

CERTIFICATE OF SERVICE

I, the undersigned, certify that I have served the attached Petitioner's Petition for Variance with attached exhibits, Appearance of Susan M. Franzetti and Appearance of Vincent R. Angermeier, by Federal Express to the following:

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Dated: July 21, 2015

/s/ Susan M. Franzetti

Susan M. Franzetti
Vincent R. Angermeier
Nijman Franzetti LLP
10 S. LaSalle Street, Suite 3600
Chicago, IL 60603
(312) 251-5590

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC)	
)	
Petitioner,)	
)	
v.)	PCB _____
)	(Variance - Water)
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY)	
)	
Respondent.)	

APPEARANCE

The undersigned hereby enters her appearance on behalf of Midwest Generation, LLC.

/s/ Susan M. Franzetti
Susan M. Franzetti
Attorney
Nijman Franzetti LLP
10 S. LaSalle Street, Suite 3600
Chicago, IL 60603
(312) 251-5590
sf@nijmanfranzetti.com

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The undersigned hereby enters his appearance on behalf of Midwest Generation, LLC.

/s/Vincent R. Angermeier
Vincent R. Angermeier
Attorney
Nijman Franzetti LLP
10 S. LaSalle Street, Suite 3600
Chicago, IL 60603
(312) 251-5590
va@nijmanfranzetti.com

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PETITION FOR VARIANCE

Pursuant to Sections 35(a) and (b) of the Illinois Environmental Protection Act (“Act”), 415 ILCS 5/35(a) and (b), and Part 104 of Title 35 of the Illinois Administrative Code, 35 Ill. Adm. Code §104.100 *et seq.*, Midwest Generation, LLC (“MWGen”) petitions the Illinois Pollution Control Board (“Board”) for a two-year variance authorizing continued thermal discharges from three of its electric generating stations, the Will County Station, Joliet 9 Station, and Joliet 29 Station (collectively, “MWGen Stations”), in compliance with the currently effective thermal water quality standards set forth in 35 Ill. Adm. Code §302.408(b), and granting a variance from both the numerical and narrative provisions of Sections 302.408(c) through (f), (h) and (i), as of the July 1, 2018 effective date or applicability of these new thermal water quality standards. (the “2018 Thermal Standards”) Achieving compliance with the 2018 Thermal Standards would impose an arbitrary or unreasonable hardship upon MWGen. The requested variance is needed to allow MWGen sufficient time to comply with the 2018 Thermal Standards by seeking alternative thermal standards pursuant to Section 316(a) of the Clean Water Act.¹

I. INTRODUCTION

Each of the MWGen Stations is a steam electric facility that uses water to cool and condense steam from the generating process. The cooling water is obtained from, and the heated

¹ Because of the common and overlapping factual, regulatory and statutory information that supports and is relevant to the requested variance relief for the MWGen Stations, MWGen is filing this single variance petition to cover the requested relief for all three stations. This approach is also intended to help conserve the resources of the Board and the Illinois Environmental Protection Agency by presenting this information in a single proceeding. However, if the Board prefers that MWGen separate this petition into three individual petitions for variance (*i.e.*, one for each of the MWGen Stations) MWGen will certainly do so and simply requests some additional time in which to file such amended, individual petitions.

cooling water is discharged to, the receiving water for each station. The Will County Station discharges to the Chicago Sanitary & Ship Canal (“CSSC”). Both the Joliet 9 and Joliet 29 Stations discharge to the portion of the Des Plaines River defined under the Illinois use designation system as the “Upper Dresden Island Pool” (“UDIP”). 35 Ill. Adm. Code § 303.230. The requested two-year variance would allow MWGen to discharge heated cooling water in compliance with the thermal standards currently applicable for Use B and UDIP waters as set forth in Section 302.408(b), which are the same as the formerly applicable “Secondary Contact and Indigenous Aquatic Life” thermal standards (“Indigenous Aquatic Life”), as conditioned in this variance request. During the requested two-year variance, the necessary physicochemical, biological and plant operating data will be collected to support a petition by MWGen pursuant to Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code Part 106, Subpart K (“Section 316(a) Variance”) to obtain the Board’s approval of a Section 316(a) Variance.

This variance request stems from the Board’s June 18, 2015 adoption of more stringent thermal standards for both the CSSC (Use B) and the UDIP that are substantially the same as the thermal standards for General Use waters. Although the new thermal standards are not applicable until July 1, 2018, based on a review of the requirements of Section 316(a) and the Subpart K regulations, the work necessary to collect the additional physicochemical, biological, and plant operating data to support a Section 316(a) Variance request and to obtain that variance cannot be completed by the July 1, 2018 deadline even though MWGen already has begun taking the steps necessary to do so.

The requested variance will not adversely impact human health or the existing aquatic community in these waters. The CSSC is not designated for recreational use and the ambient thermal temperatures in the UDIP during the variance period will not preclude recreational use nor adversely impact human health. The MWGen Stations’ thermal discharges would not increase beyond historical levels if the requested limited variance were granted. To the contrary, due to the recent shutdown of one of the two remaining Will County Station units and planned changes in the operations of the Joliet Stations prior to the July 1, 2018 deadline, the annual thermal loading to the CSSC and UDIP is expected to decrease significantly from historical levels. These changes, along with MWGen’s suggested conditions to this variance, will minimize any potential adverse impact to aquatic life during the limited two-year period of the variance.

II. REGULATIONS FROM WHICH THE VARIANCE IS SOUGHT

A. Regulatory Background

The current aquatic life use designations and water quality standards for the CSSC and UDIP arose from the multi-year Use Attainability Analysis (“UAA”) rulemaking, Docket No. R2008-009(C) and (D) (collectively, the “UAA Rulemaking”) for the Chicago Area Waterway System (“CAWS”) and the Lower Des Plaines River (“LDPR”). In February 2014, the Board adopted new aquatic life use designations for the CAWS and the UDIP portion of the LDPR.² For all but the water segment known as Bubbly Creek,³ the Board replaced the Indigenous Aquatic Life use designation and created three new aquatic life use designations in its place: ALU A for certain segments of the CAWS; ALU B for other CAWS segments, including the CSSC on which the Will County Station is located; and the UDIP use for the northern part of the Dresden Pool in the Lower Des Plaines River. The UDIP extends approximately one mile downstream of the Brandon Road Lock and Dam to the I-55 Bridge. The Joliet 9 and 29 Stations are located in the UDIP. In adopting these new aquatic life use designations (and the previously updated recreational use designations for these waters), the Board noted that they reflect the advancement of the stream quality but that many sections of CAWS and LDPR still need to be improved to achieve the goals of the CWA.⁴

Of these three use designations, ALU B is the lowest aquatic life use designation. ALU B waters “are not capable of attaining an aquatic life use consistent with the section 101(a)(2) of the Clean Water Act goal (33 USC § 1251(a)(2).” 35 Ill. Adm. Code § 303.235(b)(2). The UDIP aquatic life use is the highest of the three new aquatic life use designations.⁵ The Board acknowledged that the “UDIP may not fully attain the CWA aquatic use goal” but that in

² See Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Feb. 6, 2014) (hereinafter cited as “UAA Subdocket C Final Order”).

³ The South Fork of the South Branch of the Chicago River, known as Bubbly Creek, was removed from consideration of Aquatic Life Uses in Subdocket C. *Id.* Although the Board did subsequently promulgate thermal standards for Bubbly Creek (see 35 Ill. Adm. Code § 302.408), they are not part of the 2018 Thermal Standards referenced in this petition.

⁴ See Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (Mar. 19, 2015) at p. 69.

⁵ The UDIP use designation regulations provides that UDIP waters “are capable of maintaining, and shall have quality sufficient to protect, aquatic-life populations consisting of individuals of tolerant, intermediately tolerant, and intolerant types that are adaptive to the unique flow conditions necessary to maintain navigational use and upstream flood control functions of the waterway system.” See 35 Ill. Adm. Code § 303.230(a).

comparison to ALU A or ALU B waters, it “has more diverse habitat conditions and is subject to a lesser degree of recurring impacts from navigation use and upstream flood control functions.”⁶ The Board also recognized that whatever UDIP thermal standards were ultimately adopted might need to be adapted for certain dischargers.⁷

Prior to the new 2014 aquatic life use designations, the Illinois aquatic life use classification system, was composed of essentially two classifications: General Use and Indigenous Aquatic Life. See 35 Ill. Adm. Code Part 303. General Use waters can attain the Clean Water Act aquatic life goals. The broad General Use category protects water bodies capable of supporting all aquatic life and all recreational uses. There is no differentiation among aquatic communities or the physical characteristics of a water body within the General Use thermal standards. See 35 Ill. Adm. Code § 303.201. In contrast, waters designated as Indigenous Aquatic Life were specifically recognized as not being capable of attaining the Clean Water Act’s fishable/swimmable goals.⁸

Under the pre-2014 Illinois use designations, the receiving waters for the MWGen Stations were designated as Indigenous Aquatic Life. The Indigenous Aquatic Life thermal water quality standards were significantly different from those applicable to General Use waters. The Indigenous Aquatic Life standards allow for temperature maximums of 93° Fahrenheit (F) year-round, while General Use standards adopted 90° F maximums, with 60° F maximums during the winter (December through March) months.⁹ The Indigenous Aquatic Life standards also allowed for a greater excursion range (seven degrees F versus three) and a higher percentage of excursion hours (five percent versus one) over a twelve month period. The General Use thermal standards also include narrative temperature restrictions not included in the Indigenous Aquatic Life standards. The narrative standards prohibit “abnormal temperature changes that

⁶ See Subdocket D June 18, 2015 Final Order at p. 22, citing Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), (Nov. 21, 2013) at p. 55.

⁷ See Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(C), First Notice Opinion and Order (Feb. 21, 2013), at p. 43 (hereinafter “Subdocket C First Notice Order”).

⁸ “Secondary contact and indigenous aquatic life standards are intended for those waters not suited for general use activities but which will be appropriate for all secondary contact uses and which will be capable of supporting an indigenous aquatic life limited only by the physical configuration of the body of water, characteristics and origin of the water and the presence of contaminants in amounts that do not exceed the water quality standards listed in Subpart D.” 35 Ill. Adm. Code § 302.402 (2014).

⁹ The Indigenous Aquatic Life thermal water quality standards are set forth in 35 Ill. Adm. Code § 302.408. The General Use thermal water quality standards are set forth in 35 Ill. Adm. Code § 302.211.

may adversely harm aquatic life,” disruption of “normal daily and seasonal temperature fluctuations,” and any temperature rise more than 5° F above naturally occurring temperatures. 35 Ill. Adm. Code § 302.211.

In Subdocket D of the UAA rulemaking, the Board evaluated what thermal standards to apply to the new aquatic life use designations. It concluded that none of the thermal standards proposals by the Illinois Environmental Protection Agency (“Illinois EPA” or the “Agency”) or other participants were appropriate.¹⁰ In the absence of an appropriate thermal standards proposal, the Board decided that the federally-approved General Use thermal standards should instead be applied. However, the Board extended the effective date of the new thermal standards to July 1, 2018, in recognition of the compliance challenges raised for thermal dischargers by the Board’s decision to apply the more stringent General Use thermal standards:

The Board appreciated participants’ concerns regarding immediate compliance with the proposed thermal standards upon final adoption by the Board. The record is clear that thermal dischargers to CAWS and LDPR may need some type of short-term or long-term relief to achieve compliance with the temperature standards. The Board found that delaying the effective date of the thermal standards would allow time for dischargers to achieve compliance or seek relief.¹¹

Therefore, the Board adopted a three-year delayed effective date for thermal standards for all three of the new use designations and decided that the existing Indigenous Aquatic Life thermal standard will continue to apply to CAWS and LDPR waters during the delayed effective date period.¹² See 35 Ill. Adm. Code § 302.408(b).

B. 2018 Thermal Standards Regulations from which the Variance is Sought

MWGen is seeking a two-year variance from the thermal water quality standards set forth in 35 Ill. Adm. Code §302.408(c) through (f), (h) and (i) beginning on July 1, 2018 and ending on June 30, 2020. Sections 302.408(h) and (i) set forth identical daily maximum numerical temperature limits for Use B and UDIP waters, respectively, which are 60° F during December through March and 90° F for the remaining months of the year. Section 302.408(f) provides

¹⁰ See Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304, R08-9(D), (June 18, 2015), at p. 6 (hereinafter cited as “UAA Subdocket D Final Order”).

¹¹ *Id.*

¹² *Id.* at p. 24.

what are commonly referred to as “excursion hours.” As of July 1, 2018, section 302.408(f) limits exceedances in representative main river locations of the maximum limits for Use A and B waters (sections 302.408(g) and (h)) and for UDIP waters (section 302.408(i)) by no more than 3.0° F “during more than one percent of the hours in the 12-month period ending with any month.” Sections 302.408(c) through (e) contain the narrative 2018 Thermal Standards applicable to the Use B and UDIP waters. These narrative standards prohibit “abnormal temperature changes that may adversely harm aquatic life,” require maintenance of the “normal daily and seasonal temperature fluctuations before the addition of heat due to other than natural causes” and any temperature rise more than 5° F above “natural temperatures.”

C. Application of Automatic Stay Variance Provisions of Sections 38(b) of the Act

In the Subdocket D rulemaking, the Board identified site-specific relief alternatives available to thermal dischargers and encouraged them to consider these alternatives as to their individual facilities. Among the alternatives the Board mentioned was a variance petition filed pursuant to Section 38(b) of the Act.¹³ See 415 ILCS 5/38(b). Section 38(b) provides that if a variance is sought within 20 days of the effective date of a rule or regulation, the operation of the rule or regulations is stayed as to such person pending disposition of the petition.

It is unclear whether the requirements of Section 38(b) of the Act, which sets forth the administrative process for seeking a variance in the context of rulemaking, as applied to the new 2018 Thermal Standards, provide for a 20-day filing deadline that ends on July 21, 2015, in other words, 20 days from the July 1, 2015 issuance of the 2018 Thermal Standards, or a deadline that ends three years later on July 21, 2018, which is 20 days from the July 1, 2018 “applicability” date of the Thermal Standards. Given the regulatory uncertainty, MWGen is filing this variance petition by the earlier of these two potentially applicable Section 38(b) deadlines in order to preserve its right to seek a variance with the attendant protection of the automatic stay. Upon its consideration of this petition, should the Board determine that, for the limited purpose of the automatic stay provisions of Section 38(b), the 2018 Thermal Standards have an “effective date” that is the equivalent of their July 1, 2018 applicability date, MWGen will withdraw this petition.

¹³ See UAA Rulemaking Subdocket D, June 4, 2015 Board Order at p. 8.

The source of MWGen's uncertainty as to the automatic stay filing deadline for this petition stems from differences between the Board's narrative explanation of when the new temperature standards become effective and the language of Section 302.408 itself. In its June 18, 2015 Final Order in Subdocket D, the Board stated that it "will delay the effective date of the temperature standards until three years after the effective date of the rules."¹⁴ The "effective date of the rules" is July 1, 2015.¹⁵ However, the specific language of Section 302.408(b) of the rules does not expressly reference a delayed three-year "effective" date for the 2018 Thermal Standards. The first sentence of Section 302.408(b) states that the new temperature standards will become "applicable," rather than "effective," beginning July 1, 2018:

The temperature standards in subsections (c) through (i), will become **applicable** beginning July 1, 2018.

35 Ill. Adm. Code § 302.408(b) (emphasis added). It is unclear how Section 38(b) of the Act applies where there is a delayed "applicability" of the new rule or regulation.

Until the 2018 Thermal Standards become applicable on July 1, 2018, Section 302.408(b) further provides that the same temperature maximums and excursion hours under the former Indigenous Aquatic Life thermal standards will continue in effect for these waters, as follows:

Starting July 1, 2015, the waters designated at 35 Ill. Adm. Code 303 as Chicago Area Waterway System Aquatic Life Use A, Chicago Area Waterway System and Brandon Pool Aquatic Life Use B, and Upper Dresden Island Pool Aquatic Life Use will not exceed temperature (STORET number (°F) 00011 and (°C) 00010) of 34°C (93°F) more than 5% of the time, or 37.8°C (100°F) at any time.

Id. Accordingly, as of July 1, 2015, the former Indigenous Aquatic Life thermal standards remain in effect until July 1, 2018 when the new 2018 Thermal Standards will replace them.

The more reasonable interpretation is to apply the automatic stay provisions of Section 38(b) of the Act to the July 1, 2018 "applicability" date of the new thermal standards to extend the automatic stay variance filing deadline to July 21, 2018. Between now and July 1, 2018, MWGen does not need the protection of an automatic stay and can continue to comply with the currently effective Use B and UDIP thermal standards under Section 302.408(b). By July 1, 2018, MWGen expects to make reasonable progress towards obtaining thermal variance relief

¹⁴ See UAA Subdocket D Final Order, at p. 2.

¹⁵ Notice of Adopted Rulemaking, published in Ill. Reg. Vo. 39, Issue 28, p. 9388 (July 10, 2015).

under Clean Water Act Section 316(a) and Subpart K, with far less uncertainty as to the remaining steps to be taken to complete that compliance plan and the amount of time it will take to do so. Accordingly, a variance petition filed three years from now would be based on a more certain factual record and greater specificity as to the justification for pursuing an interim variance under the protection of an automatic stay. This interpretation appears to be fully consistent with the intent of Section 38(b) of the Act in that it provides automatic stay protection if the regulated party cannot attain compliance with the new rule or regulation by the time it is “effective,” or in other words, “applicable,” to that party. In these circumstances, MWGen submits for the Board’s consideration that the more reasonable interpretation is that for the limited purpose of the automatic stay provision of Section 38(b) of the Act, the 2018 Thermal Standards have an effective date of July 1, 2018.

Therefore, to reiterate, MWGen files this petition now in order to preserve its right to seek a variance and the attendant protection of the automatic stay, while respectfully requesting that the Board clarify its intent and reconcile Section 38(b) of the Act with the language of Section 302.408.

III. NATURE OF THE MWGEN STATIONS’ ACTIVITY THAT IS THE SUBJECT OF THIS VARIANCE

A. Description of the MWGen Stations

MWGen is an independent power producer that owns and operates the three steam electric generating stations for which this variance relief is sought. Currently, the generating units at each of the MWGen Stations are coal-fired. Like many power plants (including non-coal fired plants), the MWGen Stations use heat to turn water into steam and then use the steam to spin a turbine to produce electricity. Each station utilizes an open cycle, once-through condenser cooling system, where receiving water from either the CSSC (for Will County Station) or the UDIP (for the Joliet 9 and 29 Stations) enters the plant, is circulated through the station’s condensers to cool steam produced by the electric generating process, and then is discharged at a higher temperature directly back into the same receiving waterbody from which it was taken.¹⁶

The Will County, Joliet 9 and Joliet 29 Stations currently operate on a daily load cycle which matches electrical demand needs and provides power into the PJM Interconnection, a

¹⁶ Open-cycle systems pass water through the condensers only once before returning virtually all of the (now heated) water to its source.

regional transmission organization that coordinates the movement of wholesale electricity in Northern Illinois and in 13 other states. The PJM region has an area of 214,000 square miles and a population of about 60 million.

Prior to the July 1, 2018 application of the new thermal standards to the CSSC and UDIP, there will be significant changes made to the Joliet 9 and 29 Stations, both of which will be converted from coal-fired to natural gas-fired steam electric generating stations. As part of the planned natural gas conversion for the Joliet Stations, they will provide electricity only during times of “peak” electrical demand. Conversion from coal to gas will reduce the annual operating hours of the Joliet Stations. Based on current market data, the annual capacity factor is forecasted to be less than 25%. This represents a substantial decrease from historical capacity factors and the associated thermal discharge of the facility. The operating hours of the facility may, of course, change as market conditions change. The discussion below concerning the Joliet Stations describes in further detail their current operations and their planned future operations.

1. Will County Station

Constructed in 1955, the Will County Station is located in Romeoville, Illinois, and discharges at River Mile 295.5 of the CSSC. It currently has 69 employees.

When the UAA rulemaking commenced in 2007, the Will County Station consisted of four generating units, known as Units 1 through 4, with an 1154 megawatt capacity and a design circulating water flow rate of approximately 1292 million gallons per day (“MGD”).¹⁷ Today, it is only a two-unit steam electric facility, with Units 1 and 2 having been permanently retired. Just recently, in April 2015, Unit 3 was taken offline and will remain offline until energy market conditions make its resumed operation economically reasonable.

Unit 3 has a rated production capacity of 268 megawatts of electricity (“MWe”). Unit 4, which was added to the station in 1963, has a rated production capacity of 542 MWe. Units 3 and 4 have a combined design circulating water flow rate of approximately 864 MGD, but the average discharge volume is approximately 750 MGD. The design temperature rise in the circulating cooling water across the station is approximately 11.1°F.¹⁸

¹⁷ See Pre-Filed Testimony of Julia Wozniak, R08-9(C), (Aug. 4, 2008), UAA Exhibit 364, at p. 3, a copy of which is attached to this petition as Exhibit I.

¹⁸ *Id.*

With only Unit 4 operating, the average discharge flow rate is approximately 576 MGD. Hence, as currently operated, Will County Station produces about half the amount of electricity than it did several years ago and discharges approximately one-third of the flow rate of heated condenser cooling water than it once did.

2. The Joliet 9 and 29 Stations

Joliet Station 9 (initially constructed in 1920, with Unit 6 added in 1959) and Joliet Station 29 (constructed in 1964) are located approximately one mile southwest of the City of Joliet, adjacent to the Lower Des Plaines River in the UDIP. Joliet 9 Station has 57 employees and Joliet 29 Station has 114 employees.

The Joliet Stations wastewater outfalls, including condenser cooling wastewater, are located approximately seven miles north of the I-55 Bridge on opposite sides of the Lower Des Plaines River. Joliet Station 9 is on the east bank of the river and Joliet Station 29 is on the west bank. Both of these thermal discharges flow into the LDPR approximately one-half mile downstream of the Brandon Road Lock and Dam (between River Miles 285 and 284).

Joliet Station has a single generation unit, Unit 6. It is capable of producing 341 MWe and has a design circulating water flow rate of approximately 376 MGD. The design maximum temperature rise in the circulating cooling water is approximately 10.45° F. Joliet Station 29 has two generation units, Units 7 and 8. Units 7 and 8 are capable of producing 566 MWe and 561 MWe, for a total of approximately 1100 megawatts of electricity for both units, with a design circulating water flow rate of approximately 1325 MGD. The design maximum temperature rise in the circulating cooling water is approximately 12.4° F.¹⁹

MWGen is planning to convert the two Joliet Stations so that they will be powered with natural gas instead of coal. The planned conversion is currently expected to be completed by the end of 2016. In addition to changing the generation fuel for these stations, they will cease operating on a daily load cycle basis. The Joliet Stations will be operated only when there is peak demand for electricity. Typically, such peak demand periods occur during the colder winter and the warmer summer month periods. While there will still be thermal loadings to the UDIP from the Joliet Stations after their conversion to natural gas, thermal discharges will occur over a much more limited period during the calendar year determined by times of peak energy demand.

¹⁹ See Exhibit I, Pre-Filed Testimony of Julia Wozniak, R08-9, (Aug. 4, 2008), at pp. 3-4.

MWGen is investing approximately \$567 million to upgrade its fleet, including the investment in the Joliet Stations' natural gas conversion. This investment will reduce the MWGen fleet's total carbon dioxide emissions by at least 16 million tons annually by 2020, thus conferring an additional and significant benefit to the environment.

B. Receiving Waters for the MWGen Stations

As stated above, the Will County Station discharges to the CSSC. Per the language of the Use B aquatic life designation, the CSSC is a man-made, artificially controlled waterway, which is managed to facilitate commercial navigational needs, as well as to provide flood control for the greater Chicago area.²⁰ As part of the CAWS, flow in the CSSC is regulated by a series of locks and dams controlled by the U.S. Army Corps of Engineers, working cooperatively with the Metropolitan Water Reclamation District of Greater Chicago ("District"). Water flow in the system is subject to significant and frequent fluctuations in both level and magnitude, and primarily consists of treated wastewater effluent. The published 7Q10 of the CSSC near the Will County Station is 1315 cfs.

During dry weather conditions, the flow in the CSSC consists almost entirely of the District's Stickney Treatment Plant discharges (the largest activated sludge treatment plant in the world) as well as the Cal-Sag Channel contribution (which is primarily the effluent from the District's Calumet Treatment Plant).²¹ As the Illinois EPA testified during the UAA rulemaking proceedings, effluent from the District's wastewater treatment plants "is the true background of this system. At times they are 100 percent of the flow."²² In the UDIP, the effluent discharges from the upstream wastewater treatment plants are almost 90% of the flow and during the winter almost the entire low flow consists of effluent discharges.²³ The high flows in these waters are dominated by urban runoff.²⁴ Due to these circumstances, the Board concluded that "the

²⁰ See 35 Ill. Adm. Code § 303.235(a) (Use B waters have "artificially constructed channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation, flood control, and drainage functions in deep-draft, steep-walled shipping channels...")

²¹ UAA First Notice Opinion and Order Subdocket C, R08-9(C), (Feb. 21, 2013), at 7 ("[t]he flow in the CSSC is predominantly treated and partially treated effluents from the District's wastewater reclamation plants and combined sewer overflows (CSOs).")

²² Hearing Transcript - Testimony of Scott Twait, R08-9(D), (July 29, 2013), Exhibit 480 at p. 208, an excerpt of which is attached to this petition as Exhibit J.

²³ UAA Second Notice Opinion Subdocket A, *In the Matter of Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303, and 304*, R08-09(A) at 48 and Attachment A, UAA Report, at p. 1-8.

²⁴ Illinois EPA Hearing Testimony, R08-09(C), 9/23/13 Hearing Tr. at pp. 98-99.

temperature of the effluents determines the base temperature of the river, more so than it having a natural temperature.”²⁵

The area of the CSSC just upstream of the Will County Station is where the electric barrier is located that restricts movement of fish in order to prevent the migration of invasive species like the Asian carp to the Great Lakes. As the Board found in Subdocket C of the UAA rulemaking, “the electric barrier is at least for now a ‘temporary’ use that is protected in the lower CSSC, which is designated an ALU B water.”²⁶ The CSSC is currently designated as a “Use B” aquatic life use water. See 35 Ill. Adm. Code § 303.240. The segment of the CSSC that receives the discharge from the Will County Station (Assessment Unit ID IL G1-02) is listed on Illinois’ 303(d) list of impaired waters in the “2014 Illinois Integrated Water Quality Report and Section 303(d) List” (“2014 303(d) List”), but is not listed as impaired for temperature.²⁷ The designated uses impaired for this segment are fish consumption and indigenous aquatic life. The listed impairments are for polychlorinated biphenyls (PCBs), iron, dissolved oxygen, phosphorus (total), manganese and total dissolved solids.²⁸

The portion of the Lower Des Plaines River into which the Joliet Stations discharge is currently designated as a UDIP aquatic life use water. See 35 Ill. Adm. Code § 303.230. The UDIP segment of the river (Assessment Unit ID IL G12) is listed on the 2014 303(d) List as impaired, but not for temperature. The use impaired for this segment is fish consumption. The listed impairments given for this segment are polychlorinated biphenyls (PCBs) and mercury.²⁹

C. Description of Pollution Control Equipment at the Will County and Joliet Stations

Of the three MWGen Stations referenced in this Petition, the Joliet 29 Station is the only station that operates equipment to control thermal discharges. The Joliet 29 Station installed supplemental “helper” cooling towers in 1999. The construction cost for these helper towers was approximately \$23,000,000 (1999 dollars), and they have ongoing operation costs of

²⁵ UAA Subdocket C First Notice Order at p. 38.

²⁶ UAA Subdocket C Final Order at p. 11.

²⁷ A copy of the 2014 Illinois Integrated Water Quality Report and Section 303(d) List is available at: <http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list/index> (last checked: July 13, 2015). The receiving water has not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Resources publication “Integrating Multiple Taxa in a Biological Stream Rating System.”

²⁸ *Id.*, Appendix A-2. Illinois' 2014 303(d) List at p. 6.

²⁹ *Id.*, Appendix A-2. Illinois' 2014 303(d) List at p. 8.

approximately \$300,000 per year (not including labor and maintenance).³⁰ These helper towers have been run on an on-needed basis to comply with applicable water quality standards during critical low flow periods in the receiving water and also during warmer times of the years. On average, they are operated 46 days per year. They are capable of cooling approximately one-third of the Joliet 29 Station's total design discharge during typical summer conditions.

While the operation of the cooling towers at times helps to reduce the temperature of the Joliet 29 Station's discharge, the towers operate under certain conditions and parameters. Because the towers rely on an evaporative process for cooling, they do not work effectively when the temperature of the station's discharge is less than 90°F or when the dew point temperature approaches 78-80° F.³¹ Even when the helper towers work effectively, under severe conditions involving little or no flow in the UDIP and/or very warm ambient temperatures, derating Joliet 29 Station's production capacity has been and will continue to be its only way to comply with the thermal standards.

As Sargent & Lundy reported in 2011, the helper towers are not a viable means for complying with more stringent thermal standards like the new 2018 Use B and UDIP standards. They were never designed to perform at that level or in every weather condition.³²

D. MWGen Current Environmental Permits Regarding Thermal Discharges

Will County Station is authorized to discharge heated effluent to the CSSC pursuant to NPDES Permit No. IL 0002208 issued by the Illinois EPA on May 15, 2014, which became effective upon its issuance and expires on April 30, 2019, a copy of which is attached hereto as Exhibit A. Joliet 9 Station is authorized to discharge heated effluent to the Lower Des Plaines River pursuant to NPDES Permit No. IL 0002216 issued by the Illinois EPA on September 30, 2014, which became effective on November 1, 2014 and expires on October 31, 2019, a copy of which is attached hereto as Exhibit B. Joliet 29 Station is authorized to discharge heated effluent to the Lower Des Plaines River pursuant to NPDES Permit No. IL 0064254 issued by the Illinois EPA on the same date, and with the same effective and expiration dates, as the Joliet 9 Station NPDES Permit. A copy of the Joliet 9 Station NPDES Permit is attached hereto as Exhibit C.

³⁰ Exhibit I, Pre-Filed Testimony of Julia Wozniak, R08-9, (Aug. 4, 2008), at p. 4.

³¹ *Id.* at p.5.

³² *Id.* at pp. 4-5.

Discharges from the MWGen Stations are subject to thermal effluent limits in their respective NPDES permits. Each of the three MWGen Stations' NPDES Permits contains identical temperature limits for the station discharges.³³ The temperature limits include both the application of the Indigenous Aquatic Life thermal water quality standards, which are the same as the thermal standards currently effective for Use B and UDIP waters pursuant to 35 Ill. Adm. Code §302.408(b). These temperature limits apply at the edge of an allowed 26-acre mixing zone. As discussed further below, the NPDES permits also include temperature limits based on an adjusted thermal standard applicable downstream at the I-55 Bridge, where the General Use thermal standards of 35 Ill. Adm. Code §302.211 would otherwise apply.

In Docket No. AS96-10, by Opinion and Order dated October 3, 1996, the Board granted an adjusted thermal standard to Commonwealth Edison ("ComEd"), who owned the stations before MWGen (the "AS96-10 Adjusted Standard").³⁴ ComEd demonstrated that aquatic life downstream of the I-55 bridge were constrained by factors other than ambient temperature, and so adopting thermal standards more lenient than the default "General Use" standard would not cause significant harm.³⁵ The AS96-10 Adjusted Standard provides an alternative standard to the General Use thermal standards that are otherwise applicable at and downstream of the I-55 Bridge. The AS96-10 Adjusted Standard is more restrictive than the Indigenous Aquatic Life thermal standards and generally similar to the General Use standards, although seasonally more and less restrictive. The AS96-10 Adjusted Standard is identical to the General Use numeric thermal standards for January-February, is within 1°F for June-August, and is more stringent for the April, May 1-15 and October –November periods. March and December are the only months when the AS96-10 Adjusted Standard allows a temperature up to 65°F, compared to the General Use standard of 60°F. The AS 96-10 standard also allows a 2% annual excursion period (for a total of 175 hours) compared to the 1% excursion hours provision of the General Use thermal standards, with a 93°F maximum temperature for the excursion hours.

All thermal discharges from the MWGen Stations meet, and will continue to meet through the end of this requested variance, the currently effective "near-field" Use B and UDIP thermal standards at the edge of the allowed 26-acre mixing zone, as well as the "far-field"

³³ See Special Condition 4 of the MWGen Stations NPDES Permits, attached hereto as Exs. A - C.

³⁴ The AS96-10 Adjusted Standard was amended to transfer the adjusted thermal standard to Midwest Generation from ComEd by Opinion and Order dated March 16, 2000, Docket No. AS96-10.

³⁵ AS 96-10 (Ill. Poll. Cont. Board Oct. 3, 1996) at p. 6.

AS96-10 Adjusted Standard at the I-55 Bridge. As the Will County NPDES Permit expressly provides (Ex. A at Special Condition 4.D.), for the near-field thermal limits applicable at the edge of the allowed mixing zone, MWGen submitted, and the Illinois EPA accepted, a thermal model that takes into account “the upstream flow characteristics and temperature in the receiving stream, effluent flow, temperature and any other factors required, for the purposes of predicting downstream river temperatures at points up to and including the edge of the mixing zone.” A copy of the Illinois EPA’s December 5, 2014 letter accepting the thermal model is attached as Exhibit D. MWGen also uses this model for thermal compliance monitoring of the near-field thermal limits for the Joliet 9 and 29 Stations. For the AS96-10 Adjusted Standards, MWGen maintains and operates a water temperature monitor (and a suitable back-up monitor) at the I-55 Bridge, per the requirements of Special Condition 4 of each the MWGen Stations’ NPDES Permits.

Special Condition 4 of each of the MWGen Stations’ NPDES Permits further provides that if it appears from the thermal compliance monitoring that any discharges have the reasonable potential to cause an exceedance of any applicable limits, MWGen must determine whether and to what extent station operations must be restricted (*i.e.*, “derated”) to avoid violating those limits. In previous years, there have been occasions when MWGen has derated the station operations to maintain compliance with the applicable thermal limits.

E. Nature and Extent of the Anticipated Failure to Meet the New Use B and UDIP Thermal Standards in 2018.

Without the requested variance, MWGen will not be able to comply with new 2018 Thermal Standards on July 1, 2018. MWGen made this determination based in part on a review of the most recent historical thermal discharge data for each of the three MWGen Stations over the 2010 through 2014 period, using the modeled edge of the mixing zone temperatures pursuant to the NPDES Permits’ compliance monitoring terms and conditions. MWGen also considered the results of prior thermal plume studies that have been performed on the MWGen Stations discharges. The key results of MWGen’s review of this information are presented below.

1. Review of 2010-2014 MWGen Thermal Data

During the 2010-2014 time period, 2012 was an atypically warm year, characterized by abnormally high temperatures and drought-type conditions that resulted in very low flow

conditions within the receiving waters. The atypical 2012 ambient and waterbody conditions required many thermal dischargers in Illinois, including MWGen, to obtain provisional thermal variance relief in order to continue to meet energy demands. (See Section III.F., *infra*.) Because of the atypical nature of the 2012 conditions, in reviewing the historical data, MWGen separated out 2012 thermal data in order to show its inability to comply with the 2018 Use B and UDIP thermal standards under more normal weather and flow conditions. However, it is certainly possible that another year like 2012's adverse weather conditions may occur within the requested two-year variance period. If this occurs, the extent and frequency of the predicted exceedances of the new 2018 Thermal Standards would be significantly greater than those described below.

In conducting its review of the historical thermal discharge data from the MWGen Stations during the 2010-2011 and 2013-2014 time periods, MWGen considered both the numerical 60° F/90° F limits and the Section 302.408(e) prohibition against a “maximum temperature rise above natural temperatures” of more than 5° F (the “5 Degree Delta Prohibition”). Because Section 302.408(e) does not define the meaning of “natural temperatures” and there is no precedent for the application of the 5 Degree Delta Prohibition to these waters, it is uncertain how the determination of “natural temperatures” will be made for the CSSC and UDIP and what those temperatures are at any given time throughout the year. Hence, for the 5 Degree Delta Prohibition compliance review presented here, MWGen conservatively assumed that if the temperature rise between its monitored intake and end-of-pipe discharge temperatures at each of the three stations exceeded a 5° F increase in temperature, that occurrence equated to non-compliance with the 5 Degree Delta Prohibition. The results of this review showed non-compliance occurring repeatedly and consistently throughout each month of the year.

Excluding the 5 Degree Delta Prohibition, and instead limiting the four-year historical data review to solely the numerical 60° F/90° F temperature limits, the review results showed an improved compliance record, but only for certain months of the year. For the Will County Station, using the average of the thermal data collected for the same month over this four-year period, the daily maximum 90° F temperature was not exceeded during the months of April through June and November. The same was true for the Joliet 9 and 29 Stations during the months of April and May. The December through March daily maximum 60° F temperature limit was exceeded during most of these months throughout the four-year data base. The same

was true for the summer months of July through mid-September. Generally stated, based on this data review, it is the winter and summer month periods that create the greatest challenge for compliance.

Using the average temperatures from the 2010-2011 and 2013-2014 thermal discharge temperature database, MWGen also calculated the percentage of station operations deratings at each of the MWGen Stations that would have occurred in a given month during this four year period to achieve compliance with both the numerical limits and the 5 Degree Delta Prohibition. In calculating these monthly derating percentages for purpose of the 5 Degree Delta Prohibition, it was reasonably assumed that the Will County Station, with only Unit 4 operating, raises the ambient water temperature 1° F for every 40 MWs of energy produced and that the Joliet Stations raise the water temperature 1° F for every 32 MWs of energy produced. Further, the calculations also took into account the fact that Will County Unit 4 cannot operate below an operating level of 180 MWs and that the Joliet Stations cannot operate below an operating level of 100 MWs due to operating constraints imposed by their physical equipment. Hence, in order to maintain compliance with the 2018 Thermal Standards, if the stations would need to operate below these threshold levels, the result was that the station could not operate on that day. Using the average temperature data calculated for each month in the four-year database, the calculated monthly derating percentages (*i.e.*, the percent by which the station would have to reduce its operations to achieve compliance) to achieve compliance are as follows:

Month	Will County Derating %	Joliet 9 Derating %	Joliet 29 Derating %
January	20.3%	62.1%	29.3%
February	18.3%	34.5%	32.3%
March	11.7%	14.8%	20.1%
April	10.7%	10.6%	23.6%
May	9.9%	10.6%	13.4%
June	11.4%	6.7%	15.5%
July	12.0%	28.5%	11.6%
August	15.0%	26.7%	13.4%
September	15.5%	36.2%	26.1%
October	15.0%	59.0%	33.6%
November	16.5%	52.5%	31.9%
December	16.6%	53.5%	28.8%

If the MWGen Stations did not have to comply with the 5 Degree Delta Prohibition, these calculated derating percentages would significantly improve for the Will County Station and to a lesser extent for the Joliet Stations. However, for the Joliet 9 Station, the derating percentages remain in the double digits for the months of January, July, August and December, which are typically months of high energy demand to meet consumer needs for heating and cooling. As discussed further in Section VI.C, *infra*, in the future, derating during these times would carry significant financial penalties to be imposed by PJM.

2. Thermal Plume Studies

Each of the MWGen Stations' NPDES permits currently and previously have included a thermal mixing zone provision which allowed a 26-acre mixing zone to achieve compliance with the applicable thermal limits. On behalf of MWGen, EA Engineering, Science, and Technology, Inc., PBC ("EA"), conducted detailed thermal plume surveys during the summer of 2002 in the CSSC in the vicinity of the Will County Station and in the Lower Des Plaines River ("LDPR") in the vicinity of the Joliet Stations (collectively, the "2002 Thermal Plume Surveys"). A copy of the 2002 Thermal Plume Surveys report for the Will County Station is attached as Exhibit E. A copy of the 2002 Thermal Plume Surveys report for the Joliet Stations is attached as Exhibit F. This work consisted of several days of study over a period from late June through early September 2002, coincident with times during the year of historically higher station power production and warmer receiving water temperatures, to capture typical summer thermal plume conditions in the these waters. At the time of the Will County Station 2002 study, there were four operating units at the Will County Station. The Joliet Stations were generally being operated as they are today. Thus, these thermal plume studies did not capture the current single unit operation at Will County or the future planned Joliet Stations operations after their conversion to natural gas. However, they still are relevant to show why compliance with the 2018 Thermal Standards at the edge of the allowed mixing zone would impose an arbitrary or unreasonable hardship upon MWGen. During the requested variance period, the planned 316(a) Thermal Demonstration Study will include additional thermal plume studies to update the available thermal plume information in support of a Section 316(a) Variance request.

In 2002, each thermal plume survey consisted of surface plume mapping along predetermined transects that extended both upstream and downstream of the MWGen Stations'

discharges, as well as vertical profiles at stations along those transects. Some of the surveys consisted of surface plume mapping and vertical profiles only at the center of each transect (*i.e.*, “centerline” surveys). Others were comprehensive 3-D plume surveys that included both surface plume mapping and multiple vertical profiles along each transect.

The 2002 Thermal Plume Surveys were conducted to obtain information concerning near-field thermal plume characteristics under a variety of summer station operating, canal flow, and meteorological conditions in order to provide supporting information to demonstrate ongoing compliance at the edge of the allowed mixing zone with the then applicable Indigenous Aquatic Life thermal standards (*i.e.*, the same thermal standards currently applicable to these waters). The Will County survey also included obtaining information that is relevant to determining the degree of the temperature rise from points upstream of the Will County Station cooling water intake location to points downstream of the discharge location. The Will County and the Joliet Stations thermal plume surveys did not capture the most challenging operational and river conditions, but the data collected provided adequate justification for the allowed 26-acre thermal mixing zones included in the MWGen Stations’ NPDES Permits. Experienced personnel employed by EA conducted the 2002 Thermal Plume Surveys in accordance with well-established and accepted quality assurance and quality control procedures.³⁶ During the eight thermal plume surveys at Will County Station in 2002, a 93° F temperature contour existed only on July 24, when the enclosed area of the 93° F contour was 0.2 acres. The July 24 survey also contained the highest daily average intake temperature of 83.5° F and the highest temperature at the upstream transect during the surface plume mapping of 82.9 °F. For the four cross-sectional surveys that employed the full set of 34 vertical profile stations, the “zone of passage” for aquatic life during all four surveys was greater than 75 percent. At no time did water temperature exceed 100° F in the mixing zone and the highest in-stream temperature recorded was 94.9° F during the July 24 survey, which was also the day of the highest daily average intake temperature of 83.5° F. The highest daily average delta temperature rise of 17.4° F occurred on July 10, 2002 when circulating flows were reduced. During seven of the eight

³⁶ In addition to the inability to predict in advance when the most challenging conditions will occur in these waters and to schedule thermal plume studies accordingly, there was another constraint upon EA’s ability to capture the most challenging thermal conditions. Due to access limitations imposed upon EA by the operator of the boat launching access area, the Will County Station thermal plume surveys were typically completed by 1200 hrs, before the station reached its maximum power production (and the full extent of the thermal plume in the receiving stream) for the day.

surveys performed, the “5 degree above ambient temperature contour” extended downstream to approximately at or beyond the 5000 foot transect.

The 2002 Thermal Plume Surveys for the Joliet Stations also consisted of eight individual studies. EA collected two-dimensional, surface thermal plume measurements on all eight of the study dates and, in August 2002, conducted comprehensive three-dimensional thermal monitoring during four of them.³⁷ The Joliet 29 Station intake is located upstream of the furthest upstream plume survey transect in the 2002 surveys. The Joliet 9 Station intake is approximately 400 feet downstream of the upstream plume survey transect. The daily average intake temperatures at Joliet 9 and 29 Stations were typically within 0.5° F of each other (See Exhibit F at Tables 3-2 and 3-3). The upstream transect temperature was usually the same or slightly higher than the Joliet 9 Station intake temperature. Accordingly, the 2002 Thermal Plume Survey showed that both the Joliet Stations’ respective intake temperatures are a reasonably accurate reflection of the upstream river flow temperature.

Joliet 9 Station was not operating at or near its maximum capacity at the time of the 2002 surveys. As a result, there were only two survey dates when Joliet 9 Station had a discernable thermal plume within the allowed mixing zone. On both dates, the surface area encompassed was less than ten acres. The highest temperature recorded within the 26-acre mixing zone at Joliet 9 was 95.7° F and it occurred on August 1, 2002, when Joliet 9 experienced the highest daily average intake temperature and the highest upstream temperature (86.6° F) among the eight surveys; the measured plume area >93° F was the largest (8.2 acres).

For the Joliet 29 Station, the highest temperature recorded within the mixing zone was 99.2 ° F on August 15, 2002. The August 9, 2002 survey recorded the largest (>93° F) contour during the entire 2002 study period. The August 9 survey measured a mixing zone of 27.4 acres to achieve the 93° F thermal standard. Thus, on this day, the full 26 acre mixing zone was necessary and excursion hours for the Joliet 29 Station were used to maintain compliance with that standard.

³⁷ The thermal plume survey transects and vertical Joliet Station locations are illustrated in Figure 2-1 of Exhibit F. For Joliet 29 Station, the number of cooling towers in operation and the cooling tower discharge temperature is also provided. All of the surveys were performed over the course of an operating day from approximately 11:00 am to approximately 5:00 pm, which excluded the lower power production hours of the early morning and late evening. (See Exhibit F at Table 3-1.)

Although MWGen intends to update these 2002 thermal studies as part of its compliance plan for this variance, the 2002 thermal plume studies nevertheless show that the MWGen Stations will not be able to achieve consistent compliance with the 2018 Thermal Standards.

F. MWGen Prior Thermal Variances and Adjusted Standard

Except as described above regarding the AS96-10 Standard, MWGen has not previously petitioned the Board for a variance concerning thermal relief.

Limited provisional thermal variances have been granted to MWGen, but only from the AS 96-10 Standard. In July, 2011, pursuant to Illinois EPA Order 12-03, during a time of very hot weather and high energy demand, a provisional variance was granted that lasted for less than 4 days and there were no exceedances of the maximum limit of 96° F allowed under the provisional variance. In July 2012, pursuant to Illinois EPA Order 12-20/rev. Order No. 13-10³⁸, MWGen was granted a ten-day provision variance from temperature standards due to the widespread heat and drought conditions in the Midwest causing high energy demand and elevated temperatures in the receiving waters. This provisional variance was subsequently extended an additional 10 days by Illinois EPA when this exceptionally hot and dry period continued, along with high energy demand.³⁹ An additional provisional variance was obtained to cover a very hot portion of August 2012 (IEPA Order 12-26/rev. Order No. 13-14).

MWGen’s predecessor, ComEd petitioned the Board for a variance for similar relief on four occasions, the last of which occurred in the 1990’s. Based on a search of available historical records, MWGen has determined that the Board granted ComEd at least the following provisional variances from the thermal water quality standards:

Date	Description of ComEd Provisional Variance	PCB Order No.
10/17/1996	45-day provisional variance to Commonwealth Edison for its	PCB 97-072

³⁸ A review of the Board’s “E Library” records on its website indicates that the Board renumbered certain of the docket numbers shown on the Illinois EPA’s proposed provisional variance orders as filed with the Board. Accordingly, both the original docket numbers assigned by the Agency and, where applicable, the Board’s revised docket numbers are provided.

³⁹ The only other provisional variance granted to MWGen did not involve thermal relief. In September 2001, the Board granted MWGen a 45-day provisional variance from the total suspended solid effluent standards at 35 Ill. Adm. Code § 304.124(a) to allow MWGen to retire three existing intra-plant sluice water transport lines and to replace them with two new larger lines and associated valves at its Joliet 29 Station.

Date	Description of ComEd Provisional Variance	PCB Order No.
	facilities located in Will and Cook counties from the temperature standards and interim temperature limitations in Special Condition #5 of NPDES Permit No. IL0064254 for the Joliet Station #29, and from the temperature limitations as set forth in 35 Ill. Adm. Code 302.211(d) and (e), 304.141(a) and from the interim temperature limitations in PCB 91-29, subject to conditions.	
9/7/1995	18-day provisional variance extending PCB 96-26	PCB 96-51
8/3/1995	32-day provisional variance extending PCB 95-183	PCB 96-26
6/29/1995	25-day provisional variance from thermal limits contained in Special Condition 9 NPDES Permit IL0002216; Joliet Station 29 NPDES Permit No. IL0064254; Will County Station NPDES Permit No. IL0002208	PCB 95-183

IV. COMPLIANCE WITH THE NEW 2018 USE B AND UDIP THERMAL STANDARDS CANNOT BE ACHIEVED BY THE COMPLIANCE DATE.

As discussed above, the MWGen Stations cannot comply with the new 2018 Use B and UDIP thermal standards as currently operating, or as they will be operated in the future, without significant deratings. Those deratings would render these stations unprofitable to operate. Modifying the MWGen Stations, some of which are already undergoing costly conversions, to add the additional equipment needed to comply would be cost-prohibitive and could not be accomplished by the July 1, 2018 applicability date.

During the Subdocket C UAA rulemaking, MWGen presented an extensive report prepared in 2011 by the engineering firm of Sargent & Lundy LLC (“Sargent & Lundy”) and the testimony of Ray E. Henry, who was the lead author of the report. A copy of Mr. Henry’s February 1, 2011 written testimony and the 2011 Sargent & Lundy Report are attached as Exhibits G and H, respectively. Mr. Henry’s testimony explained the comprehensive study he and his colleagues had performed regarding the feasibility of installing new control technology. Sargent & Lundy evaluated the feasibility of both open-cycle cooling and closed-cycle cooling on all five of the then-existing Midwest Generation facilities, including the Will County and Joliet 9 & 29 Stations. As stated in the 2011 Sargent & Lundy report and as Mr. Henry testified, Sargent & Lundy concluded that the open-cycle cooling conducted by each of the MWGen Stations, including the operation of the Joliet 29 helper cooling towers, would not be able to

achieve and maintain compliance with the Agency's proposed thermal standards (which were pending before the Board at that time). Although the Board ultimately rejected the Illinois EPA's proposed thermal regulations, and adopted the new 2018 Thermal Standards that are somewhat more lenient, the conclusions reached in the 2011 Sargent & Lundy study remain applicable.

As stated in the Executive Summary of the 2011 Sargent & Lundy Report, Sargent & Lundy had previously performed a similar study for MWGen in 2005 using the existing General Use thermal standards as the design basis for evaluating the control options and associated costs for achieving compliance. The conclusions reached in the 2005 and 2011 Sargent & Lundy studies were essentially the same. In both studies, Sargent & Lundy concluded that the stations would have to be converted to closed-cycle cooling to achieve consistent compliance with either the General Use thermal standards or the Illinois EPA's proposed Use B and UDIP thermal standards.

For the conversion to closed-cycle cooling, using the 2011 Sargent & Lundy cost estimates, the capital costs at the Joliet Stations would total approximately \$481 million. Will County Station would require an additional \$298 million.⁴⁰ In the 2005 study, Sargent & Lundy estimated that the capital costs for Joliet 9 would be about \$170 million and Joliet 29 would be about \$257 million, for a total of approximately \$427 million for the Joliet Stations (which is fairly close to the 2011 cost estimate, as adjusted for inflation to 2015 dollars). If the cooling towers were designed with the assumption that Will County Station Unit 3 will remain offline, this would reduce the capital costs by about one-third, to approximately \$199 million, as Unit 3 only accounts for about one-third of the Station's thermal output. The estimated 2011 O&M costs for the three facilities, updated for inflation, would total over \$20 million per year.

Further, even if the conversion of these stations to closed cycle cooling were economically feasible, which it is not, a conversion project could not be completed by the July 1, 2018 applicability date of the new Use B and UDIP thermal standards. As the 2011 Sargent Lundy Report notes, converting the Will County and Joliet stations to closed-cycle operations could take between 31 and 33 months.⁴¹ Moreover, Sargent & Lundy stressed that this was a

⁴⁰ See Pre-filed testimony of Ray E. Henry, (Feb. 1, 2011), at p. 14-15 and attached Ex. B thereto, which is attached to this petition as Exhibit G. These numbers were calculated in 2010 dollars, and have been adjusted with a 3% inflation rate.

⁴¹ Exhibit G, Pre-Filed Testimony of Ray E. Henry, R08-9(C), (Feb. 1, 2011), at Ex. B, p. 6-1.

“best case scenario” that assumes a depressed construction market where contractors have immediate availability. That “depressed construction market” is no longer the case today.

The planned conversion of the Joliet Stations to natural gas by the end of 2016 does not significantly affect Sargent & Lundy’s conclusions regarding compliance options. The most likely operating periods of the post-gas conversion Joliet Stations are during cold winter months, when energy demand is high due to the need for heating, and the hot summer months, when the demand for air conditioning is high. Without the ability to cool the Joliet Stations discharges, these stations would still need to be converted to closed cycle cooling to consistently achieve compliance with the new, more stringent 2018 Thermal Standards even though the extent to which the stations are operated on an annual basis would be significantly reduced.

V. MWGen’s Compliance Plan

MWGen seeks to comply with the new rules by pursuing a Section 316(a) variance using the procedures the Board established in Subpart K⁴² — one of the alternatives suggested by the Board in its opinions in the UAA Rulemaking, R2008-09 (Subdocket D).⁴³ MWGen expects to be able to make such a thermal demonstration.

To obtain alternative thermal standards, Section 316(a) requires the permittee to demonstrate that the otherwise applicable thermal discharge effluent limit is more stringent than necessary to assure the protection and propagation of the waterbody’s balanced, indigenous population (“BIP”) of shellfish, fish and wildlife. The BIP for this artificial, heavily impaired waterway, would be defined as “an ecological community which . . . [m]ay reasonably be expected to become re-established in the polluted water body from adjacent waters if sources of pollution were removed.” See 40 CFR 125.58(f)(2).⁴⁴ First, there are no known thermally sensitive species that were driven out of this water body such that they could be “re-established”

⁴² 35 Ill. Adm. Code § 106.110 *et seq.*

⁴³ The Board suggested that further relief from temperature standards may be available through a thermal demonstration under Section 316(a) of the CWA and concluded that even if the new thermal standards were technically infeasible or economically unreasonable to a specific discharger, relief mechanisms are available. Second Notice Opinion and Order, R08-9(D), slip. Op. (March 19, 2015) at p. 69. The Board encouraged the UAA rulemaking participants, which includes MWGen, to consider site-specific relief for individual facilities. *Id.* at p. 78. In issuing the new rules, the Board again noted that “relief from temperature standards may be available through a thermal demonstration under Section 316(a) of the CWA, as well as the Board’s Subpart K procedural rules. Opinion and Final Order, R08-9(D), (June 18, 2015) at p. 20

⁴⁴ Although the Illinois regulations for reviewing 316(a) thermal demonstrations use the term “Balanced, Indigenous, Community” rather than “Balanced Indigenous Population,” the terms are meant to be synonymous. See 35 Ill. Adm. Code § 106.1110.

if all sources of pollution were removed. Since the CSSC's completion in 1907, and the LDPR's subsequent reconstruction in 1922, this waterway has been an effluent-dominated, largely channelized waterway.⁴⁵ Particularly in the LDPR and CSSC, the current, resident fish community population occupies these waters at a time when water quality has improved relative to previous decades. However, the fish community consists primarily of species that are tolerant or intermediately tolerant to a variety of environmental perturbations, including those related to the unique flow and habitat limiting conditions that are necessary to maintain navigational use and upstream flood control functions of the waterway system.

Secondly, there are significant barriers to the migration of fish species other than man-made pollution. For instance, the U.S. Army Corps of Engineers operates a series of electric fish dispersal barriers immediately upstream of the Will County Station to prevent the spread of Asian carp into Lake Michigan.⁴⁶ This is a significant deterrent to migration of fish species from cooler upstream waters, such as Lake Michigan, a task already made difficult by flow control structures such as the Lockport and the Brandon Road Lock and Dam that are between the Will County and Joliet Stations.⁴⁷ The occasional use of rotenone in monitoring and containing the Asian carp also would threaten migrating species.⁴⁸ Within just the past week, a representative of the U.S. Fish and Wildlife Service ("USFWS") contacted MWGen to request a meeting as soon as possible to discuss additional proposed controls to be used when the electronic barriers are out of service for maintenance or because of water conductivity issues. The USFWS is seeking permission to use the Will County Station as a location from which to inject carbon dioxide into the CSSC to anesthetize fish to prevent them from passing through the electric barriers to Lake Michigan. The USFWS also wishes to discuss a proposal to allow a "high temperature discharge" from the Will County Station, subject to further discussion with the Illinois EPA and United States Environmental Protection Agency ("U.S. EPA") and appropriate

⁴⁵ First Notice Opinion and Order, R08-9(A), (Aug. 5, 2010) at pp. 5-6.

⁴⁶ Pre-Filed Testimony of Julie Wozniak, Midwest Generation, Regarding Asian Carp Issues, R08-9(C), (Oct 8, 2010), Exhibit 425 at p. 29, a copy of which is attached to this petition as Exhibit K. "Asian carp" is a common grouping of four species of carp: bighead, silver, black, and grass. First Notice Opinion and Order, R08-9(C), (Feb. 21, 2013), at p. 115.

⁴⁷ The dams themselves create sediment buildups upstream that would impair the reestablishment of fluvial specialists, including most darters and many kinds of suckers. 2003 EA Report at 16, attached as Attachment D to PC #1403, Midwest Generation's Post-Hearings Comments (April 30, 2014), R08-9(D).

⁴⁸ Pre-Filed Testimony of James E. Huff, P.E., R08-9(C), (Feb. 2, 2011), Exhibit 285 at 5, a copy of which is attached to this petition as Exhibit L.

thermal variance relief, to support the work of the Asian Carp Regional Coordinating Committee to employ additional methods for preventing Asian carp migration.

And, of course the Asian carp themselves, already known to be present in the UDIP, which are directly competing with the resident species as well as those attempting to re-establish themselves. The Asian carp are abundant and voracious eaters that can limit food availability, particularly for larval stages of fish and planktivores. The State's definition of "balanced indigenous community" specifically excludes communities dominated by pollution tolerant, invasive species, such as the Asian carp.⁴⁹

A. Compliance Schedule

The Board recently established specific procedures for conducting the thermal demonstrations in the 2014 Subpart K regulations. First, MWGen will need to provide the Illinois EPA a general description of what information it plans to submit, and the general method by which it will show that the adjusted standard is appropriate. See 35 Ill. Adm. Code §106.1115. Then, within 60 days, it must submit a detailed plan of study, including biological, hydrographic and meteorological data, physical monitoring data, engineering models, laboratory studies, a list of representative important studies, and any additional information or studies requested by the IEPA. 35 Ill. Adm. Code § 106.1120. It must then wait for the Illinois EPA to approve the study plan, and if the Agency provides comments that require revising the detailed plan of study, this will require additional time to complete. Hence, while the preparation of the written submission and study plans required by the Subpart K regulations are within MWGen's control, it is unknown exactly how much time will be needed to complete the process of obtaining the Agency's approval of these submissions.⁵⁰ Until the Agency's approval is obtained, MWGen cannot begin conducting the aquatic stream studies needed to satisfy the Subpart K requirements.

MWGen also intends to seek the U.S. EPA Region review and comment of its Subpart K submissions to the Illinois EPA in order to minimize the risk that the scope and content of any

⁴⁹ See 35 Ill. Adm. Code § 106.1110.

⁵⁰ Before Subpart K was adopted in 2014, thermal dischargers were unable to seek adjusted standards, as the Board had previously determined that Illinois lacked appropriate procedural rules for completing thermal demonstrations. See AS 13-1 (Ill. Poll. Cont. Board, Oct. 18, 2012), at 4-6. As such, the Illinois EPA may face several years' worth of backed up applications for Section 316(a) thermal variances. Further, if other thermal dischargers subject to the 2018 thermal standards also seek Section 316(a) thermal variances, this could also increase the time the Illinois EPA may need to complete its review and approval of the written submissions.

proposed study plans are deemed insufficient or inadequate in some way by U.S. EPA Region 5, leading to a federal disapproval of the variance even after MWGen is successful in obtaining a Section 316(a) variance from the Board. It is uncertain whether seeking such federal review and comment on the proposed 316(a) variance study plan will add additional time to the schedule for finalizing the study plans.

MWGen has consulted with EA regarding what would be necessary to conduct a satisfactory thermal demonstration study under the Subpart K regulations. EA has extensive experience in this new area, and recently prepared a Section 316(a) demonstration for the Dresden Nuclear Station, which discharges downstream into the nearby Lower Dresden Island Pool. EA advises that a thermal demonstration study typically requires at least two years of field studies under normal thermal loading conditions.

Given the need to first prepare and obtain the Illinois EPA's approval of the written submissions describing the thermal demonstration studies to be performed, see 35 Ill. Adm. Code § 106.1115(a), MWGen cannot begin collecting summer data until 2016 at the earliest. EA has advised that the studies should consist of, at a minimum, two rounds of summer testing and two rounds of winter sampling.

For the Will County Station, this would push the completion of the studies into early 2018. The Joliet Stations' conversion to peaker operations in late 2016 will require a slightly longer schedule. Because meaningful field studies cannot take place until this new thermal regime is in place, the earliest date that the studies can start is estimated to be January 2017. Thus the second round of summer sampling would not be completed until September 2018, which is beyond the July 1, 2018 date when the new UDIP thermal standard becomes applicable.

After the completion of the stream studies, additional time is needed to evaluate the study results, conduct site-specific thermal modeling, and to prepare the three Subpart K thermal demonstration reports, which include the terms of the proposed Section 316(a) variance relief. EA estimates that this work will require approximately eleven months to complete, bringing the process to September 2019. MWGen would then present the proposed Section 316(a) variance terms to Illinois EPA, and likely to U.S. EPA as well, for review and comment. It is estimated that the agency review period would last for approximately three months, which would end in late November 2019.

The next step in the compliance plan would be the preparation and filing with the Board of a Subpart K thermal variance petition for each of the MWGen Stations seeking Section 316(a) alternate thermal standards, which is estimated to occur in January 2020. Based on the interest that third parties have shown in the past regarding the thermal discharges from the MWGen Stations, it is reasonable to assume that there would be active interest in and comment regarding the MWGen Stations' petition which could extend the duration of the Board variance proceeding beyond the typical amount of time required for its completion. Also, the fact that three stations are involved could add to the time necessary to complete the variance petition proceeding. MWGen is estimating that if the variance petitions are filed in January 2020, they could be completed by not later than June 30, 2020, which is the proposed ending date for this variance.

B. Compliance Costs

The costs in executing the proposed compliance plan would include the demonstration studies necessary to satisfy Subpart K. Based on MWGen's communications to date with EA, the estimated cost of these three demonstrations, including the supporting studies, would be a minimum of approximately \$1.9 million. The cost would increase depending upon whether agency comments expand the scope of the study and its length. There also would be additional costs incurred to prepare the Section 316(a) petitions and to complete the Section 316(a)/Subpart K variance proceedings before the Board. These costs are estimated to be in excess of \$100,000. At this time, it is not known whether the 316(a) variance terms may require any changes in the operations of one or more of the MWGen Stations that may require additional cost expenditures.

VI. DENYING THIS VARIANCE WOULD IMPOSE AN ARBITRARY AND UNREASONABLE HARDSHIP ON MWGEN

It would be arbitrary to require MWGen to comply with the 2018 Thermal Standards for the two years before it can complete the demonstration required for alternative Section 316(a) thermal variances. Compliance with the 2018 Use B and UDIP thermal standards would require significant deratings or converting the stations to closed-cycle cooling, either of which would impose an unreasonable hardship. New PJM requirements regarding capacity commitments also threaten to increase the unreasonable hardship caused to MWGen unless this variance is granted.

A. Achieving Compliance through Deratings Imposes an Arbitrary and Unreasonable Hardship

If MWGen is required to comply with the 2018 Thermal Standards before it has the opportunity to obtain 316(a) thermal variance relief, it will face significant deratings at the MWGen Stations during the requested two-year variance period. Operations at these stations would not be economically viable during this time. As described in detail in Section III.E. *infra*, the extent of the deratings required to achieve compliance with the new 2018 Use B and UDIP thermal standards would quickly make the operations of the MWGen Stations economically unviable.

This is particularly true at the Joliet Stations, which will have shifted into peaker operations by the date the new standards become applicable. The economics of these facilities depend on being able to operate during limited times of peak demand. As a result, any additional derating during the limited times of peak energy demand pose an even greater threat to the economic viability of the Joliet Stations.

Furthermore, if MWGen needs to significantly restrict its operations to achieve compliance by the July 1, 2018 effective date, it may interfere with its ability to collect the data it needs to perform the demonstrations necessary to support the Section 316(a) variance. Without discharges from the plant, the demonstrations would need to rely on modeling which is likely not an adequate substitute for actual field studies.

B. Installing Thermal Control Equipment is Economically Unreasonable, Particularly Because of the Minimal Environmental Benefit it May Achieve

Sargent & Lundy's very conservative 2011 cost estimates for converting the MWGen Stations to closed-cycle cooling show that it will cost hundreds of millions of dollars to comply with the 2018 Thermal Standards.⁵¹

These burdens would be arbitrarily imposed, because the potential environmental benefits they may produce would be minimal. The results of the 2002 three-dimensional thermal plume studies performed for each of the MWGen Stations clearly established that the thermal plumes

⁵¹ Sargent & Lundy did not include the costs of powering the new cooling towers (because the stations would generate their own power, the loss would come in the form of a drop in revenues.) Nor did they estimate additional potential costs such as noise and plume abatement, icing and fogging issues, regulatory and permitting costs, or any other unknown complications that could occur during the actual design and construction of the closed-cycle cooling systems.

for each of the stations are buoyant, there are thermal refuge areas outside of the mixing zone for fish, and fish movement is not precluded by the mixing zone. Further, the results of the 2002 Thermal Plume Surveys show that the two thermal plumes from Joliet Stations 9 and 29 do not appear to interact with one another until they are beyond the 26-acre allowed mixing zone area and the ambient temperatures of both plumes by that point in the river are well within the existing UDIP thermal Standards. Further, the studies showed that the entire flow of the river is not being used for mixing, consistent with the requirements of section 302.102(b)(10). The area and volume in which mixing of the Joliet Stations' respective 2002 thermal plumes occur, either alone or considered in combination with each other, did not intersect any area of the UDIP in such a manner that the maintenance of aquatic life in the pool as a whole would be adversely affected.

Currently, the MWGen Stations' thermal discharges do not degrade their respective water bodies. The Board adopted the new 2018 Thermal Standards for these waters in the hope that in the future, they would improve the quality of the waters and their aquatic community to levels never previously achieved. Yet, by the July 2018 applicability date, there will still be several constraints on the waterway that will preclude achieving significant improvement in these waters. Because of these continuing constraints, no significant environmental benefit would be derived from denying this variance.⁵²

Aquatic life will continue to be constrained by the habitat conditions in these waters. The presence of the electric barriers just upstream from the Will County Station and the Lockport and Brandon Road Locks and Dams downstream already act as deterrents to the migration or use of these waters by certain aquatic life. For both the CSSC and the UDIP, the existing aquatic life community has already adapted to the prevailing thermal conditions, as well as the limited habitat quality. To the best of MWGen's knowledge and information, there are no known habitat improvement projects which are scheduled to be completed prior to or during the term of this variance that would improve the quality of the existing aquatic community. Hence, there is no potential for this variance to cause any interference with aquatic community enhancements that could be expected as a result of such projects. Further, particularly for the UDIP, fish have the ability to avoid water temperatures that are outside of their preferred range by moving to locations where temperatures are more favorable.

⁵² The restrictions caused by physical and electronic barriers, as well as the Asian carp presence are discussed *supra*.

Further, combined sewer overflows (CSOs), which reduce the dissolved oxygen available in the system, will continue during the requested variance period. The adverse impacts from CSOs are compounded by the locks and dams present in the CSSC and UDIP, which allow the overflow waste to remain in the waterway longer than they would in a natural water body, magnifying the ecological harm they cause.⁵³ The earliest possible reduction in these overflows would occur with the completion of the Tunnel and Reservoir Plan (“TARP”) that will not be completed until the late 2020’s, several years after the requested variance period.⁵⁴

Similarly, while the Board elected to adopt new chloride standards for the CAWS, it recognized that “there is no information in the record that demonstrates that [dischargers] are planning to reduce the use of road salt to the point of compliance with the 500, 620, or 990 mg/L chloride water quality standards during the winter in the foreseeable future.”⁵⁵

Through its Section 316(a) thermal demonstration studies, MWGen will be able to show that more lenient temperature limits than the 2018 thermal standards will still be protective of the aquatic community and which do not require installing controlling technology at a cost of several millions of dollars. To deny MWGen this opportunity would constitute an arbitrary or unreasonable hardship.

C. New PJM Requirements will Increase the Hardship Imposed upon MWGen Absent a Variance

Recent changes in the requirements applicable to the energy capacity market include economic penalties that can be imposed upon the MWGen Stations if they are unable to meet future energy capacity commitments. The Federal Energy Regulatory Commission (“FERC”) has approved PJM’s restructuring of the energy capacity market in which the Joliet Stations participate. PJM’s restructuring proposal was a result of generator performance issues during the polar vortex that occurred throughout the PJM region this past winter. PJM has created a new Capacity Performance (“CP”) product that will increase reliability of the energy capacity market by incentivizing performance by generators while also creating extremely high penalties for their non-performance. This change in the CP requirements means that as part of the MWGen Station participation in the PJM region, it must comply with these requirements.

⁵³ 2003 EA Report at 17, attached as Attachment D to PC #1403, Midwest Generation’s Post-Hearings Comments (April 30, 2014), R08-9(D).

⁵⁴ First Notice Opinion and Order, R08-9(C), (Feb. 21, 2013) at p. 182, n.17 (projecting completion in 2028).

⁵⁵ Opinion and Final Order, R08-9(D), (June 18, 2015) at p. 13.

The new CP rules will be phased in and reflected in the Base Residual Auction for the 2018/19 delivery year. PJM seeks to procure CP resources equal to at least 80% of their reliability requirements in 2018/19 and 2019/20 delivery years. The transition will be completed by 2020/21 when PJM expects 100% of the capacity to be CP resources.

Because the Joliet Stations will be expected to operate during peak demand periods after their conversion to natural gas, they must be able to perform as a CP resource or MWGen will be penalized. In other words, if the Joliet Stations are required to derate during times of peak demand or other electric system emergencies, there will be penalties in excess of \$3,500/MWh.

The requested two-year variance covers the 2018/2019 and 2019/2020 delivery years that are subject to the new CP rules. The variance will allow MWGen to continue to meet its PJM CP resource commitments while it seeks an appropriate Section 316(a) variance in time to fulfill its 2020/21 CP resource commitments to PJM.

VII. Environmental impact of the variance

The requested two-year extension of the application of the Indigenous Aquatic Life thermal standards is expected to have either no or minimal adverse impact to the CSSC and UDIP. Requiring compliance on July 1, 2018 with the new thermal standards would produce no meaningful environmental benefit. As discussed in Section VI.B , *supra*, there are simply too many other constraints on the habitability of the CSSC and UDIP. While the Board adopted new use designations in the belief that those constraints will eventually be removed, the Board has acknowledged that several key constraints will remain into 2018 and beyond. As such, the variance — which would still require MWGen to comply with the thermal limitations in the current Use B and UDIP thermal standards and AS 96-10 — would not degrade the receiving waters.

This variance would pose no danger to the public. The thermal discharges covered by the proposed variance do not reach scalding levels (140°F) or otherwise pose a threat to humans. Furthermore the receiving bodies are not primary contact recreation waters where human beings are directly exposed to the waters. Instead, as the Board ruled in Subdocket A of the UAA rulemaking proceeding, they are a mix of Incidental Contact Recreation Waters and Non-Recreational Waters. See 35 Ill. Adm. Code §§ 303.225(h) & 303.227(b). There are no public

water supply intakes located in the vicinity of the discharges. Moreover, these waters are not used as a drinking water source.

VIII. Suggested Variance Conditions

MWGen suggests that the requested two-year variance from the new 2018 Use B and UDIP thermal standards be granted subject to the following conditions:

- A.** The variance applies only to MWGen's Will County Station, Joliet 9 Station and Joliet 29 Stations ("MWGen Stations") thermal discharges.
- B.** The variance begins on July 1, 2018 and ends on June 30, 2020.
- C.** MWGen agrees to continue to conduct temperature compliance monitoring and reporting in accordance with the terms of the current NPDES permits for each of the MWGen Stations.
- D.** MWGen must comply with the terms of the current NPDES permits for the MWGen Stations that require it to use the thermal model accepted by the Illinois EPA to determine whether and the extent to which its station operations must be restricted to avoid exceedances of the thermal limits set forth in 35 Ill. Adm. Code §302.408(b) at the edge of its approved mixing zone or the thermal standards established in AS 96-10 that apply at the I-55 Bridge.
- E.** During the term of the thermal variance, the thermal discharges at each of the MWGen Stations will not exceed 96° F at any time. The maximum temperature of 37.8° C (100° F) set forth in 302.408(b) shall not apply to this variance.

IX. Consistency with Federal Law

Section 35(a) of the Act authorizes the Board to grant a discharger a variance when the discharger shows that compliance with the rule or regulation would impose an arbitrary or unreasonable hardship. Specifically, Section 35(a) states:

The Board may grant individual variances beyond the limitations prescribed in this Act, whenever it is found, upon presentation of adequate proof, that compliance with any rule or regulation, requirement or order of the Board would impose an arbitrary or unreasonable hardship....

415 ILCS 5/35(a).

Section 35(a) of the Act is implemented through the Board's regulations, 35 Ill. Adm. Code §§ 104.200-104.248. Section 104.200 reiterates that the standard for granting a variance is

that compliance would impose an arbitrary or unreasonable hardship and expressly places the burden of adequate proof upon the petitioner. 35 Ill. Adm. Code §104.200.

In addition to the “arbitrary or unreasonable hardship” standard, Section 35(a) requires that a variance be consistent with applicable federal law. See 415 ILCS 5/35(a). Section 104.208(b) of the Board’s rules specifies that petitions for variances from the Board’s water pollution regulations “must indicate whether the Board may grant the relief consistent with the Clean Water Act (CWA) (33 USC 1251 et seq.), USEPA effluent guidelines and standards, any other federal regulations, or any area-wide waste treatment management plan approved by the Administrator of USEPA pursuant to Section 208 of the CWA (33 USC 1288).” 35 Ill. Adm. Code §104.208(b). There is well established precedent for the Board’s exercise of its authority and discretion to grant variances from Illinois water quality standards consistent with federal law. See, e.g., *Citgo Petroleum Corporation and PDV Midwest Refining, L.L.C. v. Illinois EPA*, Opinion and Order, PCB No. 05-85, slip op. (Apr. 21, 2005) (granting a variance from the General Use and Indigenous Aquatic Life water quality standards for total dissolved solids); *City of Springfield, Illinois v. Illinois EPA*, Opinion and Order, PCB No. 06-137, slip op. (Sept. 7, 2006) (granting a variance from the General Use water quality standard for dissolved oxygen); and *Sanitary District of Decatur v. IEPA*, Opinion and Order, PCB 09-125, slip op. (Jan. 7, 2010) (granting a variance from the General Use water quality standards for nickel and zinc).

More recently, however, the U.S. EPA has raised a concern that for purposes of “consistency with federal law,” variance relief from water quality standards may represent a “time-limited use removal” that must satisfy one or more of the UAA factors to justify a “permanent” use removal pursuant to 40 C.F.R. §131.10(g).⁵⁶ At present, the U.S. EPA’s interpretation of the application of the UAA regulatory requirements to temporary variances is the subject of a pending rulemaking proceeding, commonly referred to as the “Clarifications Rule.”⁵⁷ However, there is valid cause for concern that U.S. EPA’s proposed Clarifications Rule is itself inconsistent with federal law.

In its proposed Clarifications Rule, the U.S. EPA concedes that Section 131.10(g) does not state that one or more of the UAA factors must be satisfied before a water quality standard

⁵⁶ See March 15, 2013 U.S. EPA Region 5 Letter, Public Comment of USEPA, filed in *Citgo Petroleum Corp. and PDV Midwest Refining, LLC v. Illinois EPA*, PCB No. 12-94 (Mar. 15, 2013) at p. 5.

⁵⁷ See Water Quality Standards Regulatory Clarifications, 78 Fed. Reg. 54518 (Sept. 4, 2013).

variance is granted.⁵⁸ Moreover, in Section 131.11 of the Clean Water Act implementing regulations for water quality standards, it is expressly provided that the states may, at their discretion, include policies as part of their water quality standards, “such as those implementing ...variances.” Finally, because the Clarifications Rule has not yet been promulgated, there is no applicable federal law which requires the Board to find that one or more of the UAA factors is satisfied by this variance request. Until and unless there is such a federal law, the Board can and may grant variances only upon a finding of “arbitrary or unreasonable hardship” - - the standard set forth in Illinois law which has existed, and which the Board has followed, for years without objection by U.S. EPA.⁵⁹

Particularly in the case of thermal water quality standards, the U.S. EPA’s proposed “clarification” to add an additional requirement to satisfy one or more of the UAA factors is clearly beyond its authority to require under the Clean Water Act and its implementing regulations. Clean Water Act Section 316(a) expressly and specifically addresses the requirements for a thermal variance — this is the Clean Water Act’s only discussion of variances of any kind. Section 316(a) does not require that thermal variances must also satisfy the provisions of the Section 131.10(g) UAA regulation, nor do the federal regulations implementing the requirements of Clean Water Act Section 316(a) add such a requirement. See 40 C.F.R. § 125.70 *et seq.* Thus, the U.S. EPA’s proposed expansion of the Clean Water Act Section 316(a) requirements for thermal variance relief does not preclude the Board from granting this variance because the EPA’s proposal would itself be inconsistent with federal law. Because the sole purpose of this variance is to provide MWGen with the time needed to obtain a variance established by federal law (*i.e.*, Clean Water Act Section 316(a)), using Subpart K procedures wholly consistent with the federal regulations implementing Section 316(a) set forth at 40 C.F.R. § 125.70 *et seq.*, it is not inconsistent with the Clean Water Act or EPA’s regulations.

⁵⁸ “The nationally applicable regulation [40 C.F.R. § 131.13] does not explicitly address questions such as when a variance can be granted, how a variance must be justified, what is required during the term of a variance, or for how long a variance can be granted.” *Id.* at 54531.

⁵⁹ As the Board itself has found, Section 35(a) of the Act limits the scope of the Board’s authority to grant variances only in instances where an arbitrary or unreasonable hardship has been shown. See *Illinois Power Holdings, LCC. v. Illinois EPA*, PCB No. 14-10, 2013 Ill. ENV. LEXIS 346, *189-190 (Ill. Pol. Control Bd. Nov. 21, 2013). The Board’s finding is consistent with the well-established legal principle that the Board has only the authority granted to it by its enabling statute. *Lipe v. Village of Richton Park*, PCB No. 12-44, 2011 Ill. ENV. LEXIS 499, *17 (Ill. Pol. Control Bd. Nov. 17, 2011).

Further, even assuming for argument's sake that in certain instances a variance may constitute a "temporary removal" of a designated use, MWGen's requested thermal variance will not constitute a "temporary removal" of the aquatic life designated use for either the CSSC or the UDIP. This variance applies to two water bodies that have received specific use designations from the Board: ALU B and UDIP. In both cases, the Board concluded that a three-year delay in the new ALU B and UDIP thermal standards applicability date was consistent with the uses of these waters — a sensible conclusion, as the environmental goals of the regulation are prospective, and limited by other environmental restrictions that cannot be resolved in the near future.⁶⁰ The five-year period for compliance sought in this variance is not meaningfully different from the three-year period for compliance the Board already found consistent with ALU B and UDIP uses.⁶¹

Granting this requested variance will not be the cause of any temporary removal of either Use B or the UDIP use. Use B is a designated use that cannot attain the fishable goals of the Clean Water Act. Use B specifies that the aquatic community that is present today is what is attainable for these waters. That aquatic community has maintained itself through periods of thermal discharges that were substantially greater than those proposed under this variance petition when the Fisk and Crawford Stations thermal discharges added to the thermal loading of the CSSC and when the Will County Station was operating more than one unit. During the term of this variance, the thermal loading from the Will County Station will be minimal compared to what the thermal loading was before. Therefore, it would be unreasonable to conclude that the granting of this variance would constitute a temporary "removal" of the designated Use B aquatic life use. *See* 40 CFR 131.10(g).

Although the extent of the effect of the decrease in thermal loadings is currently less for the UDIP, it is still present due to the reductions in thermal loadings upstream and will decrease

⁶⁰ "If the Board believed that the UDIP presently met the CWA aquatic life goal, then the Board would designate UDIP as a General Use water. The fact that the Board decided not to do so makes clear the Board's decision that the UDIP does not presently fully attain the CWA aquatic use goal." Opinion and Final Order of the Board, R08-9(C), (Feb. 6, 2014) at p. 10.

⁶¹ The Board's adoption of criteria that include a delayed effective date are a key difference from the variance that the U.S. EPA disapproved of in *CITGO Petroleum Corporation and PDV Midwest Refining, L.L.C. v. IEPA*, PCB 12-94 (October 18, 2012). *See* Subdocket D, P.C. #1367 (Mar. 15, 2013). In reviewing that variance, the U.S. EPA found that, in asking for a five-year variance that would "effectively eliminate[] the applicability of a TDS criterion" established by the CSSC's aquatic life use designation, CITGO had in effect asked to alter the designated use of the CSSC without observing the procedural requirements of 40 CFR 131.10(g). Unlike CITGO, MWGen seeks to be held to criteria that are already present in the applicable designated use standards.

further before this requested variance begins upon the conversion of the Joliet Stations to natural gas peaker operations. Hence, there is not a reasonable basis on which to conclude that allowing a two-year extension of the currently applicable UDIP thermal standards will constitute a “temporary removal” of the UDIP use designation. As the Board found in selecting the UDIP use, the UDIP “does not presently fully attain the CWA aquatic use goal” and the “biologic condition in UDIP may not fully meet [that] goal.”⁶²

Further, there are other factors that will continue to exist during the requested two-year variance period that will prevent full attainment of the UDIP aquatic life use. First, as the Board has noted, there would need to be habitat improvements in the UDIP in order for it to attain its upgraded use designation.⁶³ Similarly, for both the CSSC and UDIP, until the prevalence of CSO is significantly reduced by the completion of the District’s TARP project, now scheduled for the late 2020’s, the dissolved oxygen adverse impacts caused in both the Use B CSSC and UDIP waters will continue to prevent full attainment of these uses. Thus, the requested two-year variance will not cause a “temporary” removal of the aquatic life use of the UDIP.

X. AFFIDAVITS VERIFYING FACTS

As required by Section 104.202(m), two affidavits are attached as Exhibits M and N to verify the facts submitted in this petition. These affidavits include: the affidavit of MWGen Director, Asset Management, Maria Race verifying both that the facts stated in this petition relating to MWGen are accurate and the attached exhibits are true and accurate copies (see Exhibit M); and the Affidavit of Scientist VI and Branch Manager, EA Engineering, Science, and Technology, Inc., PBC (“EA”), Joe T. Vondruska, verifying that the facts stated in this petition relating to the compliance plan Section 316(a) thermal demonstration work, the associated estimated compliance plan timetable, and prior EA studies and conclusions regarding environmental impacts drawn therefrom are accurate (see Exhibit N).

XI. Hearing

Midwest Generation requests a hearing regarding this petition.

⁶² In the Matter of: Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303 and 304, R08-09(C), (Nov. 21, 2013), at p. 54.

⁶³ Second Notice Opinion and Order, R08-9(C), (Mar. 19, 2015), at p. 73.

XII. CONCLUSION

This petition for variance should be granted by the Board because it satisfies the requirements of both Section 35(a) of the Act and the regulatory requirements of Section 104.210 of the Board rules. The Petition demonstrates that it would cause MWGen an arbitrary or unreasonable hardship if it is required to comply with the new Use B and UDIP thermal standards on July 1, 2018 pursuant to Section 302.408(b) of the Board's water pollution regulations. MWGen respectfully requests that the Board grant the requested variance from both the numerical and narrative provisions of Sections 302.408(c) through (f), (h) and (i) for the period beginning July 1, 2018 through June 30, 2020.

Respectfully submitted,

MIDWEST GENERATION, LLC

By: /s/Susan M. Franzetti

Dated: July 21, 2015

Susan M. Franzetti
Vincent R. Angermeier
NIJMAN FRANZETTI LLP
10 S. LaSalle St., Suite 3600
Chicago, IL 60603
(312) 251-5590

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

MIDWEST GENERATION, LLC)
 Petitioner,)
 v.)
ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY)
 Respondent.)
) PCB _____
) (Variance - Water)

LIST OF EXHIBITS

- Exhibit A: Will County Station 2014 NPDES Permit
- Exhibit B: Joliet 9 Station 2014 NPDES Permit
- Exhibit C: Joliet 29 Station 2014 NPDES Permit
- Exhibit D: December 5, 2014 Illinois EPA Letter
- Exhibit E: Thermal Plume Surveys on the Chicago Sanitary and Ship Canal Near Will County Station June-September 2002
- Exhibit F: Thermal Plume Surveys on the Lower Des Plaines River Near Joliet Stations June-September 2002
- Exhibit G: February 1, 2011 Ray E. Henry Pre-Filed Testimony UAA Rulemaking R08-9(C)
- Exhibit H: 2011 Sargent & Lundy Report
- Exhibit I: August 4, 2008 Julia Wozniak Pre-Filed Testimony UAA Rulemaking R08-9(C)
- Exhibit J: Excerpt of July 29, 2013 Scott Twait Testimony, Exhibit 480, Hearing Transcript Testimony UAA Rulemaking R08-9(C)
- Exhibit K: October 8, 2010 Julia Wozniak Pre-Filed Testimony UAA Rulemaking R08-9(C)
- Exhibit L: February 2, 2011 James E. Huff Pre-Filed Testimony UAA Rulemaking R08-9(C)
- Exhibit M: July 21, 2015 Affidavit of Maria Race, Midwest Generation Director, Asset Management
- Exhibit N: July 21, 2015 Affidavit of Joe T. Vondruska, Scientist VI and Branch Manager, EA Engineering, Science, and Technology, Inc. PCB