data is estimated, indicate with an asterisk (*). Population should reflect census figures when applicable. Data should be shown for a minimum of 10 years prior to the date of the application.

Year	Residential Water Usage	Commercial Water Usage	Manufacturing Water Usage	Population

SECTION IV - PROJECTED WATER DEMAND

A. PROJECTED TOTAL WATER DEMAND BREAKDOWN

List the projected water demand (MGD) and projected contribution (MGD) of each water source to the total water demand to the year 2020.

Year	Projected Total Water Demand	Projected Contribution			
		Lake Michigan	Deep Aquifer	Shallow Aquifer	*

* Specify any other source.

B. TYPE OF PROJECTED WATER DEMAND

Based on Projected Total Water Demand tabulated in Section IV A, indicate the type of projected water demand (MGD) as shown below to the year 2020.

Year	Residential Water Usage	Commercial Water Usage	Manufacturing Water Usage	Population

SECTION V - BREAKDOWN OF LATEST ANNUAL WATER USES WATER YEAR____.

Enter the amount of water pumped and utilized for each item shown below. All amounts entered in this section must be in units of million gallons per day (MGD) rounded off to 3 decimal places to the right of the decimal. Conversion calculations are provided for your use in Section VIII to convert other commonly used units to MGD.

A. Pumpage Data

Water bought or received from the following distribution systems:

_____, _____,
_____, _____.

1. Lake Michigan Pumpage ..... _____MGD
2. Shallow Aquifer Pumpage ..... _____MGD
3. Deep Aquifer Pumpage ..... _____MGD
4. Total Pumpage (Add lines 1, 2 & 3) ..... _____MGD
5. Water Treatment Use ..... _____MGD
6. Gross Annual Pumpage (subtract line 5 from line 4) ..... _____MGD

Water sold or provided to any other distribution systems (enter the name of each system and the amount sold o provided to that system on lines 7 through 12). If additional lines are required, attach an additional sheet listing each system and amount.

7. _____ ..... _____MGD
8. _____ ..... _____MGD
9. _____ ..... _____MGD
10. _____ ..... _____MGD
11. _____ ..... _____MGD
12. _____ ..... _____MGD
13. Total (add lines 7 through 12 and any additional amounts). ..... _____MGD
14. Net Annual Pumpage (subtract line 13 from line 6) ..... _____MGD

B. Metered Uses (Water Uses Within Permittee's Distribution System)

15. Residential ..... _____MGD
16. Commercial and Manufacturing ..... _____MGD
17. Municipal ..... _____MGD
18. Construction ..... _____MGD
19. Total Metered Uses (add lines 15 through 18) ..... _____MGD
20. Percentage of Metered Use to Net Annual Pumpage (divide line 19 by line 14 and multiply by 100) ..... _____%

C. Unmetered Hydrant Uses (Water Uses Within Permittee's Distribution System)

21. Firefighting and Training ..... _____MGD
22. Water Main Flushing ..... _____MGD
23. Sewer Cleaning ..... _____MGD
24. Street Cleaning ..... _____MGD
25. Construction ..... _____MGD
26. Other (attach explanation) ..... _____MGD
27. Total Unmetered Hydrant Use (add lines 21 through 26) ..... _____MGD
28. Percentage of Unmetered Hydrant Use to Net Annual Pumpage (divide line 27 by line 14 and multiply by 100) ..... _____%
29. Department Requirement for Hydrant use ..... 10 %
30. Excessive hydrant use (subtract line 29 from line 28). If the percentage is greater than 0.0, attach explanation ..... _____% (consult Rule 730.307 (e))

D. Unavoidable Leakage and Unaccounted For Flow

31. Maximum Unavoidable Leakage (Do worksheet in Section VII enter amount from line 11 of the worksheet) ..... _____MGD
32. Percentage of Maximum Unavoidable Leakage to Net Annual Pumpage (divide line 31 by line 14 and multiply by 100) ..... _____%
33. Total Accounted for Flow (add lines 19, 27 and 31) ..... _____MGD
34. Percentage of Total Accounted for Flow to Net Annual Pumpage (divide line 33 by line 14 and multiply by 100) ..... _____%
35. Total Unaccounted for Flow (subtract amount on line 33 from line 14) ..... _____MGD
36. Percentage of Total Unaccounted for Flow to Net Annual Pumpage (divide line 35 by line 14 and multiply by 100)

SECTION VI - ADDITIONAL INFORMATION

A. Indicate Well Data and Production for the latest 12 month period as shown below

Well No. & Location	Depth of Well	Capacity gallons/minute	Total Water Production	Quality-What wells violate State standards? If yes, include a current water quality analysis report.

B. Do any of the wells interfere with each other during simultaneous pumping? If yes, please describe type/basis of interference.

C. What problems do you anticipate with your well supply between now and 2020?

D. If an allocation of Lake Michigan water is granted, what is the earliest date that Lake Michigan water could be used? _____

E. Specify present and/or proposed point(s) of withdrawal from Lake Michigan.

F. Provide a map of your water service area. Include any projected service areas (annexations), well locations, and Lake Michigan water supply locations.

G. Specify the location of discharge after the water is used (sewage treatment plant effluent), and describe the route the discharge will follow to reach an identifiable stream:

H. Is the discharge after use being treated in any manner? (Describe):

I. Include with this application a copy of any approved water conservation ordinance.

J. Provide additional data and/or information you may have to further justify your water allocation on a separate sheet.

SECTION VII - MAXIMUM UNAVOIDABLE LEAKAGE WORKSHEET

Complete the following calculations to determine your maximum unavoidable leakage. Enter the appropriate amounts in the spaces provided.

A. Cast Iron Pipes With Lead Joints

	Age of Pipe	Miles of Pipe	Leakage Rate*	Maximum Unavoidable Leakage**
1.	60 yrs. or greater	_____	x 3000 g/d/mi =	_____ g/d
2.	40-60 yrs.	_____	x 2500 g/d/mi =	_____ g/d
3.	20-40 yrs.	_____	x 2000 g/d/mi =	_____ g/d
4.	20 yrs. or less	_____	x 1500 g/d/mi =	_____ g/d

B. All Other Types of Pipes and Joints

	Age of Pipe	Miles of Pipe	Leakage Rate*	Maximum Unavoidable Leakage**
5.	60 yrs. or greater	_____	x 2500 g/d/mi =	_____ g/d
6.	40-60 yrs.	_____	x 2000 g/d/mi =	_____ g/d
7.	20-40 yrs.	_____	x 1500 g/d/mi =	_____ g/d
8.	20 yrs. or less	_____	x 1000 g/d/mi =	_____ g/d

9. Total Miles of Pipe (add lines 1 through 8 under "Miles of Pipe") ..... _____ miles
10. Total Maximum Unavoidable Leakage (sum amounts on lines 1 through 8 under "Maximum Unavoidable Leakage") ..... _____ g/d
11. Total Maximum Unavoidable Leakage MGD (divide line 10 by 1,000,000 ..... _____ MGD
    (Enter this amount on line 31 of **"Section V - Water Use Audit"**)

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* Leakage Rate expressed in gallons per day per mile (g/d/mi)
** Maximum Unavoidable Leakage expressed in gallons per day (g/d)

Section IV – Conversion Table

Below are conversion calculations to convert the most commonly used units to units of million gallons per day (MGD).

To convert cubic feet per year (cf) to (MGD) use:
cf x 7.48 ÷ 1,000,000 ÷ 365 = MGD

To convert gallons per year (g) to (MGD) use:
g ÷ 1,000,000 ÷ 365 = MGD

To convert gallons per day g/d to (MGD) use:
g/d ÷ 1,000,000 = MGD

To convert million gallons per year (mg) to (MGD) use:
mg ÷ 365 = MGD

SECTION VIII CONVERSION TABLE

Below are conversion calculations to convert the most commonly used units to units of million gallons per day (MGD).

To convert cubic feet per year (cf) to (MGD) use:

cf x 7.48 - 1,000,000 - 365 = MGD

To convert gallons per year (g) to (MGD) use:

g - 1,000,000 - 365 = MGD

To convert gallons per day (g/d) to (MGD) use:

g/d - 1,000,000 = MGD

To convert million gallons per year (mg) to (MGD) use:

mg - 365 = MGD

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