

**CITY OF ST. JOSEPH  
SAFE DRINKING WATER ACT APPLICATION  
WATER WITHDRAWAL AUTHORIZATION FROM LAKE MICHIGAN  
AND  
RESPONSE TO PUBLIC COMMENTS**

**August 28, 2009**

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## **EXECUTIVE SUMMARY**

### **CITY OF ST. JOSEPH APPLICATION FOR A WATER WITHDRAWAL FROM LAKE MICHIGAN**

The Department of Environmental Quality (DEQ) received from the city of St. Joseph (CSJ) plans and specification for a proposed intake to be constructed in Lake Michigan. Under amendments made to the Safe Drinking Water Act, 1976 PA 399 (SDWA), the DEQ is required to evaluate the impact of a proposed waterworks system for a community supply that will provide an increase in withdrawal capacity of more than 2 million gallons per day (MGD) from the waters of the state beyond the system's existing design withdrawal capacity. The DEQ is also required to provide a public comment period of not less than 45 days before making a determination on the proposed withdrawal.

The proposed withdrawal would be from a Lake Michigan intake to be constructed west to northwest of the existing drinking water treatment plant. The project is to include construction of a shore well and pumping station located at 1701 Lions Park Drive, St. Joseph, Michigan in portions of section 23, T.04S, R.19W, Berrien County. The CSJ proposed withdrawal amount at the site is an increase of 32 MGD over the system's total design withdrawal capacity. The withdrawal will originate and all discharges will occur within the Lake Michigan watershed.

In the evaluation of a proposed withdrawal under the SDWA the DEQ must apply the permit criteria of Part 327 of Act 451, Great Lakes Preservation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). Section 32723(4) of Part 327 requires the DEQ provide for a public comment period of not less than 45 days before a permit application is acted upon.

The DEQ invited public comment on the proposed withdrawal via public notice and website posting on July 10, 2009. A copy of the public notice was transmitted to the CSJ on July 14, 2009 for posting at the entrance to their premises, or another city owned public building. The notice announced the public comment period and requested that comments be submitted to the DEQ by August 25, 2009.

On August 28, 2009, after considering the information submitted relevant to determining the acceptability of a proposed withdrawal and the comments received during the public comment period, the DEQ rendered a decision in favor of authorizing the withdrawal. The DEQ concluded the CSJ proposed withdrawal was not likely to cause an adverse resource impact and that the proposed withdrawal would be implemented in compliance with applicable laws, standards and criteria.

This document includes the basis for authorization of the proposed withdrawal of 32 MGD. It also responds to comments received on the proposed withdrawal including concerns relative to the permit process, the environmental impact of the proposed water withdrawal, the legality of the proposed water use, and the applicability of laws and regulations.

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## **I. BACKGROUND**

### **Proposed Withdrawal**

The location of the proposed 32 MGD water withdrawal is a Lake Michigan water intake. The CSJ will use the water as a source for a community public water supply system that is owned and operated by the city. The withdrawal will be via a Lake Michigan water intake located approximately 0.9 miles from shore and a shore well and pumping facilities located at 1701 Lions Park Drive, St. Joseph, Michigan in portions of section 23, T.04S, R.19W, Berrien County, Michigan. The maximum proposed withdrawal of 32 MGD, corresponds to a pumping rate of ~22,200 gallons per minute (gpm).

Public water supply is a use that the DEQ estimates to be 10% consumptive. While 90 percent of the water will remain in the Lake Michigan watershed, the consumptive use estimate places the loss to the Great Lakes hydrologic system at 3.2 MGD.

## **II. STATUTORY STANDARD**

### **Submittal and Evaluation**

The DEQ is required to evaluate the impact of a waterworks system for a community supply that will result in a total designed withdrawal capacity over the established baseline capacity of more than 2 MGD from the waters of the state (SDWA, MCL 325.1004(3)). In doing the evaluation the DEQ must consider the environmental standards established in Part 327 of Act 451, Great Lakes Preservation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). Upon submittal of plans and specification the DEQ must consider in the evaluation the following information as required by Part 327 (MCL 324.32723[2]):

- Capacity of equipment used to make the withdrawal,
- Location of the withdrawal,
- Withdrawal source,
- Amount and rate of withdrawal,
- Intended maximum monthly and annual volumes and rates, if different from the capacity of equipment used to make the withdrawal,
- Relevant information related to seasonal use,
- Description of how the water will be used and location, amount and rate of return flow,
- Any other information the person would like the department to consider.

The evaluation must also take into consideration existing hydrological and hydrogeological conditions and a description of any proposed preventative measures where relevant.

### **Administrative Requirements**

Upon receipt of plans and specification for a large quantity withdrawal meeting the 2 MGD or more threshold the department is required to provide a public comment period of not less than 45 days. The DEQ received plans and specification from the city of St. Joseph and invited public comment on the proposed withdrawal via public notice and website posting. The posting of the public notice on the DEQ website was done on July 10, 2009. The city of St. Joseph was transmitted a copy of the public notice on July 14, 2009 for posting at the entrance to their premises, or another city owned public building. The public notice announced the public comment period and requested that comments be submitted to the DEQ by August 25, 2009.

The consumptive use estimate of 3.2 MGD does not exceed the 5 MGD threshold established in The Great Lakes Charter, Principles for the Management of Great Lakes Water Resources for proposed withdrawals requiring prior notice and consultation with the other Great Lakes states and provinces. The other Great Lakes states, provinces and federally recognized tribes and first nations were not formally notified of the proposed withdrawal.

### **Conditions Required for Issuance of a Permit**

The department is required to approve a withdrawal for a proposed community owned public water supply system if all of the following conditions are met (MCL 324.32723[6]):

- All water withdrawn, less any consumptive use, is returned to the source watershed;
- The withdrawal is implemented to insure there is no individual or cumulative adverse resource impact (ARI). Cumulative impacts are to be evaluated based upon available information gathered by the department;
- The withdrawal will be implemented in compliance with all applicable local, state, and federal laws, as well as all legally binding regional interstate and international agreements;
- The proposed use is reasonable;
- The permit applicant certifies they are in compliance with the environmentally sound and economically feasible water conservation measures for the applicable water use sector;
- The proposed withdrawal does not violate public or private rights and limitations imposed by Michigan water law or other common law duties.

Parallel requirements for approval are spelled out in Section 4.11, Decision Making Standard, of the Great Lakes – St. Lawrence River Basin Water Resources Compact (Compact). Section 4.11(5) of the Compact provides greater specificity on reasonable use conditions and requires the consideration of the efficient use of the water; the efficient use of existing water supplies; the balance between economic and social development and environmental protection as they relate to other planned withdrawals and uses sharing the same source; supply potential; the degree and duration of likely adverse impacts and the restoration of hydrologic conditions. In conducting the evaluation of the proposed 32 MGD withdrawal the DEQ applied what might be considered the more stringent standard as identified in the Decision Making Standard section of the Compact.

### **III. DECISION MAKING PROCESS**

#### **Consumptive Use Considerations**

A 3.2 MGD consumptive use for the proposed withdrawal was calculated based upon a consumptive use coefficient of 10 percent. The DEQ relied upon the United State Geological Survey publication “Consumptive Water-Use Coefficients for the Great Lakes Basin and Climatically Similar Areas,” Scientific Investigation Report 2007-5197. There is a narrow range of coefficients for public water supplies relative to many other types of use. Further, it is generally conceded the range is 10 to 15 percent as identified in Table 3-1, Consumptive-use coefficient used by Great Lakes jurisdictions, by water use category of the report. Upon review of the aforementioned report, the DEQ decided that 10 percent was the best estimate for consumptive use on a public water supply system. This is the published value for the public water supply sector in Table 3-2, Total water use by category for the Great Lakes Basin, by year, from the Great Lakes Commission annual reports, 1998-2002.

#### **Adverse Resource Impacts**

The applicable standard for adverse resource impact on a proposed withdrawal by a community owned public water supply is by reference Section 32723[6(b)] of Part 327. The standard requires a proposed withdrawal be implemented so as to ensure there are no individual or cumulative adverse resource impacts. Section 32701(1)(a)(vii) of Part 327 defines an adverse resource impact (ARI) for a surface water body as “decreasing the level of a lake or pond with a surface area of 5 acres or more through a direct withdrawal from the lake or pond in a manner that would impair or destroy the lake or pond or the uses made of the lake or pond, including the

ability of the lake or pond to support characteristic fish populations, or such that the ability of the lake or pond to support characteristic fish populations is functionally impaired.”

A comparison of the water lost from the Great Lakes Basin as a result of the proposed withdrawal to the water availability from the surface water body from which the withdrawal originates is one means of assessing the likelihood of an ARI. As noted previously, the proposed withdrawal of 32 MGD corresponds to a daily consumptive use of 3.2 MGD,  $4.278 \times 10^5$  cubic feet per day ( $\text{ft}^3/\text{day}$ ), or  $1.561 \times 10^8$  cubic feet per year ( $\text{ft}^3/\text{year}$ ). The area of Lake Huron and Lake Michigan, which hydraulically act as a single source at the same elevation, possess a combined surface area of 45,300 square miles, or  $1.263 \times 10^{12}$   $\text{ft}^2$ . The consumptive use losses from a one year withdrawal of 32 MGD without any recharge to lakes Michigan and Huron would result in a projected decline in water level of 0.0001236 feet. Accordingly, the DEQ concludes the impact of the proposed 32 MGD withdrawal on lake levels and the corresponding impact to the characteristic fish population would be insufficient to result in an ARI as defined in Part 327.

### **Applicable Local, State and Federal Laws**

To be approved, a withdrawal must be in compliance with all applicable local, state, and federal laws as well as legally binding interstate and international agreements, including the Boundary Waters Treaty of 1909. Section 32726 governing local ordinances, specifically prohibits a local unit of government from enacting, or enforcing an ordinance that regulates a large quantity withdrawal. The information contained within the permit application indicates the withdrawal would be implemented in compliance with applicable state and federal laws (Part 327) and applicable international agreements. The Boundary Waters Treaty of 1909 was agreed to by the U.S. and Canada to provide a mechanism for the resolution of disputes over waters bordering the two countries and to insure the waters of the Great Lakes remain navigable. The proposed withdrawal is located in Lake Michigan. Construction of the intake would not have an impact on navigation. Further, the U.S. and Canada share no border on Lake Michigan so there can be no violation of the Boundary Waters Treaty of 1909.

### **Reasonable Use**

Part 327 requires that a proposed use be reasonable. As noted above the specific criteria for consideration are the efficient use of the water and the efficient use of existing water supplies; a consideration of the balance between economic development, social development and environmental protect, supply potential; the degree and duration of likely adverse impacts and the restoration of hydrologic conditions. These considerations are consistent with Michigan's test for determining reasonable use as set forth in Michigan Citizen for Water Conservation V. Nestle Waters of North America, Inc. [Michigan Citizens for Water Conservation v Nestlé Waters N America Inc, 269 Mich App 25; 709 NW2d 174 (2005)]. The considerations are addressed as follows:

*Efficient Use of the Water:* This requirement is directly tied to the user's commitment to Environmentally Sound and Economically Feasible Water Conservation Measures (Conservation Measures). In the application the CSJ identified the Conservation Measures applicable to the public water supply sector they are employing. A more comprehensive discussion relative to Conservation Measures is provided in a subsequent section.

*Efficient Use of Existing Water Supplies:* Efficient use of the existing water is a consideration when an increased withdrawal is proposed as is the case in the city of St. Joseph proposal. The consideration is intended to assure that water sources are efficiently used before approval is granted for an increased withdrawal. The DEQ, Water Bureau has had the city of St. Joseph on notice as to the need to correct deficiencies in their public water supply system. On July 18, 2008 the city was formally notified of the need to "... make the changes necessary to provide for a continuous, adequate supply of water meeting the state drinking water standards." The notification included recommendations the city of St. Joseph replace their Great Lakes intake to

meet present and future demands and provide better reliability in the system relative to water supply capacity. Without the aforementioned improvements there are concerns the CSJ public water supply system will continue to experience problems in complying with the SDWA.

*Balance between Economic Development, Social Development and Environmental Protection:* Reasonableness of a water use as it relates to the balance between economic development, social development and environmental protection is an important consideration in the acceptability of a proposed withdrawal.

The current CSJ water system customers are users of water from Lake Michigan. The current system serves approximately 13,431 customer accounts equating to approximately 30,000 people in the service area. The existing intake has incurred documented reliability issues associated with sand intrusion, including an incident that completely blocked the supply of water to the treatment plant and resulted in a \$250,000 unplanned expenditure for emergency dredging operations. The existing intake is also susceptible to frazil ice formation due to its location in shallow water. Additionally, the plant has experienced an exceedance of the TOC standard which was due in part to poor raw water quality. The proposed new intake is anticipated to alleviate all of these issues.

By obtaining the proposed water withdrawal authorization and construction of a new intake the direct social benefits include the following:

- Greatly improve the reliability of the water supply for all categories of customer accounts, including commercial, industrial, and residential.
- Address public water supply deficiencies documented by MDEQ.
- Provide capacity to meet current and future demands (Note - the existing intake has been operated at over 90% of its rated capacity in the last 5 years to meet existing demand).
- Provide a redundant intake to allow a continuous water supply during periods of maintenance and unplanned emergency conditions on the intake.
- Continue their long term mutual agreements with neighboring community water supplies, Benton Harbor Township, Michigan, and Lake Charter Township, Michigan, to provide connections to the St. Joseph Water System for emergency use thereby contributing to the health, safety and welfare of the citizenry throughout the area.

From an economic standpoint preliminary projections indicate construction of the proposed intake will result in approximately \$9.6 million in labor, materials, and professional services over the 2 year construction period. Also, there is \$47 million in federal stimulus money tied to the approval of the project to implement the proposed withdrawal. Improving system reliability will encourage economic development in the affected communities and social standpoint.

Lastly, given the net effect of the withdrawal on the water resources as described above, these economic and social benefits to the area would be obtained with an imperceptible impact on the environment.

*Supply Potential:* Supply potential consideration requires the DEQ look at the impact of the withdrawal on the quantity, quality, reliability, and safe yield of hydrologically interconnected water sources. The proposed withdrawal does not present any known or anticipated threat to the quantity or quality of Lake Michigan as a water source. Also, the proposed withdrawal would have no impact on the reliability or the safe yield of the source as it relates to others using Lake Michigan or hydrologically connected sources, such as Lake Huron.

*Degree and Duration of Likely Adverse Impacts:* The DEQ concluded the proposed withdrawal will not cause an ARI.

*Restoration of Hydrologic Conditions:* The water withdrawn by the CSJ, less consumptive use, would all be returned to the source watershed via treated wastewater discharges from the

Benton Harbor – St. Joseph Sewer and Water Authority to the St. Joseph River. The reasonableness of the consumptive use losses associated with the proposed withdrawal coupled with the fact that there is no likelihood of an ARI leads the DEQ to conclude there is no need for the restoration of hydrologic conditions as might be required under Part 327.

### **Environmentally Sound and Economically Feasible Water Conservation Measures**

For permit applications received on or after January 1, 2009, the applicant must self-certify they are in compliance with Environmentally Sound and Economically Feasible Water Conservation Measures (ESEFWCM). More specifically they must certify they are in compliance with the ESEFWCM developed by the applicable water user's sector or developed for the water use associated with that specific withdrawal (MCL 324.32723[6(e)]). To conform with this requirement the DEQ requested via letter to the city of St. Joseph dated July 23, 2009 a description of the sector specific conservation measures they currently have in place as part of the public water supply system operation. The correspondence included a request for a description of conservation measures the city intends to implement in the future.

In return correspondence dated August 11, 2009 the city of St. Joseph described their water conservation measures. Conservation practices included distribution main and meter replacement programs, the former to address system losses due to breaks and leaks and the latter to provide for an accurate accounting of use. As part of the meter replacement program they have budgeted funds to fully automate system wide metering to include the ability to detect abnormally high use at individual customer locales in a "real time" mode.

The city of St. Joseph has implemented a metering and system audit program for the water filtration plant. All plant process water is measured, accounted for and recorded on a daily basis. Water delivered to the distribution system and ultimately to the customer base is totaled and recorded with a comparison made to the "billable flow" on a quarterly basis. The city has also installed meters at various public facilities and buildings (i.e. – city cemetery, parks, all city buildings) to account for water use at those locations. The metering and system audits include leak detection and repair programs and the accounting of water discharged during hydrant use and testing.

The city of St. Joseph has also implemented measures that indirectly impact use. The city no longer provides a summer discount when water use is high due to lawn watering. There is a local ordinance that precludes the use by all residential and commercial users on the same day. Facilities with odd and even addresses are required to water on different days. There is a \$100 to \$500 fine for violation of the ordinance.

Lastly, the city partakes of "cost of service" accounting and rate setting and is actively involved with area schools in conducting water plant tours and the promotion of education program related to water supply efficiency and conservation issues. Consumer confidence reports are also used as a vehicle for public education.

### **Public or Private Rights, Limitations and Common Law**

The issuance of a permit on the proposed withdrawal must not violate public or private rights or interfere with limitations imposed on the use of the resource by Michigan water law or other common law decisions. Specifically, the DEQ must ascertain if the issuance of the permit would interfere with the principle that certain natural resources, which in this case is Lake Michigan, are preserved for public use, and that the state is required to maintain the resource for the public's reasonable use. The issuance of a permit for the proposed withdrawal would not interfere with the public's access to Lake Michigan, the public interest in Lake Michigan as a natural resource, or maintenance of Lake Michigan for drinking and recreational purposes.

## VI. PUBLIC PARTICIPATION PROCESS

The DEQ invited public comment on the permit application via public notice and website posting. The public notice was posted on the DEQ internet website on July 10, 2009. The web posting included only the public notice as the authorization request was in the form of public water supply system plans and specification submitted to the Kalamazoo District Office, Field Operations, Water Bureau, DEQ. The public notice announced the public comment period and requested comments be submitted to the DEQ by August 25, 2009.

The remainder of this document lists in summary form the comments received on the proposed 32 MGD withdrawal by the CSJ and the DEQ response to the comments on the basis of applicable rule, policy, and procedure in administration of the public water supply program and the criteria for the authorization of a new or increased water withdrawal under the applicable criteria of Part 327, Great Lakes Preservation, of NREPA.

### Inadequate Information

Comments were received criticizing the information submitted as part of the application process. Specifically, there were criticisms that the submittal of plans and specifications through the public water supply program inherently omits information necessary to the Part 327 determination as it relates to maximum monthly and annual volumes and rates, information relevant to seasonal use if the withdrawal will have seasonal fluctuations, a description of how the water will be used, and the location, amount and rate of return flows. Part 327 also requires an evaluation of hydrological and hydrogeological conditions. There were also comments relative to plans and specification inadequacies in addressing the issue of whether or not the proposed use would be reasonable. Lastly, it was suggested that specific information should be provided to address the permitting criteria of Part 327 such as return of water to the source watershed, no individual or cumulative adverse resource impacts, compliance with applicable laws and the self-certification to applicable water conservation measures.

**Response to Comments:** The DEQ recognizes a number of the aforementioned criticisms as valid points. The CSJ proposal was the first large quantity water withdrawals where the permit threshold of 2 MGD was exceeded and the request for authorization came via the amendments to the Safe Drinking Water Act and the public water supply program. Early in the evaluation process the DEQ recognized some of the deficiencies in the information submitted. As a result, there were numerous contacts and correspondence with the CSJ to obtain the information necessary to addressing the permit criteria of Act 327. The DEQ is currently working toward modification of the necessary permit application and water withdrawal authorization forms to eliminate this as a problem in future requests for large quantity withdrawals of 2 MGD or more.

### Reasonableness of Proposed Withdrawal

Comments were received relative to the reasonableness of the proposed withdrawal noting that any proposal must be considered on the basis of its common law principles of water law in Michigan. In the past common law discourse has spoken to the necessity of the amount and manner of use. Therefore the amount and manner of use should be evaluated within the context of efficient use of the water, methods to minimize waste, and whether efficient use is being made of existing water supplies. Comments focused on five areas as examples that appropriate consideration has not been given to this issue. The areas were:

Unaccounted for Water – Commenters cited the CSJ reliability study noting that the percent of water that is unaccounted for is 12 to 18 percent. This was attributed to not metering all services in the distribution system and not having a master meter on the supply line to bulk municipal customers.

**Response to Comment:** The DEQ admits that unaccounted for water in the range of 12 to 18 percent is arguably too high and as noted the CSJ has set a target of 10 percent. However, the

range and magnitude of loss can not be solely attributed to a lack of metering. The DEQ believes this problem can be addressed to a great extent by practicing some of the conservation measures identified by the CSJ such as full cost pricing, leak detection and repair programs, the elimination of unmetered connections and metering/system audits.

Regarding the failure to meter bulk municipal customers, this is not an issue so long as uses within the municipal customer service area are properly metered and priced. Adjacent municipal customers own the water supply infrastructure within their jurisdiction. However, the CSJ oversees all water supply operations (pricing, metering, maintenance, etc.) as the designated proxy for the customer municipality members in the City of St. Joseph Water Authority.

Conservation Measures – Commenters note that applicants seeking authorization for a large quantity withdrawal are required to self-certify they are in compliance with Environmentally Sound and Economically Feasible Water Conservation Measures developed by the applicable water user's sector. It was noted the correspondence describing the CSJ's water conservation measure did not "certify compliance" but merely described the water conservation measures they currently employed. Moreover, there was recognition that the CSJ served a considerably larger population outside of the city than within and there was no accounting for the conservation measures being employed by those outside the city. There were also criticisms of the manner in which the CSJ was implementing distribution main replacement and leak detection programs, meter replacement and metering of public buildings, public education initiatives and enforcement of the sprinkling ordinance. Lastly, none of CSJ proposed wholesale or municipal customers provide information on compliance with ESEFWCM.

**Response to Comments:** After January 1, 2009 permit applicant's are required to "self-certify" they are in compliance with Environmentally Sound and Economically Feasible Water Conservation Measures developed by the applicable water user's sector or developed for the water use associated with that specific withdrawal. The CSJ has set a goal of a less than 10 percent system wide unaccounted for water loss. The DEQ will require as a condition of the water withdrawal authorization the CSJ certify compliance with the appropriate and applicable water conservation measures.

The DEQ acknowledges the CSJ has not certified as to employing each and every water conservation measure identified for the public water supply sector, and notes there is not a requirement in Part 327 that they do so. The DEQ commits to working with public water supplies to further water conservation efforts and will do so with the CSJ and their customer municipalities.

Peaking Factor – Commenters questioned the historical data on peak use and the unusually large "design factor" obtained from the analysis of the data suggesting it could be attributed to lawn irrigation and was unnecessary if the CSJ properly implemented their lawn sprinkling ordinance. They expressed an opinion that the high design factor (i.e. 2.89) was driving the intake size unnecessarily large.

**Response to Comments:** DEQ staff disagrees with the criticism of 2.89 as a design factor. Peak use can be highly variable and is contingent upon many factors. The DEQ believes the most important factor in the CSJ water use is a dramatic change in the demand characteristics of its customer base over the past 30 years. The city traditionally relied upon large but consistent industrial demands from companies such as Continental Can, Whirlpool, and Alcoa Aluminum. With the relocation or the implementation of water efficiency measures by such companies these large industrial demands have significantly declined. At the same time, the city's service area was expanding to connect more residential customers in the surrounding townships. Residential customer daily demands are less consistent and frequently exhibit peaking factors 5 to 10 times their average use. The combination of changes has resulted in

average demands that have remained fairly constant or declined, while maximum daily demands have increased due to the increase in the residential customer base. Given the history of the CSJ water supply the DEQ believes if anything the 2.89 design factor is conservative.

Peak Hour Demand – Commenters criticized the sizing of the shore well pumping station at ~20 MGD based upon a factor of 1.28 applies to the peak day demand for 2025 of 15.91 MGD. The commenters questioned why the peak hourly demand could not be met from existing or planned storage capacity.

**Response to Comments:** DEQ staff note that it is common practice to design pump capacity based upon the maximum daily demand. Storage capacity is utilized to meet only peak hour demands and systems are generally designed accordingly.

Capacity versus Demand - A comment was received questioning why the CSJ was proposing to install an intake of 32 MGD capacity while keeping their existing intake with a capacity of 16 MGD. There was some question as to why the CSJ would need 48 MGD in capacity when their projected 2025 average day demand was only 5.5 MGD.

**Response to Comments:** In constructing and locating a new intake, the city needs to provide a capacity that addresses not only their current need but also their projected future needs over the design life of the new intake. Design life on many similarly engineered structures is 20 years. However, due to the difficulty in installing Great Lakes intakes and the prohibitive cost of marine construction it is not uncommon for such facilities to have a 50 year design life, as is the case on the CSF intake.

Regarding the existing intake, given the water quantity and quality problems the CSJ has experienced in recent years the DEQ suspects the city has overstated the system capacity when they say it is 16 MGD. The existing intake was designed for that capacity, but the intake and treatment system are likely restricted to lower capacities due to hydraulic considerations and water quality issues. Lastly, the DEQ believes it prudent for the city to maintain the existing intake and low service pumping station for emergencies. Should they need to perform maintenance or repair on the new structure such as back-flushing of the new intake to remove a blockage, the existing intake would prove invaluable. There is the side benefit that back-flushing will be possible with untreated and un-chlorinated water minimizing the potential for chemical harm to the environment.

## V. Recommendations

The review of information by commenters resulted in five recommendations specific to the CSJ proposed withdrawal. The recommendations were as follows:

- 1) The CSJ should commit to on-going and systematic leak detection and repair programs,
- 2) CSJ should commit to timely replacement of all residential and commercial water meters and the periodic testing and replacement of all meters,
- 3) The CSJ should commit to an on-going promotion of sprinkling regulations,
- 4) There must be a demonstration that all customers of the CSJ water supply system commit to the above recommendations,
- 5) The CSJ must limit the use of the existing intake to emergency situations where the capacity of the proposed intake is compromised or maintenance on the new intake is needed and unable to meet the water system needs.

**Response to Recommendations:** Regarding the first two recommendations, the DEQ routinely discusses operation and maintenance practices such as leak detection and repair and the testing and replacement of meters as part of the public water supply program sanitary survey process. These issues are integral to the efficient operation of a public water supply

system, especially when there is a large disparity between the volume of water that is pumped and the volume of water for which a billing has occurred. The DEQ believes these issues are adequately addressed in the administration of the public water supply program.

On the promotion of sprinkling regulations, the CSJ and member municipalities have an ordinance in place to address the restriction of water use and sprinkling regulations. They levy fines for violation. The DEQ will recommend they include the sprinkling regulations in any educational out-reach.

The CSJ water system is operated by the city. All connected municipal customers, including Lincoln Township, Royalton Township and St. Joseph Township, exist as the Lake Michigan Shoreline Water and Sewage Authority (LMSWSA). The members of the LMSWSA own the infrastructure for the public water supply system within their jurisdiction. However, they are all treated as “retail customers.” The CSJ as the designated proxy is responsible for all water supply operations, system maintenance and enforcement of local ordinances pertaining to the public water supply system. Any activities related to leak detection and pipe repairs, meter replacement or other conservation activities conducted by the CSJ by default extend to the public water supply member municipalities.

Lastly, the CSJ has committed to using the existing intake for emergency purposes only. The DEQ in the permit action will restrict the water withdrawal authorization to the CSJ to 32 MGD.

## **VI. Summary of DEQ Position**

The DEQ has determined the request for authorization of a proposed 32 MGD water withdrawal from Lake Michigan has been demonstrated to be in compliance with the requirements of the Safe Drinking Water Act and Part 327. Further, the proposed withdrawal will not cause an ARI. The DEQ bases this determination on information and data pertinent to making a decision on a Part 327 permit application and in consideration of the comments received from the public.

The authorized withdrawal capacity is 32 MGD, or approximately 22,220 gallons per minute. The MDEQ will assure that capacity is not exceeded in the issuance of the required Michigan Safe Drinking Water Act construction permit (1976 P.A. 399, as amended) by limiting the equipping of the new intake with pumps possessing a sum of capacities not to exceed 32 MGD. Further, upon construction of the new intake, use of the existing intake shall be limited to emergency and maintenance situations where the new intake is incapable of meeting system demands.