BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

NOTICE OF FILING

TO: Mr. John T. Therriault
Assistant Clerk of the Board
Illinois Pollution Control Board
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601
(VIA ELECTRONIC MAIL)

Ms. Marie E. Tipsord
Hearing Officer
Illinois Pollution Control Board
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601
(VIA FIRST CLASS MAIL)

(SEE PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board the PRE-FILED TESTIMONY OF ALAN L. JIRIK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC., PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E. ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC., and PRE-FILED TESTIMONY OF JOSEPH V. IDASZAK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC., copies of which are herewith served upon you.

Respectfully submitted,

CORN PRODUCTS INTERNATIONAL, INC.,

Dated: April 20, 2009

By: <u>/s/ Katherine D. Hodge</u>
One of Its Attorneys

Katherine D. Hodge N. LaDonna Driver Monica T. Rios Matthew C. Read HODGE DWYER & DRIVER 3150 Roland Avenue Post Office Box 5776 Springfield, Illinois 62705-5776 (217) 523-4900

CERTIFICATE OF SERVICE

I, Katherine D. Hodge, the undersigned, hereby certify that I have served the attached PRE-FILED TESTIMONY OF ALAN L. JIRIK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC., PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E. ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC., and PRE-FILED TESTIMONY OF JOSEPH V. IDASZAK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC. upon:

Mr. John T. Therriault Assistant Clerk of the Board Illinois Pollution Control Board 100 West Randolph Street Suite 11-500 Chicago, Illinois 60601

via electronic mail on April 20, 2009; and upon:

Ms. Marie E. Tipsord Hearing Officer Illinois Pollution Control Board 100 West Randolph Street Suite 11-500 Chicago, Illinois 60601

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by depositing said documents in the United States Mail, postage prepaid, in Springfield, Illinois on April 20, 2009.

/s/ Katherine D. Hodge Katherine D. Hodge

CORN:006/Fil/NOF-COS – Pre-Filed Testimony – Jirik, Huff, Idaszak

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
WATER QUALITY STANDARDS AND)	
EFFLUENT LIMITATIONS FOR THE)	R08-9
CHICAGO AREA WATERWAY)	(Rulemaking – Water)
SYSTEM AND LOWER DES)	
PLAINES RIVER: PROPOSED)	
AMENDMENTS TO 35 ILL. ADM. CODI	Ξ)	
301, 302, 303 and 304)	

PRE-FILED TESTIMONY OF ALAN L. JIRIK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC.

NOW COMES Corn Products International, Inc., by and through its attorneys, HODGE DWYER & DRIVER, and submits the following Pre-Filed Testimony of Alan L. Jirik for presentation at the May 20, 2009 hearing scheduled in the above-referenced matter.

Testimony of Alan L. Jirik

My name is Alan L. Jirik, and I am the Vice President of Regulatory Affairs at Corn Products International, Inc. ("Corn Products"). On behalf of Corn Products, I would like to thank the Illinois Pollution Control Board ("Board") for the opportunity to present this testimony today. Consistent with the Hearing Officer's Order of May 19, 2008, Corn Products will present testimony today regarding use designations of the waterways subject to this rulemaking. See Hearing Officer Order, In the Matter of:

Water Quality Standards and Effluent Limitations for the Chicago Area Waterway

System and the Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code
301, 302, 303 and 304, R08-9 (Ill.Pol.Control.Bd. May 19, 2008)(rulemaking hereinafter cited as "CAWS/LDPR"). Specifically, Corn Products will present testimony related to

the use designations proposed by the Illinois Environmental Protection Agency ("Illinois EPA") for the Chicago Sanitary and Ship Canal ("Sanitary & Ship Canal"). Please note that Mr. James E. Huff and Mr. Joseph V. Idaszak will also testify on behalf of Corn Products. Furthermore, Corn Products understands that the Hearing Officer has directed that testimony related to water quality standards be filed at a later time, in recognition that the Board's consideration of water quality standards is incumbent upon properly established use designations. *Id.* at 1-2. Therefore, in accordance with the Hearing Officer's Order, Corn Products notes that it intends to submit testimony related to the appropriate water quality standards for the Sanitary & Ship Canal at the appropriate time, to be determined by the Hearing Officer.

Corn Products' Argo Plant ("Argo"), located at 6400 Archer Avenue in Bedford Park, processes corn and produces a variety of food products and ingredients including corn sweeteners, starches, edible oils, and animal feeds. Corn Products has operated continuously at this location for nearly 100 years, with the first bushel of corn being processed at Argo on March 28, 1910. Argo is a unionized plant represented by the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial, and Service Workers International Union ("USW") Local 7-506, and the International Association of Machinists District No. 8. Argo is a major employer, and for every job at Argo, additional jobs are created in other sectors of the economy. Based on a report from the Illinois Workforce Investment Board, Manufacturing Task Force Report: Findings and Recommendations, (Dec. 14, 2006), Argo is directly and indirectly responsible for providing approximately 3,000 jobs. This report goes on to state the following:

Manufacturing is a critical economic sector in Illinois because:

Manufacturing is a large component of the state economy as measured by gross state product, Manufacturing continues to provide good wages and benefits to Illinois workers, and Manufacturing creates jobs in other sectors in Illinois because it purchases goods and services from other industries and employs workers with considerable spending power to purchase additional goods and services.

Id. at 3. Corn Products is proud of its 100 plus year history in the Chicagoland area and looks forward to continuing contributions to the local economy.

Argo withdraws as much as 60 million gallons of water per day from the Sanitary & Ship Canal for non-contact cooling for various processes, and returns the warmed non-contact cooling water back into the Sanitary & Ship Canal under conditions specified in its NPDES Permit (No. IL0041009). The intake and discharge points for the cooling water at Argo are located on the Sanitary & Ship Canal at mile post 311.7, which is generally located between Harlem Avenue and La Grange Road.

The use of non-contact cooling water from the Sanitary & Ship Canal is fundamental to the design and operation of the various processes at Argo. The cooling water provides for necessary and highly efficient heat removal in production and operating processes including: dextrose manufacturing, corn sweetener refining, wet starch co-product drying, as well as the operation of various air compressors, electric generators, and air conditioning equipment. In the mid-1990s, Argo installed new equipment that increased the heat load and cooling needs of the plant. Corn Products was concerned, at that time, that adding additional thermal load to the Sanitary & Ship Canal discharge might affect compliance with the thermal limits of its NPDES permit. In order to address this concern, a cooling tower was included as part of the project to serve the

new equipment. This dedicated-use cooling tower uses less than one percent of the current amount of water withdrawn from the Sanitary & Ship Canal at Argo. Moreover, blowdown from this cooling tower is not returned to the canal; instead, it is discharged to the Metropolitan Water Reclamation District of Greater Chicago ("MWRDGC"). The cooling tower enabled Argo to avoid adding thermal load to its existing NPDES discharge, and allows Corn Products to remain in compliance with the thermal limits in its NPDES permit. Thus, it is Corn Products' opinion that Argo is near the approximate limit of its allowable thermal discharge to the Sanitary & Ship Canal, and that any tightening of thermal water quality standards threatens the use of Sanitary & Ship Canal water for cooling purposes at Argo.

Illinois Environmental Protection Agency ("Illinois EPA") proposes to designate the segment of the Sanitary & Ship Canal to which Argo discharges non-contact cooling water, as "Incidental Contact Recreation Waters" and "Chicago Area Waterway System and Brandon Pool Aquatic Life Use B Waters." Illinois EPA Proposed Amendments at 35 Ill. Admin. Code §§ 303.220 and 303.235, *CAWS/LDPR*, R08-9 (Ill.Pol.Control.Bd. Oct. 26, 2007).

Corn Products believes that the proposal to categorize the Sanitary & Ship Canal as a "Use B" water is inappropriate as it fails to account for characteristics that distinguish the Sanitary & Ship Canal from other waters that Illinois EPA proposes to characterize as Use B waters. The fisheries present in the Sanitary & Ship Canal are subject to habitat limitations and other non-thermal stressors. As such, categorizing the Sanitary & Ship Canal as a Use B will provide no meaningful improvement of fisheries

relative to current conditions. Therefore, justification for the Use B designation for the Sanitary & Ship Canal is not supported by the record here. Mr. Huff will offer testimony on behalf of Corn Products regarding fisheries, habitat and thermal conditions in the Sanitary & Ship Canal relative to the proposed Use B. By comparing fisheries present in the Sanitary & Ship Canal to those present in the Calumet-Sag Channel, Mr. Huff will show that decreasing the water temperature in the Sanitary & Ship Canal will not increase the quality of fisheries in the Sanitary & Ship Canal. Additionally, Mr. Huff will show that, within the Sanitary & Ship Canal, temperature is not limiting the quality of fisheries since the fisheries at the warmest point in the Sanitary & Ship Canal are above average in quality, while fisheries in cooler but otherwise similar conditions in the Sanitary & Ship Canal are below average in quality.

Corn Products further believes that its current use of the Sanitary & Ship Canal water for non-contact cooling will be jeopardized if the Board categorizes the Sanitary & Ship Canal as Use B. There is ample evidence in the record that demonstrates that the Sanitary & Ship Canal does not meet the proposed Use B thermal water quality standards. *See* Updated Pre-Filed Testimony of James E. Huff, P.E., Attachment 6, *CAWS/LDPR*, R08-9 (Ill.Pol.Control.Bd. Mar. 25, 2009). Temperature data recorded at the Corn Products intake structure for the period from January 2004 through November 2007 is presented in Attachment 1 to my testimony, and is complementary to the testimony of Mr. Huff, as it indicates that the water temperature at the Corn Products intake often equals or exceeds the proposed thermal water quality standards of Use B. Illinois EPA has explained that a noncomplying water body is not allowed a mixing zone.

Testimony of Scott Twait, Hearing Transcript for Jan. 28, 2008, *CAWS/LDPR*, R08-9 at 47 (Ill.Pol.Control.Bd. Feb. 7, 2008). But even if the Sanitary & Ship Canal were to somehow marginally meet the Use B thermal water quality standards, thus providing for a mixing zone, the practical result is that receiving waters at or near a thermal water quality standard provide insufficient capacity to assimilate additional heat. Thus, the proposed Use B would deprive Corn Products of its current use of the Sanitary & Ship Canal.

Corn Products has evaluated methods identified by Illinois EPA as "reasonably available to meet the proposed Use B thermal limits," which Illinois EPA opines would allow Corn Products to maintain its current use of the Sanitary & Ship Canal. Specifically, Illinois EPA has testified that its proposed thermal water quality standards are economically feasible because they can be met through the use of cooling towers, and "cooling towers are used extensively throughout the state to meet water quality standards." *Id.* at 55, 89. Illinois EPA's opinion is based apparently on the fact that cooling towers are used at other facilities to meet thermal limits imposed upon those dischargers, but Illinois EPA does not consider whether cooling towers are adequate for each individual discharger potentially impacted by this proposed thermal water quality standard. Id. at 55. Corn Products has found, through a study performed by Ambitech Engineering Corporation ("Ambitech"), that constructing a new cooling tower alone would be inadequate to achieve and maintain compliance with the proposed water quality standards at Argo. Ambitech has determined that chillers, in addition to a new cooling tower, would be necessary to meet the proposed Use B water quality standards, and has

estimated the total costs associated with installing a cooling tower alone at \$23,645,000. This cost does not reflect additional costs necessary to meet thermal water quality standards on the warmest days of the year or annual operating costs. Similarly, the cost does not consider the environmental footprint of installing and operating a new cooling tower. Electricity to power the cooling tower will result in fuel combustion that will generate air emissions of CO₂, SO_x, NO_x, CO and particulates. Thus, it is clear that Illinois EPA not only failed to consider the monetary cost of compliance to individual discharges, but also failed to consider the non-water related environmental impacts of compliance. Mr. Joseph V. Idaszak will present testimony regarding both the technology and cost to continue our existing use of the Sanitary & Ship Canal for noncontact cooling should the Illinois EPA's proposed thermal water quality standards be adopted by the Board.

the Board should also consider that the Sanitary & Ship Canal is a relatively recently created artificial man-made channel that was mined and excavated through limestone bedrock. Daniel E. Capano, *Chicago's War with Water*, American Heritage, Spring 2003 Vol. 18, Issue 4, available at http://www.americanheritage.com/articles/magazine/it/2003/4/2003_4_50.shtml. (last viewed April 20, 2009). The Sanitary & Ship Canal was created for the primary purpose of reversing the flow of the Chicago River to transport human waste and diseases away from Lake Michigan. Chicago Area Waterway System Use Attainability Analysis Final

In regard to establishing the proper use designation for the Sanitary & Ship Canal,

Report, Camp, Dresser, and McKee at 3-16 (Aug. 2007) (Illinois EPA Statement of

Reasons, Attachment B, *CAWS/LDPR*, R08-9 at 3-16 (Ill.Pol.Control.Bd. Oct. 26, 2007) (hereinafter "CAWS UAA"). Thus, from both a functional and physical perspective, the Sanitary & Ship Canal is more like an engineered aqueduct than a natural stream or river.

The Sanitary & Ship Canal provides commercially important navigation between the Great Lakes and Mississippi River. *Id.* at 3-2. The Sanitary & Ship Canal provides primary transport of industrial materials such as sand, gravel, coal, cement, and fuel oils. *Id.* Similarly, the trend of development along the Sanitary & Ship Canal is primarily for industrial and commercial uses. *Id.* at 3-3. MWRDGC, the largest landowner along the Sanitary & Ship Canal, leases a majority of the land along the banks of the Sanitary & Ship Canal to industrial users who do not support or encourage public or pedestrian activities along the Sanitary & Ship Canal. *Id.*

Illinois EPA recognizes that the Sanitary & Ship Canal receives discharges from a number of significant facilities. Illinois EPA Statement of Reasons, *CAWS/LDPR*, R08-9 at 103 (Ill.Pol.Control.Bd. Oct. 27, 2007). Further, Illinois EPA acknowledges that thermal discharges are a noteworthy group of sources in the Sanitary & Ship Canal, and that such dischargers include Midwest Generation electric generating stations, grain processing facilities, and petroleum refineries. *Id.* Of note, the Fisk and Crawford Midwest Generation electrical generating plants are located upstream from Corn Products and discharge primarily heated non-contact cooling water into the Sanitary & Ship Canal and the South Branch of the Chicago River just before its confluence with the Sanitary & Ship Canal. Additionally, MWRDGC's Stickney Wastewater Treatment Plant discharges treated wastewater upstream from Argo. CAWS UAA at 3-3. The MWRDGC Stickney

Plant is MWRDGC's largest wastewater treatment plant and one of the largest in the world, with an average design flow of 1.2 billion gallons per day ("BGD") and a design maximum flow of 1.4 BGD. *Id.* On an annual basis, municipal treatment plants contribute seventy percent of the total flow of the Sanitary & Ship Canal. *Id.* at 1-6. Likewise, the two upstream power plants can utilize up to 725.5 MGD collectively. Illinois EPA Public Notice/Fact Sheets for NPDES Permit No. IL0002178, Fisk Generating Station, April 1, 2007 and NPDES Permit No. IL0002186, Crawford Generating Station, April 4, 2007. Thus, a large percentage of the water in the Sanitary & Ship Canal has been used, re-used, and/or recycled. It is important to recognize these uses of the Sanitary & Ship Canal, and their value to the economy of the Chicago area. This water segment also receives combined sewer overflow discharges, which add additional extreme unpredictable transient impacts. CAWS UAA at 3-2 – 3-3.

The Board recognized the unique industrial character of the Sanitary & Ship

Canal when granting an adjusted standard to allow alternate thermal standards at three
electrical generating plants discharging into the Sanitary & Ship Canal, including the Fisk
and Crawford stations upstream from Corn Products. See Opinion and Order, In the

Matter of: Petition of Commonwealth Edison Company for Adjusted Standard from 35

Ill. Adm. Code 302.211(d) and (e), AS 96-10 (Ill.Pol.Control.Bd. Oct. 3, 1996). In its
discussion of the environmental impact from the granting of the adjusted standard, the
Board explained that the Sanitary & Ship Canal is "greatly modified by use as a shipping
channel with habitat limited to deep pools without shallows, structure, riffles of suitable
substrates." Id. at 6. Further, the area is "heavily developed with industries" and the

waterway is "significantly modified" and "limited in terms of habitat." *Id.* Finally, historical use of the waterway has caused "substantial residual chemical contamination to be present in the sediments." *Id.*

In conclusion, the Sanitary & Ship Canal uniquely combines the attributes of artificial creation, waste water domination, and multiple significant reuse of the water. Corn Products believes that the Sanitary & Ship Canal serves an important social and industrial purpose in its receipt and transport of treated waste water and dissipation of thermal energy from electrical generation and industrial processes. The record here demonstrates the existing substantial industrial uses of the Sanitary & Ship Canal. As our expert will testify, the Sanitary & Ship Canal fisheries are not limited by the current thermal environment, and thus, the proposed Use B thermal water quality standards will have no meaningful fisheries benefits, but will impose extreme financial hardships if applied to the Sanitary & Ship Canal. The impact of the proposed Use B on Corn Products' existing use of the Sanitary & Ship Canal, and on the environment is substantial. Clearly, Illinois EPA did not properly evaluate whether its proposal to change the existing use designation would result in any actual improvement to fisheries in the Sanitary & Ship Canal. Moreover, Illinois EPA did not properly evaluate the economic impact to individual dischargers, or the impact to the environment as a whole, when proposing to designate the Sanitary & Ship Canal as a Use B waterway. Similarly, Illinois EPA did not meaningfully consider the technical feasibility of compliance. On the other hand, Corn Products' testimony supports that applying a Use B designation to the Sanitary & Ship Canal is both inappropriate and unwarranted. In order to recognize

the unique features of the Sanitary & Ship Canal, we would suggest the creation of an

appropriate designation such as a "Use C" water. Corn Products intends to offer

additional testimony in the phase of this proceeding related to establishment of water

quality standards so that the Board has sufficient information to consider both technical

feasibility and economic reasonableness in moving forward with any revisions to the

water quality standard for temperature in the Sanitary & Ship Canal.

Thank you for the opportunity to testify today. I will be happy to answer any

questions.

* * *

CORN PRODUCTS INTERNATIONAL, INC. reserves the right to supplement

this pre-filed testimony.

Respectfully submitted,

CORN PRODUCTS INTERNATIONAL,

INC.

By: /s/ Katherine D. Hodge

One of Its Attorneys

Dated: April 20, 2009

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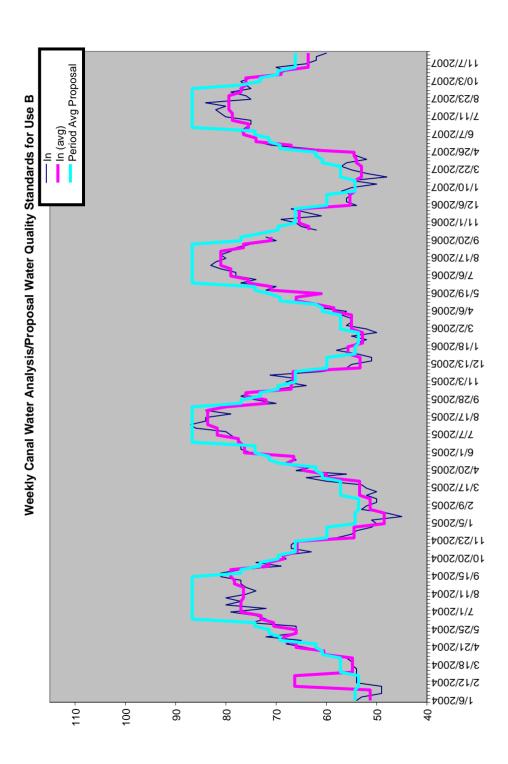
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CORN:006/Fil/R08-9 Prefiled Testimony of Jirik

11



BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
WATER QUALITY STANDARDS AND)	
EFFLUENT LIMITATIONS FOR THE)	
CHICAGO AREA WATERWAY SYSTEM)	R08-9
AND LOWER DES PLAINES RIVER:)	(Rulemaking- Water)
PROPOSED AMENDMENTS TO 35 ILL.)	
ADM, CODE 301, 302, 303 and 304)	

PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E. ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC.

NOW COMES Corn Products International, Inc., by and through its attorneys, HODGE DWYER & DRIVER, and submits the following Pre-Filed Testimony of James E. Huff, P.E., for presentation at the May 20, 2009 hearing scheduled in the above-referenced matter.

Testimony of James E. Huff, P.E.

My name is James E. Huff, and I am Vice President and part owner of Huff & Huff, Inc., an environmental consulting firm founded in 1979. I received a Bachelor of Science in Chemical Engineering in 1970 from Purdue University and was awarded a Master of Science in Engineering from the Environmental Engineering Department at Purdue University in 1971. I am a registered Professional Engineer in Illinois.

I have been retained by Corn Products International, Inc. ("Corn Products") to review the Use Designation proposed by the Illinois Environmental Protection Agency ("Illinois EPA") for the Chicago Sanitary & Ship Canal ("Sanitary & Ship Canal") and the technical justification provided by Illinois EPA in support of its proposed Use Designation. I previously testified on behalf of Citgo Petroleum Corporation and PDV Midwest, LLC ("Citgo"), and request that my previous pre-filed testimony regarding the

uniqueness of the Sanitary & Ship Canal, use attainability goals, thermal mixing zones, thermal water quality standards and characteristics in the Sanitary & Ship Canal, and the report attached to that pre-filed testimony, entitled *Thermal Evaluation of the Chicago Sanitary Canal and the Calumet Sag Channel as it Pertains to Fisheries Quality*, all be incorporated by reference. *See* Updated Pre-Filed Testimony of James E. Huff, P.E., *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, R08-9 (Ill.Pol.Control.Bd. Mar. 25, 2009)(rulemaking hereinafter cited as "CAWS/LDPR").*

The collection of waterways currently under consideration represents a range of dissimilar waterways, from natural streams to manmade canals. To some extent, Illinois EPA's proposed changes recognize these differences in two different aquatic life use categories, as Use A and Use B. My review was focused on the appropriateness of the Aquatic Life Use B designation for the Sanitary & Ship Canal. The uses of the Sanitary & Ship Canal are demonstrably different than the uses of the other bodies of water in the Chicago Area Waterway System ("CAWS").

Illinois EPA is proposing to classify the Sanitary & Ship Canal as an Aquatic Life Use B Water, a group that also includes the North Branch Chicago River, the Chicago River, the South Branch Chicago River, the Calumet River to Torrence Avenue, the Lake Calumet Connecting Channel, and the Lower Des Plaines River from the Sanitary & Ship Canal to the Brandon Road Lock and Dam. Illinois EPA Proposed 35 Ill. Admin. Code § 303.235, *CAWS/LDPR*, R08-9 (Ill.Pol.Control.Bd. Oct. 26, 2007). With the exception of

the Lake Calumet Connecting Channel and the Sanitary & Ship Canal, all of the waterways in this group are natural waterways. A proper consideration of the uniqueness of the artificially created and physically constrained Sanitary & Ship Canal is lost by including it in this grouping. The Sanitary & Ship Canal is further sub-divided into Incidental Contact Recreation Waters (upstream of the Calumet-Sag Channel confluence) and Non-Recreational Waters (downstream of the Calumet-Sag Channel confluence). Aquatic Life Use B Waters are: "capable of maintaining aquatic life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls designed to maintain navigational use, flood control, and drainage functions in deep-draft, steep-walled shipping channels." Illinois EPA Statement of Reasons, *CAWS/LDPR*, R08-9 at 49 (Ill.Pol.Control.Bd. Oct. 26, 2007).

Illinois EPA noted the following in its Statement of Reasons:

Historically, Lower Des Plaines River has received flows from the human-made CSSC, whose flow was determined by the treated and partially treated effluents from several Metropolitan Water Reclamation District of Greater Chicago ("MWRDGC") wastewater reclamation plants and by Combined Sewer Overflows ("CSOs"). Consequently, the environmental potential for the river was historically deemed to be limited to the point of hopelessness.

Id. at 17.

If the Lower Des Plaines River ("LDPR") was deemed hopeless due to the contribution from the Sanitary & Ship Canal, what does that imply about the potential of the Sanitary & Ship Canal itself? The Illinois Pollution Control Board ("Board") has consistently recognized the challenges, variability, and uniqueness of the CAWS and

LDPR and many of the same challenges and limitations that the Board recognized in the early 1970s remain valid today. The unnatural creation of this water body (i.e., a channel carved through limestone by human hands), and resulting steep walled/hard rock nature of the Sanitary & Ship Canal, creates a harsh aquatic environment with limited habitat as evidenced by the low IBI scores. *Id.* at 50. Furthermore, an electric field barrier has been constructed in the Sanitary & Ship Canal to prevent the migration of aquatic nuisance species into Lake Michigan. Chicago Area Waterway System Use Attainability Analysis Final Report, Camp, Dresser and McKee at 3-3 (Aug. 2007) (Illinois EPA Statement of Reasons, Attachment B, CAWS/LDPR, R08-9 (Ill.Pol.Control.Bd. Oct. 26, 2007)) (hereinafter "CAWS UAA"). In addition to preventing the movement of nuisance species, the barrier also blocks the movement of all species, both native and non-native through the Sanitary & Ship Canal. Id. at 3-4. Taken from a biological perspective, the Sanitary & Ship Canal therefore terminates at the fish barrier. The physical habitat in the Sanitary & Ship Canal ranges from poor to very poor and thus limits the diversity of aquatic life supportable within the Sanitary & Ship Canal. Edward T. Rankin, Analysis of Physical Habitat Quality and Limitations to Waterways in the Chicago Area at 11 (2005) (Illinois EPA Statement of Reasons, Attachment R, CAWS/LDPR, R08-9 (Ill.Pol.Control.Bd. Oct. 26, 2007)). This limitation establishes the fact that a balanced indigenous population of fish cannot be attained and was acknowledged by Illinois EPA. Testimony of Roy Smoger, Hearing Transcript for Jan. 28. 2008, CAWS/LDPR, R08-9 at 116 (Ill.Pol.Control.Bd. Feb. 7, 2008).

The proposed Use B results in some very significant changes to the thermal water quality standards for all of these waterways. Because three coal-fired power plants and other industrial users add heat to the Sanitary & Ship Canal, special consideration regarding thermal issues is appropriate for this waterway. The existing thermal water quality standards on the Sanitary & Ship Canal have been in effect for over 36 years, and specify the temperature shall not exceed 93 degrees F more than 5 percent of the time, and shall not exceed 100 degrees F at any time. 35 Ill. Admin. Code § 302.408. Water quality standards are set to be protective of stream uses.

The UAA process for establishing thermal water quality standards relied to a large extent on the data analysis of Chris Yoder, which was based on a literature search of laboratory temperature studies, which were then ranked by a proprietary computer model to establish growth and survival criteria of chosen Representative Aquatic Species ("RAS"). Seasonal cycles were also developed to "protect essential functions such as growth, gametogenesis and spawning." Pre-filed Testimony of Chris O. Yoder, *CAWS/LDPR*, R08-9 at 11 (Ill.Pol.Control.Bd. Dec. 21, 2007). Mr. Yoder concluded his pre-filed testimony noting that "occasional exceedences of well developed thermal criteria are inevitable and may not necessarily result in a biologically impaired use." *Id.* at 12.

Illinois EPA then used Mr. Yoder's report entitled *Temperature Criteria Options* for the Lower Des Plaines River, CAWS/LDPR, R08-9 (Ill.Pol.Control.Bd. Dec. 21, 2007), to develop the proposed thermal water quality standards. Scott Twait's pre-filed testimony indicates that the eight fish species used by Yoder are "representative of the

species that would be found in water capable of maintaining aquatic life populations predominated by individuals of tolerant types that are adaptive to the unique physical conditions, flow patterns, and operational controls designed to maintain navigational use, flood control and drainage functions in deep-draft, steep-walled shipping channels." Prefiled Testimony of Scott Twait, *CAWS/LDPR*, R08-9 at 11 (Ill.Pol.Control.Bd. Dec. 21, 2007). In essence, the thermal standards proposed here appear to be based on what Illinois EPA believes is necessary to protect these eight species, at least with respect to maximum (summer) temperature limits.

For the non-summer months, Mr. Twait notes the following:

Because the source water of the CAWS is composed of the MWRDGC wastewater treatment plant effluents, the temperatures of these waters can be expected to exceed other measures of background or ambient temperature at certain times of the year. Consequently, the Agency decided to use the effluent temperature from MWRDGC's North Side, Calumet and Stickney facilities as the background temperature instead of using temperatures at the Route 83 Chicago Sanitary & Ship Canal station during periods of the non-summer months when the effluent temperature was higher than the background temperature....Had the Agency not made this alteration to the recommendations Chris Yoder's temperature report in developing our water quality standards, the water quality standards for the three aquatic life use designations proposed for the CAWS and Lower Des Plaines River would have been lower than the MWRDGC effluents and would have required installation of cooling towers or other treatment technology to reduce the temperature of these effluents.

Id. at 13-14. In essence, Illinois EPA discounted Mr. Yoder's analysis, and set the non-summer temperatures so that the MWRDGC would not have to install cooling towers. Implicit in this decision was that the cost of such cooling towers could not be justified, which begs question: what about the other existing uses (including industrial users) on the Sanitary & Ship Canal? No attempt was made to look at the Sanitary & Ship Canal

Attachment 1 to this testimony compares the maximum period averages for three locations on the Sanitary & Ship Canal: Cicero Avenue, Route 83, and the Lockport Powerhouse. Route 83 temperatures are the lowest of the three locations on the Sanitary & Ship Canal, and Illinois EPA's proposed thermal water quality standards are currently exceeded at all three of these locations. Had Illinois EPA factored in the thermal loadings on the Sanitary & Ship Canal instead of arbitrarily setting the spring/fall months at the MWRDGC effluent temperatures, a very different regulatory proposal would have resulted. It is clear from Attachment 1 that the Sanitary & Ship Canal will be determined to be thermally impaired throughout its entire length if Illinois EPA's proposed thermal water quality standards are adopted, and this will necessitate all dischargers whose temperatures exceed the proposed water quality standards to reduce their thermal loading. This will impact Corn Products and possibly other discharges along the waterway.

The highest temperatures on the Sanitary & Ship Canal are downstream of the Crawford Power Plant, after the contributions from both the Fisk and Crawford Power Plants. The MWRDGC has monitored temperature at Cicero Avenue, approximately one mile downstream of the Crawford Plant outfall. Attachment 6 of my pre-filed testimony filed on March 25, 2009 includes a report prepared by Nick Owens and myself from Huff & Huff, Inc., on behalf of Citgo and Corn Products, comparing the thermal regime and fishery quality of the Sanitary & Ship Canal to the Calumet-Sag Channel. *See* Huff & Huff, Thermal Evaluation of the Chicago Sanitary and Ship Canal and the Calumet-Sag Channel as it Pertains to Fisheries Quality (March 2009) (Attachment 6 to Updated Pre-

Filed Testimony of James E. Huff, P.E., *CAWS/LDPR*, R08-9 (Ill.Pol.Control.Bd. Mar. 25, 2009). There are differences in historical temperatures between these two deep-draft waterways, which both have limited shallow area along the banks and a high volume of commercial traffic. Therefore, a comparison of the fisheries quality between the Sanitary & Ship Canal and the Calumet-Sag Channel would be expected to identify limitations caused by thermal stress. Likewise, within the Sanitary & Ship Canal, comparing fish data from sampling points with different thermal characteristics would also be expected to identify limitations caused by thermal stress.

The Sanitary & Ship Canal and Calumet-Sag Channel have similar fisheries quality. Additionally, when comparing fishery qualities within the Sanitary & Ship Canal, a higher than average species diversity was observed at the warmest sampling point. Therefore, existing thermal inputs into the Sanitary & Ship Canal do not appear to be a controlling or limiting factor in the fisheries quality. In other words, if the thermal loading on the Sanitary & Ship Canal were to be lowered to comply with the proposed Use B thermal water quality standards, there is no biological evidence indicating that an increase in fishery quality could be expected.

In Adjusted Standard 96-10, the Board noted that Illinois EPA's opinion was that the costs of installing additional cooling "may not be economically reasonable when compared to the likelihood of no improvement in the aquatic community of the UIW." Opinion and Order, *In the Matter of: Petition of Commonwealth Edison Company for Adjusted Standard from 35 Ill. Adm. Code 302.211 (d) and (e)*, AS 96-10 at 7

¹ UIW-Upper Illinois Waterway.

(Ill.Pol.Control.Bd. Oct. 3, 1996). If there will be no improvement in the aquatic community, then it is not clear what benefits will occur from more restrictive thermal water quality standards.

The uniqueness of the Sanitary & Ship Canal, as outlined in my testimony, is so apparent that a separate use category is needed. Such a use category should recognize the existing uses and limitations of the Sanitary & Ship Canal and factor in the actual fish data from the Sanitary & Ship Canal itself. Where the proposed Aquatic Life Use B water quality standards will not be met, which is the case for thermal, the Board must consider whether any improvement in the biological community will result from the adoption of these more restrictive standards and what impact these proposed changes would have on the existing uses. The present and abundant blunt-nose minnow, the most sensitive of the RAS species, and the thermally sensitive emerald shiner, are already in the top five most common species collected on the Sanitary & Ship Canal and the physical habitat is poor and not likely to improve. Therefore, the fundamental basis behind changing these standards appears flawed, and it ignores the impact on existing uses. Since this set of hearings is focused on the proposed uses of the CAWS, I will not go further into the appropriate water quality standards for the Sanitary & Ship Canal. But I would urge the Board to separate the use designation for the Chicago Sanitary & Ship Canal from the "Use B" water bodies and consider the appropriate water quality standards, taking into account the unique conditions of the Sanitary & Ship Canal.

Thank you, this concludes my pre-filed testimony. I would be happy to answer any questions regarding my testimony.

* * *

CORN PRODUCTS INTERNATIONAL, INC. reserves the right to supplement this pre-filed testimony.

Respectfully submitted,

CORN PRODUCTS INTERNATIONAL, INC.

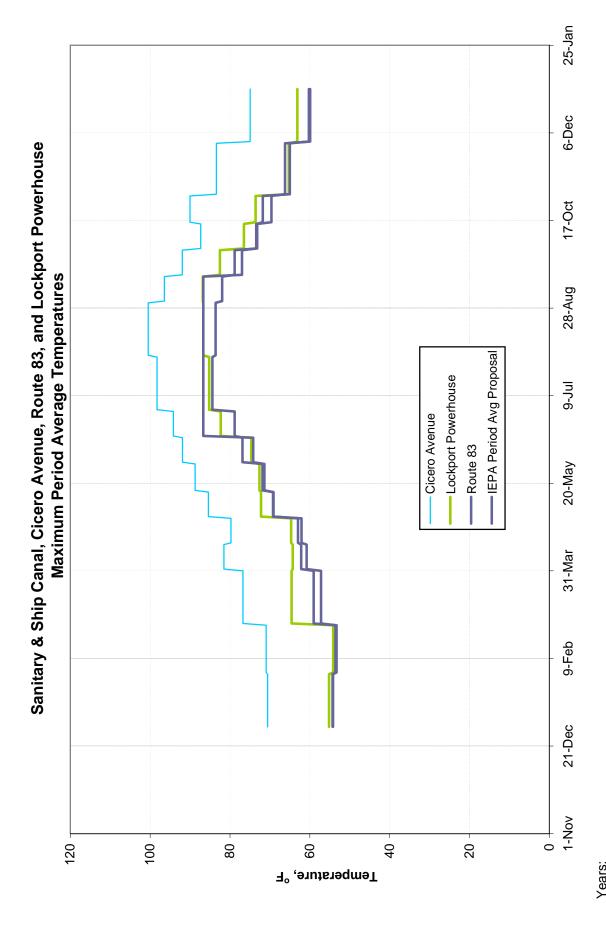
One of Its Attorneys

By: /s/ Katherine D. Hodge

Dated: April 20, 2009

Katherine D. Hodge N. LaDonna Driver Monica T. Rios Matthew C. Read HODGE DWYER & DRIVER 3150 Roland Avenue Post Office Box 5776 Springfield, Illinois 62705-5776 (217) 523-4900

CORN:006/Fil/Prefiled Testimony of Huff



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Lockport Powerhouse: 1998 - 2002 Route 83: 1998 - 2007

Cicero Avenue: 1998 - 2002

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
WATER QUALITY STANDARDS AND)	
EFFLUENT LIMITATIONS FOR THE)	
CHICAGO AREA WATERWAY SYSTEM)	R08-9
AND LOWER DES PLAINES RIVER:)	(Rulemaking - Water)
PROPOSED AMENDMENTS TO 35 ILL.)	_
ADM. CODE 301, 302, 303 and 304)	

PRE-FILED TESTIMONY OF JOSEPH V. IDASZAK ON BEHALF OF CORN PRODUCTS INTERNATIONAL, INC.

NOW COMES Corn Products International, Inc., by and through its attorneys,
HODGE DWYER & DRIVER, and submits the following Pre-Filed Testimony of Joseph
V. Idaszak for presentation at the May 20, 2009 hearing scheduled in the abovereferenced matter.

Testimony of Joseph V. Idaszak

My name is Joseph V. Idaszak, and I am the General Manager, Indiana

Operations, of Ambitech Engineering Corporation ("Ambitech"), an engineering
consulting firm. Ambitech is a full service engineering, procurement and construction
management company specializing in process industry retrofit and revamp projects of all
types. I have a Bachelor of Science degree in Chemical Engineering from the University
of Illinois Urbana-Champaign, and a Masters of Chemical Engineering degree from
Illinois Institute of Technology, Chicago.

Ambitech was retained by Corn Products International, Inc. ("Corn Products") to evaluate the options available for Corn Products to maintain its current use of noncontact cooling water obtained from the Chicago Sanitary & Ship Canal ("Sanitary & Ship

Canal") under the Use Designation proposed by the Illinois Environmental Protection Agency ("Illinois EPA") in this proceeding.

Currently, Corn Products' Argo Plant ("Argo") is subject to thermal discharge limitations in its NPDES permit for Sanitary & Ship Canal water used by the plant for noncontact cooling. As explained in the Pre-Filed Testimony of Alan Jirik, Corn Products would need to achieve end of pipe compliance in order to comply with Illinois EPA's proposed thermal water quality standards since no mixing zone would be available. See Pre-Filed Testimony of Alan L. Jirik, In the Matter of: Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and the Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code 301, 302, 303 and 304, R08-9 (Ill.Pol.Control.Bd. April 20, 2009).

Four options were evaluated relative to the feasibility of the continued use of cooling water from the Sanitary & Ship Canal water for process cooling in the case where the Illinois EPA's proposal is adopted by the Illinois Pollution Control Board. The options included:

- 1) Current Use Case;
- 2) Single Sanitary & Ship Canal Water Cooling Tower;
- 3) Unit specific closed loop cooling with several smaller cooling towers; and,
- 4) Mechanical cooling in conjunction with Option 2.

Complete details on the data, methods, analysis and assumptions may be found in the attached report, entitled *Evaluation of Options for Continued Use of the Chicago*Sanitary & Ship Canal. See Attachment 1 to my pre-filed testimony.

In Option 1, the current use case, Corn Products would not be able to continue to use Sanitary & Ship Canal water for process cooling as its discharge would exceed the proposed temperature water quality standards during some averaging periods, as well as some daily maximum periods throughout a typical year. At other times, the receiving waters are so close to, and/or exceed, the proposed standards as to provide limited, if any, assimilative capacity to achieve compliance.

Option 2, which was the focus of the Ambitech evaluation, considered the addition of a cooling tower after the process heat has been transferred to the cooling water, but prior to the cooling water's return to the Sanitary & Ship Canal. This alternative required the following to be feasible: a suitable physical location to site a cooling tower sized for peak flow of 45,000 gallons per minute, foundations and structural steel support for the cooling tower, and associated pumps and piping, instrument air and electrical service.

Cooling towers rely on evaporative cooling along with some sensible heat removal due to intimate contact with air for removal of heat. There is a practical limit on the ability of a cooling tower to remove heat, which is based on the wet bulb temperature. This varies by geographic location. The assessment of cooling tower effectiveness for this evaluation is based on wet bulb temperatures recorded at Midway Airport in Chicago, Illinois.

As part of the evaluation of options to meet the proposed water quality standards for temperature, an economic feasibility analysis was completed to determine the capital cost to purchase and install a new cooling tower system. Conceptual engineering was

completed based on an area selected on the Argo site as the most likely location for a new cooling tower to cool noncontact cooling water prior to discharge to the Sanitary & Ship Canal.

A candidate cooling tower was selected by providing rough design parameters to an established cooling tower vendor, Marley Cooling Towers, of SPX Cooling Technologies, Inc. Pumps for supplying and discharging water from the cooling tower were selected using hydraulic calculations based on engineering judgment for the proposed site. Using the electrical power requirements for the selected cooling tower and pumps, an estimate for electrical power distribution equipment and wiring was created. Finally, an estimated quantity of concrete and steel required for the cooling tower basin and pump and cooling tower supports along with a rack system for supporting pipe and conduit was generated.

The opinion of probable cost for complete installation was based on a combination of budgetary equipment quotes, engineering material take-offs and the use of ICARUS cost estimating database. The opinion of probable cost for this system, as generated on July 10, 2008, was approximately \$23,645,000. Based on risk analysis, there is a 90% confidence level that the scope of work as described will not exceed this opinion of probable cost. Note that this estimate does not provide for redundancy to allow for outages, maintenance or malfunction. Some redundancy would be needed to assure maximum system availability and would further increase the cost estimates. The factored opinion of probable cost to add redundant hot well and cold well pumps is \$2,000,000. Due to the volume of noncontact cooling water used by Corn Products at

Argo, the cost of purchasing and installing a cooling tower is quite high. More importantly, the engineering analysis indicates that there are times of the year when the period average standard will still be exceeded.

Option 2 was not considered a technically feasible alternative since the period average standards are expected to be exceeded.

Option 3 considers a closed loop cooling system for process heat removal. The closed loop cooling system would consist of multiple cooling towers supporting closed loop cooling systems to service existing process heat exchangers. It is reasonable to anticipate that the capital, operating and maintenance costs to implement this scheme would be higher than the single cooling tower in Option 2. For the estimated 36 process units requiring cooling loads, it is anticipated that approximately 12 smaller cooling towers would be required. The capital cost would be higher due to the cost of purchasing multiple towers, installation of equipment in multiple water basins and routing of utility piping and electrical service to different points throughout the plant, as opposed to a single location. Site availability would likely be a problem and increases in costs for certain units is likely. In addition to the cooling tower equipment installation costs, additional capital equipment costs would likely be incurred to change process heat exchange equipment. The change in the process heat exchange equipment would be driven by the new cooling water inlet conditions. Since the capital, operating and maintenance costs are reasonably expected to be higher than with Option 2, along with the unstudied potential processing impacts, this option was eliminated.

Option 4 considered the addition of a mechanical cooling system to the cooling tower considered in Option 2. Mechanical cooling would be accomplished with the addition of a refrigerant compressor and evaporator system. Like the closed loop cooling scheme, mechanical cooling adds significant cost and complexity. Based on the heat balance calculations presented in Attachment 1, it is anticipated that approximately 12,375 tons of mechanical cooling would be required to meet period average temperature standards. In addition to the investment in the cooling tower installation, significant capital would be required for this type of refrigeration system. This equipment also requires construction of a building to provide shelter from the weather. While detailed engineering was not performed on this option, it has been my experience that a system and enclosure to provide 12,375 tons of mechanical cooling could cost upwards of \$20,000,000. While Option 4 is technically feasible as it provides for the continued use of cooling water, the probable cost is not reasonable given the use, i.e., those limited times of the year when the period average standard would be exceeded.

In conclusion, none of the technologies evaluated individually reasonably provide for the continuation of the existing use of cooling water in compliance with the proposed Use Designation. It may be possible to maintain the current use by combining Options 2 and 4, and providing necessary redundancy to provide secure plant operations at a probable cost of at least \$43,645,000. Note, however, that while further growth or expansion of the thermal and cooling loads at Argo are possible, these could only be achieved at additional costs proportionate to those as described above.

Thank you for the opportunity to testify today. I would be happy to answer any questions regarding my testimony.

* * *

CORN PRODUCTS INTERNATIONAL, INC. reserves the right to supplement this pre-filed testimony.

Respectfully submitted,

CORN PRODUCTS INTERNATIONAL, INC.

By: /s/ Katherine D. Hodge
One of Its Attorneys

Dated: April 20, 2009

Katherine D. Hodge N. LaDonna Driver Monica T. Rios Matthew C. Read HODGE DWYER & DRIVER 3150 Roland Avenue Post Office Box 5776 Springfield, Illinois 62705-5776 (217) 523-4900

CORN:006/Fil/Prefiled Testimony of Idaszak