**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | |
| | ) | |
| WATER QUALITY STANDARDS AND | ) | |
| EFFLUENT LIMITATIONS FOR THE | ) | R08-9 Subdocket C |
| CHICAGO AREA WATERWAY SYSTEM | ) | (Rulemaking – Water) |
| AND THE LOWER DES PLAILNES RIVER: | ) | |
| PROPOSED AMENDMENTS TO 35 Ill. | ) | |
| Adm. Code Parts 301, 302, 303 and 304 | ) | |

NOTICE OF FILING

TO: John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

Attached Service List

PLEASE TAKE NOTICE that I have today filed with the Illinois Pollution Control Board Correction to Pre-Filed Testimony of Julia Wozniak, Midwest Generation, Regarding Asian Carp Issues, copy of which is herewith served upon you.

Dated: October 18, 2010

MIDWEST GENERATION, L.L.C.

By: _____
One of Its Attorneys

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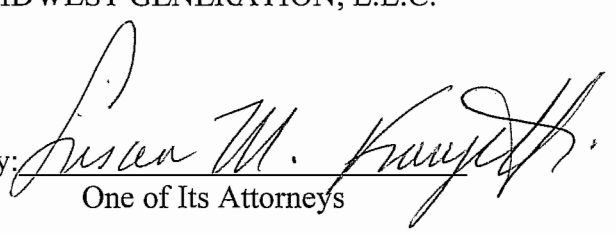
| Adm. Code Parts 301, 302, 303 and 304 | ) | |

**CORRECTION TO PRE-FILED TESTIMONY OF JULIA WOZNIAK, MIDWEST GENERATION, REGARDING ASIAN CARP ISSUES**

On October 8, 2010, the Pre-Filed Testimony of Julia Wozniak, Midwest Generation, Regarding Asian Carp Issues was filed in these proceedings. A typographical error occurred in the sentence on page 13 of Ms. Wozniak's pre-filed testimony that reads: "A total of approximately 500,000 pounds of fish were collected during Operation Silver Screen." This sentence correctly should have read "50,000" pounds, not "500,000" pounds. A corrected copy of the complete text of Ms. Wozniak's pre-filed testimony is attached.

Respectfully submitted,

MIDWEST GENERATION, L.L.C.

By: 
One of Its Attorneys

Date: October 18, 2010

Susan M. Franzetti
NIJMAN FRANZETTI LLP
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**CERTIFICATE OF SERVICE**

The undersigned, an attorney, certifies that a true copy of the foregoing Notice of Filing and Correction to Pre-Filed Testimony of Julia Wozniak, Midwest Generation, Regarding Asian Carp Issues were filed electronically on October 18, 2010 with the following:

John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

and that true copies were mailed by First Class Mail, postage prepaid, on October 18, 2010 to the parties listed on the foregoing Service List.

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**CORRECTED PRE-FILED TESTIMONY OF JULIA WOZNIAK, MIDWEST GENERATION, REGARDING ASIAN CARP ISSUES**

## I. INTRODUCTION

My name is Julia Wozniak and I am currently employed as an Environmental Project Manager with Midwest Generation ("MWGen" or "Midwest Generation"). I have previously provided pre-filed testimony in this proceeding which describes my employment and educational background, so I will not repeat all of that information here. (*See* Board Exhibit 364, Docket No. R08-9; "Pre-filed Testimony of Julia Wozniak" dated August 4, 2008). As part of my job responsibilities for the past 26 years (10 years with MWGen and 16 years with ComEd), I have actively participated in state and federal efforts related to policy matters and rulemakings. Midwest Generation has been actively involved as a primary stakeholder in the control efforts to prevent the migration of Asian carp to Lake Michigan.

My testimony will focus on the following areas: (1) the electric barriers installed in the Chicago Area Waterway System (CAWS) to prevent the migration of Asian carp and events regarding their operation which are relevant to this UAA rule-making proceeding; and (2) other on-going efforts by federal and state agencies to stop the spread of invasive aquatic species into and/or out of the Great Lakes.

My testimony presents a brief review of the history and operation of the electric barrier project in the Chicago Sanitary and Ship Canal (CSSC), including the public safety and commercial navigational issues that have arisen from the operation of the electric barriers. This is followed by a discussion of Midwest Generation's role in working cooperatively with government entities to monitor and report on the presence of invasive species in the vicinity of the five MWGen electrical power generating stations along the CSSC and the Lower Des Plaines River, as well as more recent efforts to help government agencies implement additional Asian carp deterrents in the waterway. My testimony also provides a review of events in 2009 and 2010 that have elevated the concern about the migration of Asian carp species through the CSSC and into the Great Lakes. These events include the discovery of Asian carp in closer proximity to, as well as beyond the CSSC electric barriers, and the closing of the CSSC in the area of the electric barriers to all but commercial barge traffic and other large vessels. Midwest Generation's own discovery of the presence of six Asian carp in the Lower Des Plaines River during fish collection efforts in May, 2010 has also resulted in an increased effort on the part of natural resources agencies to capture additional Asian carp downstream of the electric barrier. These more recent developments are particularly relevant to the Board's consideration of the use classification for the CSSC and the Upper Dresden Island Pool (UDIP).

## II. OVERVIEW OF PARTICIPATION IN ASIAN CARP CONTROL EFFORTS

Since the late 1990's, initially on behalf of ComEd and thereafter as a MWGen employee, I personally have devoted an extensive amount of time to matters related to the migration of Asian carp in the UAA waterway and the government-led efforts to deter their migration. On behalf of Midwest Generation, I have represented the company as an active member of the Aquatic Nuisance Species Dispersal Barrier Panel (the "Barrier Advisory Panel").

The Barrier Advisory Panel was originally organized by the U.S. Army Corps of Engineers' (USACE) Chicago District in 1996 to guide the construction, operation and maintenance of the first electric barrier in the CSSC, known as the "Aquatic Nuisance Species Dispersal Barrier" or "Barrier I," to prevent the migration of Asian carp and other invasive species. Since the "Barrier I" project's initiation, through its installation and commencement of operations, and continuing thereafter, I have been an active participant in the activities of the Barrier Advisory Panel. Since Barrier I began full operation in 2002, the work of the Barrier Advisory Panel has expanded over the years to also include review of the planning, installation and operation of an additional electric barrier in the CSSC, known as "Barrier IIA," in 2009, and continuing to-date with the development and construction of Barrier IIB. Midwest Generation continues to participate on the Barrier Advisory Panel, which has now been designated as an official advisory/outreach group of the Asian Carp Regional Coordinating Committee ("ACRCC"). The ACRCC was officially established under the authority of section 118 of the Clean Water Act and Executive Order 13340. (*See* "Asian Carp Control Strategy Framework," dated May, 2010, pp. 7 and 41: http://www.asiancarp.org/Documents/AsianCarpControlStrategyFrameworkMay2010.pdf (last accessed, October 7, 2010))

At the invitation of the U.S. Coast Guard (USCG), Midwest Generation also has been an active participant in the USCG's Safety Work Group. The Safety Work Group was established in early 2008 to try to address the identified safety concerns related to barrier operations. I have and continue to be an active participant in the Safety Work Group on behalf of MWGen.[1] Due to the close proximity of the electric barrier to MWGen's Will County Generating Station, our

[1] The Safety Work Group is regularly attended by eleven stakeholders, including Midwest Generation. Other key partners include the American Waterways Operators, Illinois River Carriers Association, USACE Chicago District, USCG Marine Safety Unit Chicago, USCG Sector Lake Michigan/Captain of the Port Lake Michigan, and the Ninth Coast Guard District.

station personnel and contractors have worked closely with the USACE, the USCG and Illinois Department of Natural Resources (IDNR) to ensure that efforts to deter the migration of Asian carp do not adversely impact MWGen Will County Station operations and that the Station's operations do not in turn interfere with those efforts.

In May 2009, the USACE initiated testing for Asian carp using a relatively new method of sampling the water column for the presence of Environmental DNA or "eDNA", which is species-specific and purportedly can detect the presence of Asian carp in a given waterbody. When positive eDNA samples began to be found in close downstream proximity to the electric barrier zone in July, 2009, it sent up a warning flag that Asian carp were moving upstream more rapidly than expected. When Asian carp eDNA was detected above the existing barriers in October, 2009, it served as the trigger for the planning and implementation of the first of several deliberate efforts by natural resources agencies to actively try to minimize the number of Asian carp in the waterways.

The first planned fish kill effort on the CSSC, termed operation "Silver Screen" by the IDNR, took place in early December, 2009. (For further information, see http://www.asiancarp.org/documents/GLC(2).ppt (last accessed, October 7, 2010)) This action was taken in response to Asian carp eDNA detection both close to as well as upstream of the electric barriers, and was also spurred by the need to bring Barrier IIA down for required maintenance. Midwest Generation was one of the first industries requested by the U.S. EPA and the IDNR to actively participate in the operation Silver Screen planning effort as a full partner in the original, ad-hoc Rapid Response Workgroup. I personally participated in numerous conference calls, logistics meetings and site walk-downs from approximately September, 2009 through November, 2009, with representatives of U.S. EPA, IDNR and their contractor

personnel, in order to help formulate the final treatment plan strategy. Due to the MWGen Will County Station's proximity to both the electric barrier and the planned rotenone treatment zone, Midwest Generation's participation and cooperation were vital in helping IDNR implement their rotenone application and fish recovery effort. Midwest Generation provided on-site access and 24/7 support for the team assigned to one of the five rotenone injection points along the CSSC. At the request of the supervising authorities, Will County Station also altered normal plant operations during the rotenone application period to help facilitate the effective application and dispersal of rotenone in the waterway. In turn, IDNR and its contractors helped to ensure that the resultant fish kill had no adverse impact on generating station operations.

More recently, Midwest Generation has been working cooperatively with the USACE concerning its plans for the installation of a hybrid bio-acoustic barrier in the vicinity of the Midwest Generation Joliet 29 Station at the downstream side of Brandon Road Lock and Dam. As further discussed below, this work is part of the on-going effort by the USACE to implement additional methods to help deter the migration of Asian carp to the Great Lakes.[2]

Primarily through its long-term (over 25 years) fisheries monitoring program on the waterway, as well as individual MWGen station inspections, Midwest Generation continues to provide state and federal resource agencies with more detailed information regarding the presence of aquatic nuisance species than they would otherwise be able to obtain, due to personnel and budgetary constraints.

[2] Interim Report IIIA—full title: Dispersal Barrier Efficacy Study INTERIM IIIA – Fish Dispersal Deterrents, Illinois & Chicago Area Waterways Risk Reduction Study and Integrated Environmental Assessment: http://www.lrc.usace.army.mil/pao/02June2010_InterimIIIA.pdf (last accessed, October 7, 2010).

## III. The Aquatic Nuisance Species Barrier Project – Its Purpose and Effects

### A. Background - The Invasive Species Threat to the Great Lakes

"Asian carp" is the term used for a group of invasive species of fish that can grow up to four feet long, weigh over 100 pounds and leap out of the water. A photo of an Asian carp is attached as Attachment 1 along with a copy of a Fact Sheet on Asian carp. These fish, which are native to the large rivers of eastern China, were inadvertently introduced into the wild in the U.S. in the early 1980's from aquaculture facilities. They are capable of causing significant damage to the native food chain, as well as the recreational sport fish industry in the Midwest.

Of particular concern to the Midwest region are two species, the bighead carp (Hypophthalmichthys nobilis) and the silver carp (Hypophthalmichthys molitrix), both of which are plankton feeders. (*See* Attachments 1 & 2) As such, they are in direct competition for food with native paddlefish, bigmouth buffalo and gizzard shad, as well as with all species of juvenile fish and mussels. Because of their plankton feeding habits, they are not subject to fishing pressure by anglers and due to their size, they have no natural predators (except when they are very young). If these species are allowed to enter the Great Lakes, scientists are concerned they will devastate the Great Lakes commercial and sport fishing industries, as well as the delicate ecological balance of this unparalleled natural resource.

In July, 2002, the threat of invasion of Lake Michigan by Asian carp officially became an international issue. The International Joint Commission (IJC) for the Great Lakes sent letters to both Colin Powell (U.S. Secretary of State) and Bill Graham (Canadian Minister of Foreign Affairs) requesting "immediate action by the governments to prevent the imminent introduction of Asian carp into the Great Lakes." The IJC letter stated that: "Scientific consensus indicates that the introduction of Asian carp may result in economic and ecological damages to the Great

Lakes ecosystem that far exceed those brought about by the previous introduction of the sea lamprey and the zebra mussel." (*See* Attachment 3, IJC Letter dated July 5, 2002)

**B. The Aquatic Nuisance Species Dispersal Barrier Panel**

As I have previously stated, the Barrier Advisory Panel was initially created by the USACE to provide guidance and direction for the construction, operation and maintenance of Barrier I. The Panel's work has expanded to include monitoring the construction and activation of the second, more powerful CSSC electric barrier, known as "Barrier IIA." Barrier IIA was originally designed as one part of a parallel system of two more powerful barrier arrays located directly downstream of the original Barrier I. The Barrier Advisory Panel was also directly involved in helping to obtain approval and appropriations for the construction of "Barrier IIB" (the second component of the more powerful barrier system). Barrier IIB is expected to be completed within the next few months. A list of the Barrier Advisory Panel participants is attached to this testimony as Attachment 4.

The Barrier Advisory Panel meets with the USACE, U.S. Fish and Wildlife Service (USFWS), IDNR and other regulatory and natural resources agencies on a semi-annual basis to discuss barrier issues. The primary role of the Barrier Advisory Panel has been to provide input to the USACE on barrier needs and concerns, assist in identifying acceptable barrier operational parameters, provide expertise on project planning and design, identify and utilize multiple funding sources for barrier-related needs and to advance the planning, construction and safety testing of the barriers. Additionally, the Panel reviews the results of on-going research related to invasive species monitoring and detection and explores additional physical, acoustical, and other methods to deter the movement of invasive species into or out of Lake Michigan. The USACE continues to meet regularly with the Barrier Advisory Panel to obtain its input on the design, safe

operation and monitoring of the barriers and to identify other potential means of stopping the spread of aquatic nuisance species through the CSSC. Panel members represent more than 50 international, federal, state, regional, municipal, industrial, academic and environmental groups or agencies. A wide array of expertise is represented by the panel, whose members include field and research biologists, academic specialists, engineers, regulators, barge operators and commercial water users.

### C. 2002: The CSSC Electric Barrier I Begins Operation

The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996, 16 U.S.C. §§ 4701 *et seq.*, authorized the USACE to conduct a demonstration project to identify an environmentally sound method for preventing and reducing the dispersal of nonindigenous aquatic nuisance species through the CSSC between the Mississippi and Great Lakes watersheds. The USACE, with the support of the then ad-hoc Barrier Advisory Panel, selected an electric barrier because it was a non-lethal deterrent with a proven history, which would not overtly interfere with navigation in the canal.

With the help of other state and federal agencies, the USACE initiated an electrical barrier demonstration project in the CSSC. The first barrier (called "Barrier I") was energized in April, 2002 and has been in operation since that time. As shown in Figure 1 below, it is located approximately thirty miles from Lake Michigan at River Mile 296.5 in Romeoville, IL. It is less than 1 mile upstream of Midwest Generation's Will County Generating Station.


Figure 1: Aerial view of the Chicago Sanitary and Ship Canal Aquatic Nuisance Species Dispersal Barrier ("Barrier I"), located in Romeoville, IL
(Source: U. S. Army Corps of Engineers, Chicago District)

As illustrated in Figure 2 below, Barrier I uses a low-charge electrical current (a maximum of approximately one-volt per inch) to create an electric field in the water across the CSSC by pulsing low voltage DC current through steel cables secured to the bottom of the canal. Because Barrier I was intended to be a demonstration project, it was designed and built with materials that were not intended for long-term use. In 2007, Congress authorized the USACE to (i) complete a new electric barrier, called Barrier II; (ii) upgrade Barrier I to make it permanent; and (iii) to operate the barrier system at full federal funding.

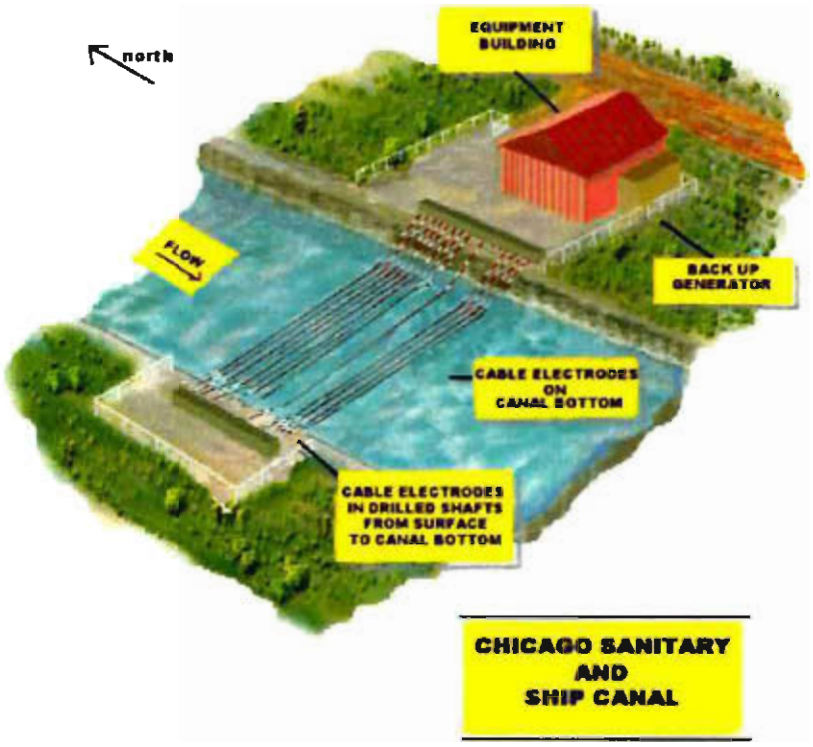



**Figure 2: Plan view of how barrier electrodes are placed in canal bottom.**
(Source: http://images.suite101static.com/792724_com_db1.jpg (last accessed, October 7, 2010)

### D. 2006 – August 2009: The Construction and Operation of CSSC Electric Barrier IIA

In 2006, the USACE completed construction of the first phase of the second barrier, called "Barrier IIA," in the CSSC. It is approximately 500 feet long and is located 800 to 1300 feet downstream of Barrier I. Barrier IIA was designed to operate continuously at one-volt per inch, but is capable of operating at higher electrical voltage levels of up to four-volts per inch. Because of its design, Barrier IIA can generate a more powerful electric field, over a larger area within the CSSC, than Barrier I. After a temporary safety plan was put in place to address safety concerns expressed by commercial navigational users of the CSSC, Barrier IIA was successfully operated at one volt/inch for the first time for approximately seven weeks in September and October 2008, while Barrier I was taken down for maintenance. However, Barrier IIA's

temporary operation resulted in heightened safety concerns regarding the potential for electrical arcing between barges from the electrical field generated by Barrier IIA under certain conditions.[3] This "sparking" between barges transiting the barrier creates a risk to all barge workers, especially those with flammable cargoes. Due to these safety concerns, it was decided that Barrier IIA operation should be limited to one volt/inch until such time as safety testing results determined that higher voltage operation would not pose a significant risk to human activity within the barrier zone. From April 2009 until August 2009, both Barriers I and IIA were in operation simultaneously at the one-volt per inch level

### E. August – December 2009: The Discovery of Asian Carp in the CSSC, the Rotenone Fish Kill "Operation Silver Screen", and Plans for Barrier IIB

On August 11, 2009, I attended a Barrier Safety Committee meeting at which the USACE informed the primary stakeholders of its intention to increase the strength of the barrier electrical field in response to the increased threat of Asian carp moving upstream. The USCG was present and re-emphasized its continuing goal to protect the health and safety of all waterborne transit, with the highest priority being to ensure that commercial navigation would be protected to the greatest extent possible.

At an August 12, 2009 press conference, the USACE issued notice that it planned to increase the voltage of Barrier IIA to two-volts/inch on a full time basis, beginning on August 17, 2009. (A copy of the USACE August 12, 2009 Press Release is attached as Attachment 5). This action was taken based on eDNA testing results indicating that Asian carp were present above the electric barriers and much closer to the Great Lakes waterway system than previously

[3] Safety concerns from electrical arcing had begun as early as 2005. During USACE safety testing of Barrier I in January 2005 at the one-volt per inch operating level, sparking was observed at points where metal-to-metal contact occurred between two barges in the barrier field. Operating Barrier IIA at higher voltages, up to four-volts per inch (the maximum capacity), presents an even higher risk of electrical arcing; however, there is no data yet to indicate the magnitude of this increased risk. (*See* Attachment 5 for USACE Safety Notice)

thought. (*See* 2009 and 2010 eDNA results summaries issued by the ACRCC in Attachment 6). The new genetic water testing results also indicated that Asian carp were closer to the electric barrier than previously thought based on standard physical sampling methods. Environmental or "eDNA" testing is a surveillance tool that tests for the genetic presence of a specific species of fish in the water. This testing protocol was developed by researchers at the University of Notre Dame. The USACE has stated that "eDNA is a strong indicator of Asian carp presence." Positive eDNA results for Asian carp were obtained from samples taken within five miles downstream[4] of the barrier location during the July-August, 2009 timeframe.

In response to these developments, the USCG implemented a Regulated Navigation Area (RNA) which limited access to the barrier area to only those commercial vessels which meet specific criteria and follow pre-established protocols when traversing the barrier area while Barrier IIA was in operation. Terms of the RNA were discussed with and approved by important stakeholders, including Midwest Generation, prior to implementation. Since mid-August, 2009, Barrier IIA has been operating at two volts per inch. (A copy of the August 18, 2009 RNA is available at: http://www.piersystem.com/go/doc/1295/312782/ (Issued 8/18/2009) (last accessed, October 7, 2010)

Shortly thereafter, in September, 2009, Asian carp eDNA was detected approximately only one mile downstream of the barrier, even closer than the eDNA testing performed in the preceding months. (*See* September 18, 2009 USACE Press Release in Attachment 7). This unexpected discovery spurred an even more heightened sense of urgency among all involved governmental and natural resources agencies to ensure that the existing invasive species

[4] "Downstream" is the term used to describe the portion of the waterway that leads south toward the Mississippi River.

deterrents remain in place to protect the Great Lakes. Then, in October, 2009, Asian carp eDNA was detected in the Cal-Sag Channel and Calumet River, which is upstream of the barrier zone.

In December, 2009, an approximately 6 mile section of the CSSC was closed during scheduled maintenance of Barrier IIA. Due to concerns that Barrier I's voltage alone would not be effective in deterring juvenile Asian carp, and the recent eDNA testing results indicating the presence of Asian carp in the immediate vicinity of the barriers, a fish toxin known as rotenone was applied to the canal between Barrier I and the Lockport Lock and Dam as part of "Operation Silver Screen.". At least 450 people from 20 agencies from the Great Lakes states and Canada assisted in this effort, along with all of the primary industries on the canal system, including Midwest Generation. A total of approximately 50,000 pounds of fish were collected during Operation Silver Screen. One bighead Asian carp was collected, although it is suspected that more dead Asian carp were present on the canal bottom but could not be retrieved.

**F. 2010: Construction of the CSSC Electric Barrier IIB**

Construction on a third electric barrier ("Barrier IIB") is underway at this time. Barrier IIB will augment the capabilities of Barriers I and IIA. The location of Barrier IIB is in the CSSC, approximately 220 feet upstream of Barrier IIA, as shown in Figure 3 below. The intention is for all three electric barriers (Barriers I, IIA and IIB) to work together to deter the migration of invasive species through the canal system (although it is currently more effective in preventing upstream migration than downstream).[5] The estimated total project cost through

[5] While there is an electric current generated both upstream and downstream of the barrier, there are two reasons why the barrier system is less effective in preventing invasive species from moving in the downstream direction:

(1) The way the electric field is configured provides a stronger current on the downstream side, thereby increasing the repelling effect towards those species on their way upstream; and
(2) Any high flow situation in the canal system (which happens frequently during wet weather events) would serve to "push" invasives through the barrier, whether they like it or not. Since the barriers are not designed to kill, they would then resume their downstream journey, undeterred.

completion of Barrier IIB and upgrade of Barrier I to make it a permanent fixture in the CSSC is $29.6 million. A map showing the location of Barriers I, IIA and IIB is included in Figure 3 below. Additional background information on the electrical barrier project may be obtained at: http://uscg.fishbarrierinfo.com/go/doctype/1295/16324 (last accessed, October 7, 2010).

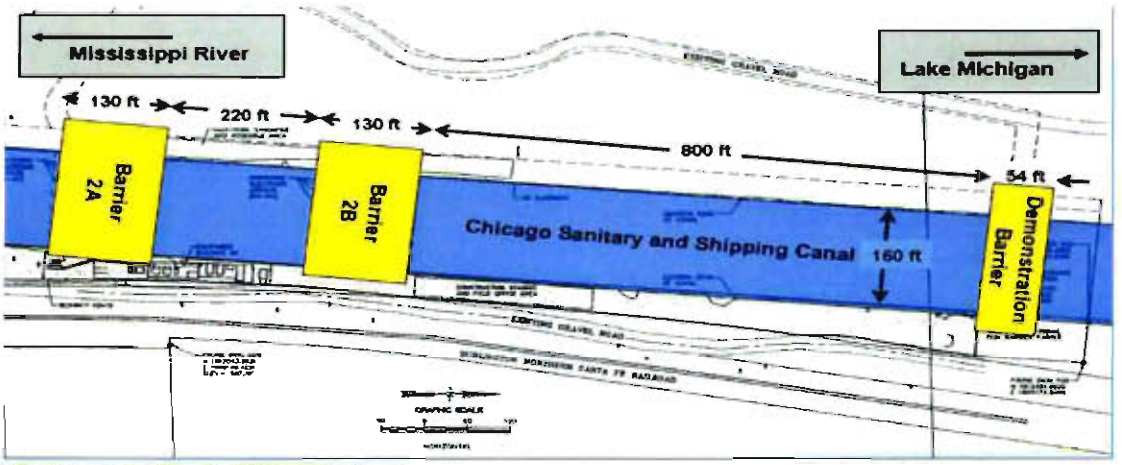



**Figure 3: Illustration of the Chicago Sanitary and Ship Canal Aquatic Nuisance Species Dispersal Barriers in Romeoville, IL.**

### G. Other Changes in the CSSC Arising from the Electric Barrier Project

In addition to the installation of the electric barriers themselves, other changes have occurred in the CSSC as a result of the operation of the barriers. The USACE has also installed blasting mats at the bottom of the CSSC to draw down the effects of the extended electrical field generated by the barrier. This measure was shown to be relatively effective based on subsequent USACE-conducted safety tests.

In 2010, the USACE proposed the installation of additional parasitic structures in the canal bottom to help further draw down the stray current being emitted by the barrier arrays outside of the barrier zone (*See* copy of July 19, 2010 IDNR Public Notice in Attachment 8).

This is being done in advance of the start-up of Barrier IIB (expected in mid-to-late October, 2010).

There also have been changes made that affect navigation (both recreational and commercial) in the electric barrier areas, as well as in other areas affected or potentially to be affected by governmental efforts to prevent the migration of Asian carp. Based on its outreach efforts to primary stakeholders, the USCG and the USACE developed regulations and safety guidelines, with input from stakeholders (including Midwest Generation), to address the risks and hazards associated with operating the electric barriers. The USCG has issued a series of Temporary Interim and Final Rules to help ensure the continued safety of persons and/or equipment in the vicinity of the electric barriers. These regulations have been published in the Federal Register in a series of final and temporary final rules. *See, e.g.*, 33 CFR 165.923, 70 Fed. Reg. 76692 (December 28. 2005); 71 Fed. Reg. 4488 (January 27, 2006); 71 Fed. Reg. 19648 (April 17, 2006); 73 Fed. Reg. 33337 (June 12, 2008); 73 Fed. Reg. 37810 (July 2, 2008); 73 Fed. Reg. 45875 (August 7, 2008); 73 Fed. Reg. 63633 (October 27, 2008); 74 Fed. Reg. 6352 (February 9, 2009); 74 Fed. Reg. 24722 (May 26, 2009); 75 Fed. Reg. 759 (January 6, 2010); and 75 Fed. Reg. 36288 (June 25, 2010). These rules, in relevant part, include the establishment of a Regulated Navigation Area on the CSSC near Romeoville, Illinois and a "Super" Safety Zone covering 77 navigational miles from the Brandon Road Lock and Dam to Lake Michigan (including the Des Plaines River, CSSC, Chicago River and Cal-Sag Channel).

The RNA encompasses an area approximately 2.5 miles long (located between mile markers 295 and 297.5 in the CSSC, approximately 1.1 miles south of the Romeo Road Bridge to approximately 1.3 miles northeast of the Romeo Road Bridge). *See* http://www.piersystem.com/go/doc/1295/431975/ (last accessed, October 7, 2010). Transit

through the RNA requires compliance with various measures, including the prohibition of any commercial vessel meeting, passing or overtaking another; tow boat assistance for barge tows containing one or more red flag barges; and a complete barring of all vessels of less than 20 feet from entering or traversing the RNA. In certain parts of the RNA, additional restrictions apply. The boundaries of the RNA are marked by the following permanent signage posted at both ends, along with other visible warning indicators to alert canal users of the inherent dangers within the electric barrier zone:


The safety rules place navigational, environmental and operational restrictions in the prescribed area(s) to protect vessels and persons from the hazards associated with any federal and state efforts to control aquatic nuisance species.[6] The safety rules have been carefully crafted in order to minimize the potential for adverse significant regional economic impacts, given that statistics show that 17.7 million tons of cargo pass through the waterway annually, the

[6] Because the protection of Midwest Generation's electric generating operations is one of the USACE's primary concerns, Midwest Generation has participated with the USACE in identifying additional measures to protect commercial navigation against safety hazards caused by the electric barriers' operations. A coal transfer facility at MWGen's Will County Station, where barges are loaded and sent upstream to Crawford and Fisk Stations, is located less than one mile downstream of the electric barrier zone. These barges were part of the USACE barge safety tests at the higher electric barrier voltage operation conducted from August 17-19, 2009 within the barrier zone. Midwest Generation worked with the USACE to conduct this barge configuration testing in an attempt to minimize the potential for electric arcing to occur. Based on this testing, recommended practices were implemented by coal barge operators to ensure the continued safety of barge crews, equipment and cargo.

equivalent of 162,000 rail cars or 708,000 semi trucks. (*See* "Coast Guard Discusses its Role in U.S. Army Corps of Engineers Aquatic Nuisance Species Dispersal Barrier Project," Coast Guard's Ninth District Public Affairs Website at:

http://www.d9publicaffairs.com/go/doc/443/246215/ (last accessed, October 4, 2010)

Most recently, the USCG implemented what it refers to as a "Super Safety Zone" that creates a temporary safety zone, which may be enforced in segments, in a 77-mile area from Brandon Road Lock and Dam to Lake Michigan. This temporary interim rule is intended to restrict vessels from entering certain segments of the navigable waters of the Des Plaines River, the CSSC, branches of the Chicago River, and the Calumet-Saganashkee Channel (Cal-Sag Channel) during the implementation of Asian carp control efforts. (*See* 75 FR 26094 (May 11, 2010))

## IV. MIDWEST GENERATION'S ROLE IN THE ELECTRIC BARRIER PROJECT AND DISCOVERY OF ASIAN CARP IN UPPER DRESDEN ISLAND POOL ("UDIP")

Midwest Generation has five electric generating stations (Fisk, Crawford, Will County Joliet 9 and Joliet 29) located on the CSSC and lower Des Plaines River, the hydraulic link between Lake Michigan and the Mississippi River watershed. As such, these stations are strategically located for purposes of monitoring the progression of aquatic nuisance species both upstream towards the Great Lakes and downstream towards the Mississippi River basin. The Midwest Generation Will County Station is less than one River Mile downstream of Barrier I. (*See* Attachment 9). At the IDNR's request, Will County Station personnel continuously monitor for signs of Asian carp. Midwest Generation continues to sponsor seasonal fisheries monitoring of the lower Des Plaines River from just downstream of Barriers I and IIA in the CSSC down to the confluence with the Kankakee River. Midwest Generation's sampling crew conducts twice monthly monitoring at 21 locations in the waterway annually from May through

September. Any sightings of Asian carp (or other known invasive species) are immediately reported to both IDNR and the USFWS. These organizations rely on Midwest Generation's sampling program to augment their own monitoring programs that are done on a less frequent basis due to resource constraints.

In early 2002, as part of its long-term fish monitoring program in the Lower Des Plaines River, Midwest Generation contractors collected a five-pound Asian carp upstream of Dresden Lock and Dam – the furthest upstream point that the species had been found at that time. Midwest Generation's 2002 Asian carp finding was a trigger for expedited work by regulatory and natural resource management agencies to improve the invasive species electric barrier. Midwest Generation station personnel also currently monitor for the presence of the round goby, another exotic nuisance species, at the request of the IDNR and the USFWS.

In May 2003, Midwest Generation was invited to participate in the Aquatic Invasive Species Summit, co-sponsored by the City of Chicago and USFWS. Representatives of Midwest Generation were asked to attend due to our familiarity with both the configuration and biology of the waterway, as well as the placement of our generating stations along the canal/river system. The 2003 Aquatic Invasive Species Summit identified various Asian carp control strategies for further consideration; many of these strategies have been included in the 2010 Asian Carp Control Strategy Framework. The executive summary of the 2003 Aquatic Invasive Species Summit findings is found at the following link:

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/Aquatic_Invasive_Species_Summary.pdf (last accessed, October 7, 2010).

In May, 2010, Midwest Generation's fisheries monitoring consultants, EA Engineering, Science and Technology, captured six bighead Asian carp, including a female in full breeding condition, in the Lower Des Plaines River, just upstream of the I-55 Bridge, in the area known as

the UDIP in this proceeding. The captured Asian carp ranged in size from 27" to 42" in length and 15 to 32 pounds in weight. This development, the largest single Asian carp collection in any of the prior MWGen fisheries monitoring events, was immediately shared with IDNR personnel. Midwest Generation also made the EA field crew available to the Asian Carp Response Team authorities to provide further assistance and information regarding this discovery. Further details of the capture of these adult bighead carp and the implications for the UDIP are discussed in the pre-filed testimony of Greg Seegert of EA Engineering, Science and Technology regarding Asian carp issues. (*See* Testimony of Greg Seegert, R08-9, Subdocket C, filed October 8, 2010). Since May 2010, IDNR and USFWS have significantly increased their efforts to capture Asian carp in the CAWS and downstream of the CAWS to attempt to confirm the positive eDNA findings and to determine the standing population of Asian carp in the waterway. (*See* http://www.piersystem.com/go/doc/1295/539735/ (last accessed, October 7, 2010) Midwest Generation also continues to assist IDNR with its plans to deter invasive species, as well as develop emergency measures to deal with these species, should they breach the in-place defenses currently in place.

In 2010, Midwest Generation began working with the USACE regarding its investigation for the proposed installation and operation of a bio-acoustic bubble barrier (or "ABS system," as it is called) in the UDIP. The USACE was performing this work pursuant to the Water Resources Development Act 2007, which directed it to perform a study of a range of options or technologies for reducing impacts of hazards that may reduce the efficacy of the electrical barriers.[7] In an April 2010 report, entitled "Interim IIIA, Fish Deterrent Barriers, Illinois and

[7] To expedite the efficacy evaluation, USACE divided the study into several phases. These phases are outlined in the ACRCC Framework ( May, 2010): http://www.asiancarp.org/Documents/AsianCarpControlStrategyFrameworkMay2010.pdf (last accessed October 7, 2010).

Chicago Area Waterways Risk Reduction Study and Integrated Environmental Assessment" (dated April 2010), the USACE and its partner agencies in the ACRCC considered how technologies such as air bubble curtains, lights and sounds can be used to deter Asian carp movement. (Full report available at: http://www.lrc.usace.army.mil/pao/02June2010_InterimIIIA.pdf (last accessed, October 7, 2010)

Air bubble curtains consist of pumped compressed air through a diffuser to create a continuous dense curtain of bubbles, which can cause an avoidance response in fish. Sounds are currently used in one of two ways to deter fish: underwater loudspeakers or sound projectors to produce a diffuse omni-directional field of sound that can block fish movement or coupling sound sources to a bubble curtain to produce a discrete "wall of sound" (known as an "evanescent" or rapidly decaying field). Similarly, lights can be used in combination with bubble curtains to enhance the effectiveness of both and strobe lights can repel fish by eliciting an avoidance response. As discussed in the Interim IIIA report, combining an acoustic deterrent with an air bubble curtain and strobe lights was judged to be the best available Interim Risk Reduction Measure (IRRM) that has the potential to reduce the risk related to Asian carp migration in the CAWS when fully functional. (*See* Interim IIIA Report, p. 32 *et seq.*)

The USACE is working with the IDNR and the USFWS to identify data needed to effectively operate this system and measure its efficacy, as well as to assess the possibilities of using the ABS fish deterrent measure in conjunction with other technologies such as the use of attractants (*i.e.* pheromones, plankton, lights, etc.) that could help guide fish into certain control zones. As part of the deterrent site screening process, locations were assessed both above and below the electric barrier zone. Downstream sites were generally favored, as they would be able to prevent upward movement of Asian carp before they are able to reach the electric barrier zone.

Other criteria were included in the process to identify potential locations for fish deterrents. These criteria included physical site characteristics, real estate requirements, construction access, availability of utilities, the presence of an upstream pool or adjacent diversion area for fish, as well as proximity to outlets into Lake Michigan. The USACE utilized aerial mapping to locate potential sites, and then followed up with site visits to further evaluate the acceptability of the sites. Eight locations were chosen as good candidate sites for placement of the recommended ABS fish deterrent measure. Three of these sites were downstream of the Electrical Dispersal Barrier and five were upstream of the current barrier in the CAWS and closer to Lake Michigan.

Among the eight potential candidate sites for placement of the acoustical barrier, the USACE considered Dresden Island Lock and Dam, the Des Plaines River at Brandon Road Lock and Dam, and the CSSC at Lockport Lock and Dam sites as potential demonstration/downstream sites. However, because Asian carp have been observed and tagged in the Dresden Island Pool, the Dresden Island Lock and Dam was quickly eliminated as an appropriate site. The two remaining sites, the Brandon Road Lock and Dam and the Lockport Lock and Dam sites both include a number of features that appear to be conducive for a demonstration project location. While both sites have a large pool on the downstream side of the Lock and Dam, there are a number of physical bypass opportunities at the Lockport Lock and Dam that might allow the Asian carp to bypass a bio-acoustical barrier. These bypasses include parallel streams or canals that allow passage past the lock and dam to upstream locations. Because of the existence of these bypasses, the Lockport Lock and Dam site was eliminated from further consideration as an appropriate site for the demonstration project.

The Brandon Road Lock and Dam facility is located at the northern (*i.e.* upstream) end of the Dresden Island pool upstream of locations where Asian carp have been recovered. While one

bighead carp was recovered during rotenone application in the Lockport Pool in December 2009, additional individuals of the target species have not been recovered in the Lockport Pool. The presence of the target species is needed to calibrate elements of the demonstration ABS fish deterrent to the target species. Fisheries biologists can tag and release Asian carp downstream of the demonstration ABS fish deterrent and the electric dispersal barrier, and then track their movements to determine the effectiveness of the ABS and to adjust its operation, as necessary, to obtain the maximum deterrent possible. The pool on the downstream side of the Brandon Road Dam provides a suitable location for Asian carp that are deterred by the ABS barrier to congregate and be effectively collected by fisheries biologists by various means, including broad-scale rotenoning and/or intensive commercial netting. Further, because the electric barrier is located upstream of the Brandon Road Lock and Dam, that barrier can provide redundancy to the ABS barrier while its operation is being optimized.

In summary, based on an extensive review of the eight potential installation sites, the USACE ultimately determined and recommended to the Aquatic Nuisance Species Barrier Panel that the most suitable location for the installation of a "hybrid ABS fish deterrent system" (*i.e.*, an acoustic bubble curtain with strobe lights) is at the Des Plaines River near the Brandon Road Lock and Dam, which is part of the UDIP – the term used in this rule-making. (*See* June 15, 2010 Minutes of the Aquatic Nuisance Species Barrier Panel Meeting, 2nd page, a copy of which is attached as Attachment 10).

The proposed Brandon Road ABS barrier deterrent system site consists of a cross section in the Des Plaines River at the downstream entrance to the Brandon Road Lock (Attachment 11). The ABS barrier system would be placed between riprap revetments on each wall of the lock entrance channel. Its placement, combined with intensive sampling efforts led by IDNR, would

direct dispersing fish to the dam spillway area to the northeast where Hickory Creek flows into the Des Plaines River, where they will be effectively removed from the system by various means, including the application of rotenone and/or other physical removal methods. The feature width would be approximately 400 feet, spanning the entire navigational channel and shoreline area immediately downstream of the approach to the Brandon Road Lock and Dam.

The real estate needed to be acquired for the Brandon Road ABS barrier system installation is currently owned by Midwest Generation. The controlling structure for this barrier would be placed on Midwest Generation Joliet Station #29 property, just east of the plant. The USACE first approached Midwest Generation about this project in April, 2010. Since that time, both real estate right-of-access and environmental background work has been done to support this effort.

As explained by Col. Quarles of the USACE during the June 15, 2010 meeting of the Aquatic Nuisance Species Barrier Panel meeting that I attended, this combination of acoustic, bubble and strobe light deterrents located at a strategic point in the waterway system is intended to guide Asian carp into a geographically isolated location (*i.e.*, the Brandon Road tailwater) in order to allow partner agencies to conduct control and eradication efforts in that smaller and contained area. According to Col. Quarles, the Brandon Tailwater area would serve as the best possible location to stage a controlled "killing ground" for Asian carp herded in by the ABS barrier system. (It is also important to note that this strategy is not species-specific and will impact any fish which find themselves in this area when intensive Asian carp removal efforts are underway). The entire Brandon Tailwater area would be able to be isolated from the rest of the Lower Des Plaines River in this location. Due to its shallowness, as well as the means to control the flow (being that it is directly downstream from the Corps' lock and dam tainter gate system),

this location would afford both cost effective and comprehensive application of piscicides (*e.g.*, rotenone) to kill the fish herded into this area by the ABS barrier, and would also allow for the efficient and effective collection of these fish by IDNR and other natural resources agencies The ABS barrier system will allow the USACE to calibrate the components system to the most effective settings for Asian carp because it will be located in an area where Asian carp are known to exist and where it has the potential to reduce the population of Asian carp challenging the electric dispersal barrier. The system will be used in conjunction with other control measures such as intensified monitoring, commercial fishing and implementation of more extensive monitoring and rapid response programs. It is believed that this adaptive management strategy offers the best means currently available to rapidly and substantially reduce the risk of Asian carp establishing a self-sustaining population in the Great Lakes via the Illinois Waterway System.

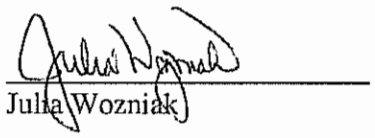
## V. CONCLUSION

While there are many competing scientific views on how best to prevent the spread of aquatic nuisance species, both the USACE, USCG and IDNR have accepted the need to sacrifice the full use of the CAWS, as well as the UDIP, in order to better protect the Great Lakes and Mississippi River ecosystems. They also have recently reiterated their commitment to ensure the protection of commercial navigation, even at the expense of secondary contact recreational uses in the CAWs. The series of electric barriers, especially at higher operating voltages, are in effect eliminating the zone of passage through the CSSC for all independently motile (free-swimming) forms of aquatic life. It is also inadvertently presenting threats to the safety of those who traverse the area, either by water or by land, such that even secondary recreational use in the CSSC Safety Zone has been totally prohibited. Clearly, the electric barriers' operation will

continue to be an inherent part of the CSSC well into the future, or at least until such time as a more permanent, impenetrable solution is found to stop invasive species transfer between the Great Lakes and Mississippi River Basin. As such, any attempt to upgrade the existing uses of the canal system to enhance the ability of aquatic life to use the CSSC as a "highway" between areas of better habitat appear to be in direct conflict with recent federal government decisions and directives that are aimed at preventing aquatic migration through the CSSC and limiting recreational use due to the risks presented.

Similarly, there are also significant changes planned for the UDIP based on the progress to date on the proposed installation of an ABS deterrent system that will also change the current aquatic community in the UDIP. The Brandon Road tailwater would be isolated from the rest of the Lower Des Plaines River as it becomes a dedicated location for Asian carp control measures, including intensive sampling measures and ultimate eradication through chemical or physical means, actions which will impact both Asian carp and native fish. These control strategies need to be considered in assessing the ability of the UDIP to attain the Clean Water Act goals for aquatic life. When taken together with the other evidence that has been introduced in this proceeding regarding the lack of good habitat, contaminated sediments, flow issues, CSOs, and other urban impacts, they clearly support a determination that the UDIP is not capable of attaining these goals at this time.

Respectfully submitted



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