

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

VILLAGE OF HOMEWOOD, HOMEWOOD )	
ILLINOIS, VILLAGE OF ORLAND PARK, )	
ORLAND PARK ILLINOIS, VILLAGE OF )	
MIDLOTHIAN, MIDLOTHIAN ILLINOIS, )	
VILLAGE OF TINLEY PARK, TINLEY PARK )	
ILLINOIS, EXXONMOBIL OIL )	PCB 16-14 (Homewood)
CORPORATION, VILLAGE OF WILMETTE, )	PCB 16-15 (Orland Park)
WILMETTE ILLINOIS, CITY OF COUNTRY )	PCB 16-16 (Midlothian)
CLUB HILLS, COUNTRY CLUB HILLS )	PCB 16-17 (Tinley Park)
ILLINOIS, NORAMCO-CHICAGO, INC., )	PCB 16-18 (ExxonMobil)
FLINT HILLS RESOURCES JOLIET LLC, )	PCB 16-20 (Wilmette)
CITY OF EVANSTON, EVANSTON ILLINOIS, )	PCB 16-21 (Country Club Hills)
VILLAGE OF SKOKIE, SKOKIE ILLINOIS, )	PCB 16-22 (Noramco-Chicago)
ILLINOIS DEPARTMENT OF )	PCB 16-23 (Flint Hills Resources)
TRANSPORTATION, METROPOLITAN )	PCB 16-25 (Evanston)
WATER RECLAMATION DISTRICT OF )	PCB 16-26 (Skokie)
GREATER CHICAGO, VILLAGE OF )	PCB 16-27 (IDOT)
RICHTON PARK, RICHTON PARK ILLINOIS, )	PCB 16-29 (MWRDGC)
VILLAGE OF LINCOLNWOOD, )	PCB 16-30 (Richton Park)
LINCOLNWOOD ILLINOIS, CITY OF OAK )	PCB 16-31 (Lincolnwood)
FOREST, OAK FOREST ILLINOIS, VILLAGE )	PCB 16-33 (Oak Forest)
OF LYNWOOD, LYNWOOD ILLINOIS, )	PCB 19-7 (Village of Lynwood)
CITGO HOLDINGS, INC., VILLAGE OF NEW )	PCB 19-8 (Citgo Holdings)
LENOX, NEW LENOX ILLINOIS, CITY OF )	PCB 19-9 (New Lenox)
LOCKPORT, LOCKPORT ILLINOIS, )	PCB 19-10 (Lockport)
CATERPILLAR, INC., CITY OF CREST HILL, )	PCB 19-11 (Caterpillar)
CREST HILL ILLINOIS, CITY OF JOLIET, )	PCB 19-12 (Crest Hill)
JOLIET ILLINOIS, MORTON SALT, INC., )	PCB 19-13 (Joliet)
CITY OF PALOS HEIGHTS, PALOS HEIGHTS )	PCB 19-14 (Morton Salt)
ILLINOIS, VILLAGE OF ROMEOVILLE, )	PCB 19-15 (Palos Heights)
ROMEOVILLE ILLINOIS, IMTT ILLINOIS )	PCB 19-16 (Romeoville)
LLC, STEPAN CO., VILLAGE OF PARK )	PCB 19-17 (IMTT Illinois)
FOREST, PARK FOREST ILLINOIS, OZINGA )	PCB 19-18 (Stepan)
READY MIX CONCRETE, INC., OZINGA )	PCB 19-19 (Park Forest)
MATERIALS, INC., MIDWEST MARINE )	PCB 19-20 (Ozinga Ready Mix)
TERMINALS LLC, VILLAGE OF MOKENA, )	PCB 19-21 (Ozinga Materials)
MOKENA ILLINOIS, VILLAGE OF OAK )	PCB 19-22 (Midwest Marine)
LAWN, OAK LAWN ILLINOIS, VILLAGE OF )	
DOLTON, DOLTON ILLINOIS, VILLAGE OF )	
GLENWOOD, GLENWOOD ILLINOIS, )	
VILLAGE OF MORTON GROVE, MORTON )	
GROVE ILLINOIS, VILLAGE OF LANSING, )	
LANSING ILLINOIS, VILLAGE OF )	
FRANKFORT, FRANKFORT ILLINOIS, )	

VILLAGE OF WINNETKA, WINNETKA	)	PCB 19-23 (Mokena)
ILLINOIS, VILLAGE OF LA GRANGE, LA	)	PCB 19-24 (Oak Lawn)
GRANGE ILLINOIS, VILLAGE OF	)	PCB 19-25 (Dolton)
CHANNAHON, CHANNAHON ILLINOIS,	)	PCB 19-26 (Glenwood)
COOK COUNTY DEPARTMENT OF	)	PCB 19-27 (Morton Grove)
TRANSPORTATION AND HIGHWAYS,	)	PCB 19-28 (Lansing)
VILLAGE OF NILES, NILES ILLINOIS,	)	PCB 19-29 (Frankfort)
SKYWAY CONCESSION COMPANY LLC,	)	PCB 19-30 (Winnetka)
VILLAGE OF ELWOOD, ELWOOD ILLINOIS,	)	PCB 19-31 (La Grange)
CITY OF CHICAGO, CHICAGO ILLINOIS,	)	PCB 19-33 (Channahon)
VILLAGE OF CRESTWOOD, CRESTWOOD	)	PCB 19-34 (CCDTH)
ILLINOIS and VILLAGE OF RIVERSIDE,	)	PCB 19-35 (Niles)
RIVERSIDE ILLINOIS	)	PCB 19-36 (Skyway)
	)	PCB 19-37 (Elwood)
Petitioners,	)	PCB 19-38 (Chicago)
	)	PCB 19-40 (Crestwood)
v.	)	PCB 19-48 (Riverside)
	)	
ILLINOIS ENVIRONMENTAL PROTECTION	)	(Time-Limited Water Quality
AGENCY,	)	Standard)
	)	(Consolidated)
Respondent.	)	

**NOTICE OF FILING**

To: See Attached Service List

PLEASE TAKE NOTICE that on January 17, 2020, CITGO HOLDINGS, INC. electronically filed with the Office of the Clerk of Illinois Pollution Control Board **PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E.**, a copy of which is hereby served upon you.

**CITGO HOLDINGS, INC.**

By: /s/ Jeffrey C. Fort  
One of its Attorneys

Jeffrey C. Fort  
Dentons US LLP  
233 S. Wacker Drive  
Suite 5900  
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312-876-8000

**CERTIFICATE OF SERVICE**

The undersigned, an attorney, certifies that a true copy of the foregoing **PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E.** was electronically filed on January 17, 2020 with the following:

Don Brown, Clerk of the Board  
Illinois Pollution Control Board  
James R. Thompson Center, Suite 11-500|  
100 W. Randolph St.  
Chicago, IL 60601

And that copies were sent via email on January 17, 2020 to all parties on the service list attached.

/s/ Jeffrey C. Fort

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**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

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VILLAGE OF LINCOLNWOOD, )	PCB 19-9 (New Lenox)
LINCOLNWOOD ILLINOIS, CITY OF OAK )	PCB 19-10 (Lockport)
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DOLTON, DOLTON ILLINOIS, VILLAGE OF )	
GLENWOOD, GLENWOOD ILLINOIS, )	
VILLAGE OF MORTON GROVE, MORTON )	
GROVE ILLINOIS, VILLAGE OF LANSING, )	
LANSING ILLINOIS, VILLAGE OF )	

FRANKFORT, FRANKFORT ILLINOIS,	)	PCB 19-29 (Frankfort)
VILLAGE OF WINNETKA, WINNETKA	)	PCB 19-30 (Winnetka)
ILLINOIS, VILLAGE OF LA GRANGE, LA	)	PCB 19-31 (La Grange)
GRANGE ILLINOIS, VILLAGE OF	)	PCB 19-33 (Channahon)
CHANNAHON, CHANNAHON ILLINOIS,	)	PCB 19-34 (CCDTH)
COOK COUNTY DEPARTMENT OF	)	PCB 19-35 (Niles)
TRANSPORTATION AND HIGHWAYS,	)	PCB 19-36 (Skyway)
VILLAGE OF NILES, NILES ILLINOIS,	)	PCB 19-37 (Elwood)
SKYWAY CONCESSION COMPANY LLC,	)	PCB 19-38 (Chicago)
VILLAGE OF ELWOOD, ELWOOD ILLINOIS,	)	PCB 19-40 (Crestwood)
CITY OF CHICAGO, CHICAGO ILLINOIS,	)	PCB 19-48 (Riverside)
VILLAGE OF CRESTWOOD, CRESTWOOD	)	
ILLINOIS and VILLAGE OF RIVERSIDE,	)	(Time-Limited Water Quality
RIVERSIDE ILLINOIS	)	Standard)
	)	(Consolidated)
Petitioners,	)	
	)	
v.	)	
	)	
ILLINOIS ENVIRONMENTAL PROTECTION	)	
AGENCY,	)	
	)	
Respondent.	)	

**PRE-FILED TESTIMONY OF JAMES E. HUFF, P.E.**

**Introduction**

My name is James E. Huff, and I recently retired from Huff & Huff, Inc., a subsidiary of GZA. Citgo Holding, Inc.'s Lemont Refinery asked that I provide testimony in these proceedings given my long history of involvement with the Refinery and chloride water quality issues.

I have been involved with the development of water quality standards in Illinois since 1971 and have provided consulting environmental services to the Lemont Refinery since 1980. I testified during the Chicago Area Waterway proceedings (R08-9D) regarding the difficulty in meeting a not-to-exceed 500 mg/L water quality chloride standard during de-icing runoff periods and developed an alternative winter chloride water quality standard

for the Chicago Sanitary & Ship Canal. The Board adopted this alternative winter standard for this waterway<sup>1</sup>.

The difficulty in meeting a 500 mg/L not-to-exceed water quality standard for chlorides is a concern not only on the Chicago Area Waterways, but on all urban streams in Illinois. Recognizing this, I assembled a consortium of organizations that funded colder temperature chloride toxicity studies, primarily conducted by Dr. David Soucek of the Illinois Natural History Survey. This work found that chloride toxicity to the most sensitive aquatic species is dependent on stream temperatures, with chlorides exhibiting less toxic effects at colder temperatures than they do at warmer temperatures, a variable not currently recognized in chloride water quality standards nationwide.

I have worked on the implementation of Best Management Practices (BMPs) over the past decade on behalf of the Illinois Tollway, the Skyway, numerous municipal public works departments, numerous industrial facilities, including the Lemont Refinery, and for a variety of watershed groups, including Hickory Creek, the DuPage River/Salt Creek Workgroup, and the Lower Des Plaines River. I am the primary author of the Lemont Refinery's Best Management Practice Plan to Reduce Sodium Chloride Usage, a plan required under a variance granted to the Refinery previously. A copy of my resume is included in Attachment 1.

### **Regulatory Background**

In the Chicago Area Waterways proceedings (R08-9D) the Board adopted a winter chloride standard of 500 mg/L for the Chicago Area Waterways, excluding the Chicago Sanitary & Ship Canal, but allowed a three-year period before the effective date for the water quality standard would go into effect. During that period, the Illinois Environmental Protection Agency (Agency) took the lead in promoting watershed variances for the winter months, not only on the Chicago Area Waterways, but for many urban watersheds. This has led to a series of Time-Limited Water Quality Variance requests being filed before the Pollution

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<sup>1</sup> The relevant portions of those decisions are incorporated by reference. See Adopted Rule, Final Notice, Opinion and Order of the Board, R08-9 (Subdocket D), at pp 1, 15-25, 27-32 (June 18, 2015); Proposed Rule, Second Notice, Opinion and Order of the Board, R08-9 Subdocket D, at pp. 1, 11-14, 22-24, 28, 30-37, 49, 51, 54, 62, 65, 81-90, 100 (March 19, 2015)



Control Board. The approach behind these Time-Limited Water Quality Variance requests is a novel one, and has a first step goal of achieving between a 3 and 7 percent reduction in the winter average chlorides on the Chicago Area Waterways (CAWS) at Lockport and the Lower Des Plaines River at Channahon within five years through the implementation of BMPs. The Time-Limited Water Quality Variance Petitions includes a 280 mg/L chloride water quality objective based on a 4-year average of results from December through April. These goals have little-to-no relationship with the current water quality standards in Illinois, which include a not-to-exceed 500 mg/L for all Illinois streams, except the Chicago Sanitary & Ship Canal (CSSC). The CSSC has an acute winter standard of 990 mg/L and a chronic winter water quality standard of 620 mg/L. It should be noted that the MWRD in its TLWQ Variance Petition appropriately utilized these unique standards for the CSSC when evaluating the chloride levels currently on this waterway.

The petitioners took the approach of setting an objective of a 4-year winter average reduction goal, and the Agency supported this approach. This approach is recognition that achieving the 500 mg/L not-to-exceed chloride standard is not attainable currently, and likely not attainable for the foreseeable future. Citgo supports the approach requested in the TLWQ Variance Petition. However, the Board must recognize that this is a different regulatory approach than the Water Quality Standard and permit approach historically utilized in Illinois.

The unique chloride winter water quality standards for the CSSC, derived using USEPA exclusion protocol, were adopted by the Board based on the absence of some species during the winter months. As part of the justification for the site-specific water quality standards in R08-9D, Citgo presented data on its collection of Cladocera (water fleas, including *Ceriodaphnia*) from the CSSC. Cladocera population peaked in the summer and steadily declined as the water temperatures cooled. By October 29<sup>th</sup>, no Cladocera were collected within the CSSC. This finding was not surprising when one considers the life cycle of zooplankton.

Based on the work funded by Citgo as part of R08-9D, questions were raised about the impact temperature has on the toxicity of chlorides. Huff & Huff, Inc. solicited funding

from a cross section of salt users to fund additional research on cold temperature toxicity of chlorides. The actual toxicity testing for three species (the amphipod *Hyalella azteca*, the fingernail clam *Sphaerium simile*, and mayfly *Neocloeon triangulifer*) was conducted by Dr. David Soucek and Amy Dickinson at the Illinois Natural History Survey (INHS), and the daphnia test (*Ceriodaphnia dubia*) was conducted by the New England Bioassay (NEB) Laboratory in Manchester, Connecticut. The INHS is recognized as the leading research laboratory on aquatic toxicity of chlorides and sulfates.

The result from this research was the derivation of a chloride water quality standard based on temperature, sulfates, and hardness, as presented in R18-32. The proposed water quality criteria based on this additional research indicated higher levels of chloride were justified during the winter months. This indicates that the seasonal standard adopted the Board in R08-9 Subdocket D was further supported.

This proposed water quality rule change was subsequently withdrawn in October 2019 due to the absence of fish toxicity testing at 10°C. USEPA's request for extensive additional toxicity testing was beyond the budget of the consortium, the lack of support by the Illinois Association of Wastewater Agencies and its representation that USEPA would be issuing additional chloride toxicity data "soon" led to this withdrawal. From the regulated community perspective, the Time Limited Water Quality Variance is a preferable approach compared to adoption of a chloride standard based on temperature, sulfates, and hardness. The consortium received sufficient financial support to conduct the fish toxicity testing, and I am pleased to report the animal care and use protocol has been approved by the University of Illinois at Urbana/Champaign Institutional Animal Care and Use Committee, and the actual toxicity testing has begun.

#### **Citgo's NPDES Requirement**

As a result of the Total Dissolved Solids (TDS) variance the Lemont Refinery was granted by the Pollution Control Board, the Illinois EPA incorporated unique conditions into the Refinery's NPDES permit, with considerable input from the USEPA. This permit (No. IL0001589) requires implementation of BMPs for salt usage to achieve a 127-ton reduction

in salt (as sodium chloride) per year based on a four-year running average usage rate and is included in Attachment 2. This chloride requirement reflects a 27 percent reduction in winter de-icing salt usage and was derived to offset in TDS contributed by the wet gas scrubber during periods when the Chicago Sanitary & Ship Canal exceeded 1,500 mg/L TDS. The permit specifies the annual reporting requirements to the Illinois EPA, and to a significant extent, the approach the Lemont Refinery negotiated with the Illinois EPA forms the basis for the commitments reflected in the Time Limited Water Quality Petitions.

**Chloride Levels on the Chicago Sanitary & Ship Canal (CSSC)**

The Lemont Refinery samples and analyzes its water intake from the CSSC during the winter approximately two days per week, and those data are summarized below:

**CSSC at Romeoville**

Year	# of days 4-day running average above 620 mg/L Chlorides, days	Maximum Chloride Concentration Recorded, mg/L	Winter Average Chloride Concentration, mg/L
2019	10	1,005	308
2018	1	718	272
2017	0	568	220
2016	0	660	287
2015	0	904	342
2014	5	720	393
2013	2	711	301
2011	4	1,099	305
2010	1	870	321
2009	1	881	288
2008	7	896	370
2007	4	998	342
2006	0	454	226
2005	1	835	307

\*Note the duration in days is an extrapolation; typically, samples were collected two days per week.

There were 36 (4-day) events over the 14-year period, with exceedances of the four-day 620 mg/L chronic standard, or an average of 2.6 events per year. The average duration of these exceedances was approximately 5 days. The acute standard on the CSSC is 990 mg/L, and documented exceedances occurred three times over the 14-year period, a recurrence frequency of once every 4.6 years. The Lemont Refinery results are similar to

the conductivity monitoring reported by the Metropolitan Water Reclamation District (MWRD) in Appendix 12 to its Time Limited Water Quality Variance Petition, where they reported in the CSSC at Romeoville, the acute standard had been exceeded 0.01 percent of the winter days since 2011, and the chronic standard 1.8 percent of the winter days. The raw data are included in Attachment 3.

### **Should Citgo Seek a TLWQ Variance?**

The Lemont Refinery has operated under its current NPDES permit for three-and-a-half years. Refinery personnel struggled with the question as to whether it should seek a Time Limited Water Quality Variance, given it is operating under permit conditions that are more restrictive than those proposed in the Time Limited Water Quality Variance Petition. The Lemont Refinery has expended considerable time and expense addressing chlorides and TDS in its outfall and in monitoring the CSSC, including the derivation of the unique winter chloride standards for this receiving stream. To assure its efforts continue to be recognized, the Lemont Refinery elected to seek a Time Limited Water Quality Variance despite the belief it does not need such relief.

### **BMPs Implemented by the Lemont Refinery and Results**

During the negotiations with the Illinois EPA regarding chloride reductions, the Refinery personnel started working on improving its de-icing practices for its roadways, parking lots, and sidewalks. The Refinery uses both employees and contractors for implementing its de-icing practices as safety is the top consideration. The first step was to improve the data collection. Processes were developed and implemented to assure data were being collected and submitted to the environmental department. Training was the second targeted area, because the safety focus had led to the belief that if a little salt is *good*, more salt is *better*. Changing this mindset is a process, and this process literally took several years before all the personnel responsible for salt application fully grasped that less salt is not equivalent to less safe conditions. Pavement temperature readings and using these data in

establishing salt application rates were implemented early on. This step was important in the applicators being engaged in the de-icing decisions. The Lemont Refinery hosted an environmental open house for employees and contractors, and residential anti-icing containers and instructions were passed out to interested attendees in an effort to promote less salt usage by our employees and contractors at their homes. Attachment 4 is a copy of the residential anti-icing literature disseminated to the interested attendees. In addition to reducing salt application in the watershed at the homes, this effort increased the awareness to anti-icing practices so they would be more readily accepted as the Refinery implemented anti-icing. Pre-wetting of the salt was also instituted in the first year of operating under the new permit condition.

Anti-icing was recognized as a key to salt reduction in the long run, but its acceptance is perhaps the most difficult BMP to get buy in from all decision makers. In addition, capital cost for implementing anti-icing is necessary, so a several year lag is necessary to get the capital request in the budget and the equipment secured. The Refinery elected to start with anti-icing on its sidewalks as a method to expose the decision makers to this approach and purchased two sidewalk applicators. This was followed by two brine systems that fit in the back of pick-up trucks and associated brine tanks in 2016 and the Refinery began with applying the brine mixture to the parking lots and roads. It took several years to get the anti-icing program fully implemented, with coordination between the contractors and employee staff and integrating in the weather forecasts taking time to work out the best procedures. Finally, the Refinery's largest capital purchase for de-icing was a new computer-controlled salt applicator truck, retiring an older truck that had limited controls on the salt application rate. The training has proven effective, with the operators engaged, and pointing out practices like salt application on gravel roads that were readily addressed once identified.

The established baseline of salt usage from historical use was 475 tons per year (as sodium chloride, based on 2009 through 2012). Using the four-year running average, through April 2019, salt application has averaged 225 tons. The result of the implementation of BMPs

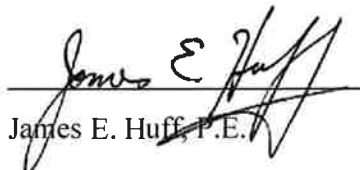
since 2013 has been a reduction of de-icing salt usage by 53 percent, or by 250 tons, versus the permit requirement of 127 tons per year reduction, all based on a 4-year rolling average.

The Lemont Refinery has taken this permit condition seriously and achieved a salt reduction two times what is required, and I believe additional efficiencies will be implemented. I should further note that the Lemont Refinery undertook a large capital project to replace Zeolite softeners with reverse osmosis units on its boilers, and this project was completed in 2019. The result will be a further reduction in salt discharged by the refinery going forward, further reducing the chloride burden on the receiving stream.

**Closing**

The Time Limited Water Quality Variance approach is a unique approach to addressing a long-term chloride issue. Citgo supports this approach and is committed to further reductions in its chloride contribution to the Chicago Sanitary & Ship Canal, beyond the requirements contained in its NPDES permit. Should the TLWQ Variance be granted, it is not clear how this will impact the current permit conditions contained in Citgo's NPDES permit, and guidance from the Board would be helpful.

Thank you, this concludes my pre-filed testimony.

  
James E. Huff, P.E.

ATTACHMENT 1  
Resume



## RESUME



### James E. Huff, P.E. Senior Consultant (Retired)

#### Summary of Experience

From 1980 through 2016, Mr. Huff was an officer of Huff & Huff, Inc., responsible for projects pertaining to water quality studies including watershed-based plans, 319 grants, stream surveys, wet weather studies, antidegradation assessments, sustainable wastewater treatment designs, and regulatory rule changes. From October 2016, Mr. Huff has served as a Senior Consultant to Huff & Huff, until his retirement in October 2019. A significant part of Mr. Huff's practice area has been assisting both municipal and industrial clients with implementation of Best Management Practices (BMPs) for de-icing practices to protect water quality.

#### Relevant Project Experience

**Water Quality:** In the area of water quality, Mr. Huff is active in the Chicago Area Waterways, the DuPage River/Salt Creek Workgroup and the Hickory Creek Watershed Planning Group. For the DuPage River/Salt Creek Workgroup, Mr. Huff worked on low dissolved oxygen problems including measuring sediment oxygen demand for the QUAL2k model to evaluating alternative in-stream aeration technologies. He was responsible for the final report on the watershed plans for both the East Branch of the DuPage River and Salt Creek and was responsible for reviewing the QUAL2k modeling work. This work led to the first project by the Workgroup to improve dissolved oxygen, with the design of the Churchill Woods Dam removal, which Mr. Huff was part of the design/permitting team. This work resulted in an *Honor Award for Engineering Excellence* from ACEC-IL and was featured in *Watershed Science Bulletin*. Mr. Huff led a consortium evaluating cold temperature toxicity of chlorides, in anticipation of supporting a new seasonal chloride water quality standard and has prepared a number of BMP plans for de-icing practices, including training of the applicators. Mr. Huff chaired the de-icing committee for industrial users as part of the CAWS Time Limited Water Quality variance effort.

Mr. Huff was the lead reviewer for NIPC/CMAQ on water quality impacts of proposed expansions/new discharges in northeastern Illinois from 2004 to 2008. On behalf of the Village of New Lenox, Mr. Huff assisted in the formation of the Hickory Creek Watershed Planning Group, and this work continues assisting with development green storm water projects within the watershed and the implementation of BMPs for de-icing practices and chloride monitoring.

On the Fox River, Mr. Huff was project manager for a group of municipal dischargers on a project to collect and analyze weekly water quality samples along the river, its tributaries, and outfalls at over 30 locations to establish a better database on un-ionized ammonia levels. Mr. Huff has directed fish, mussel, and benthic surveys for industrial, storm water, and municipal wastewater discharges located on the following waterways: Cedar Creek, Deep Run, Flint Creek, Mississippi River, Thorn Creek, North Kent Creek, Tyler Creek, Kishwaukee River, Hickory Creek, Jackson Branch of Jackson Creek, the Chicago Sanitary & Ship Canal, Kaskaskia River, and Casey Fork Creek, and has completed antidegradation studies as part of many of these studies. Thermal studies, mixing zone studies, thermal studies, and diffuser designs have been

#### Education

B.S., 1970, Chemical Engineering,  
Purdue University, West Lafayette,  
Indiana

M.S.E., 1971, Environmental  
Engineering, Purdue University, West  
Lafayette, Indiana  
Graduate School of Business, 1976,  
University of Chicago

#### Licenses & Registrations

Professional Engineer  
1975, Illinois, #062-032933  
Class 2 and Class K Sewage Treatment  
Works Operator, Illinois

#### Areas of Specialization

- Water Quality Standards
- Sustainable Wastewater Treatment & Green Infrastructure Wet Weather Design
- Stream Surveys/Antidegradation Analysis
- Soil and Groundwater Remedial Design
- Hazardous Waste Management





## RESUME

### **James E. Huff, P.E.** Senior Consultant (Retired)

completed for a variety of clients on large rivers (Mississippi River, Ohio River, Illinois River, and the Des Plaines River) as well as small waterways, using Cormix.

**Wastewater Design:** Mr. Huff has directed 15 municipal wastewater treatment design projects. In addition, he has designed a number of pumping systems, including the lift stations, controls, and force main designs. These designs included a wide range of features from converting existing facilities to cutting edge P removal systems.

**Wet Weather Design:** Mr. Huff has also conducted several CSO studies including Long-term Control Plans, Nine Minimum Controls, O&M Plans, and Water Quality Impact Studies. He has completed three CMOM evaluations and two Long-term Control Plans (LTCP) and assisted on a number of other wet weather plans as a sub consultant. Mr. Huff assisted the Galesburg Sanitary District and currently its LTCP is nearing the end of its planned upgrades and was one of the first communities in Illinois to achieve the USEPA presumptive remedy of less than 4 overflow events annually, through the implementation of a number of sustainable projects, including an aggressive foundation drain disconnection program. Mr. Huff also assisted the Village of Hinsdale. A 20-year program was successfully negotiated as part of its LTCP, which includes one 1-million gallon wet weather tank and extensive sewer separation until the presumptive remedy is achieved. For the Village of Barrington, a value engineering project completed recommended there were more cost-effective ways to eliminate excess flow besides a large holding tank. Extensive modeling work has been followed by extensive smoke testing, installation of overhead sewers with foundation drain disconnections and replacement of a number of key interceptor sections.

**Sustainable Solutions:** Mr. Huff is a leader in sustainable wastewater issues, with an emphasis on decentralized wastewater treatment approaches or cluster wastewater treatment systems with subsurface discharge for nine residential developers/country clubs, and three temples. These systems are typically 10,000 to 20,000 gpd, utilizing two SBRs, computer controlled, followed by a large leach field allowing for groundwater recharge and more open space within developments. Recently Membrane Bioreactors (MBRs) have been used, with water reuse. The first medical marijuana grower in Illinois was permitted with an MBR followed by using the treated effluent for irrigation in the green house, after ozonation.

Mr. Huff was part of the design team for evaluating three alternative porous pavements for the MWRDGC in 2009, which included the ability to measure water quality from runoff and infiltration, as well as flow rates from the three porous pavements plus a control. Rain gardens have been installed at two facilities and for the Tollway. Mr. Huff assisted with the sustainable stormwater practices for the I-90 exit at Route 47. This project was an ACEC-IL *Honor Award* recipient in 2015. Mr. Huff completed a Facilities Plan Report for a wastewater expansion that included the PACT process to address concerns over endocrine disrupter chemicals, a wetted prairie, a bioswale, and solar, wind, and a novel geo-thermal element associated with wastewater expansions to reduce the carbon footprint. In 2010, a floating island was installed on Cedar Creek and a novel matting material for stream bank stabilization installed to evaluate both from a water quality perspective. Wastewater expansions on two streams with endangered mussels have been successfully permitted by Mr. Huff, requiring extraordinary efforts to assure the preservation of the protected species.

Two novel in-stream aeration systems, using high-purity oxygen on Cedar Creek were designed by the firm, and have operated successfully for over 30 years, as an alternative to advanced wastewater treatment, based on a stream model developed for Cedar Creek.

### **Experience Prior to GZA**

Mr. Huff served on the Illinois Nutrient Technical Advisory Committee, representing the American Council of Engineering Companies – Illinois (ACEC-IL) from 2001 to 2015 and was a member of the Illinois Site Remediation Advisory Committee from 2012 to 2019. From 1987 through 1990, Mr. Huff was a part-time faculty member, teaching the senior level environmental courses in the Civil Engineering Department at IIT-West in Wheaton, Illinois. From 1976 to 1980, Mr. Huff was Manager of Environmental Affairs for Akzo Nobel Chemicals, a diversified industrial chemical manufacturer. At Akzo, Mr. Huff was responsible for all environmental activities at eight plants located throughout the U.S. Technical work included NPDES permitting, extensive treatability studies as well as designing new facilities.



## RESUME

## James E. Huff, P.E.

Senior Consultant (Retired)

Previously, Mr. Huff was an Associate Environmental Engineer in the Chemical Engineering Section at IIT Research Institute (IITRI). Much of this work involved advanced wastewater treatment development, including applying a combination of ozone/UV treatment of cyanide, PCB's, RDX, HMX, and TNT and the use of catalytic oxidation of cyanide using powdered activated carbon impregnated with cupric chloride in petroleum refinery activated sludge units. At Mobil Oil's Joliet Refinery Mr. Huff was employed as an Advanced Environmental Engineer during the construction and start-up of the largest grassroots refinery ever constructed, responsible for wastewater permitting, training, start-up, and technical support as well as for wastewater treatment system as well as water supply, solid waste, and noise abatement issues at the refinery from 1971 to 1973.

### Honors:

- 2012 Purdue University Civil Engineering Alumni Achievement Award
- Omega Chi Epsilon (Chem. Engr. Honorary)
- President's Academic Award
- Graduated with Distinction
- Fellowship from the Federal Water Quality Admin.

Thesis: "Destabilizing Soluble Oil Emulsions Using Polymers with Activated Carbon," Major Professor, Dr. James E. Etzel

### Publications and Presentations

"Ozone-U.V. Treatment of TNT Wastewater," E.G. Fochtman and J.E. Huff, International Ozone Institute Conference, Montreal, May 1975.

"Alternative Cyanide Standards in Illinois, a Cost-Benefit Analysis," L.L. Huff and J.E. Huff, 31st Annual Purdue Industrial Waste Conference, Lafayette, IN, May 1976.

"Cyanide Removal from Refinery Wastewaters Using Powdered Activated Carbon," J.E. Huff, J.M. Bigger, and E.G. Fochtman, American Chemical Society Annual Conference, New Orleans, LA, March 1977. Published in Carbon Adsorption Handbook, P.N. Cheremisinoff and F. Ellerbusch, Eds., Ann Arbor Science Publishers, Inc., 1978.

"Industrial Discharge and/or Pretreatment of Fats, Oils and Grease," J.E. Huff and E.F. Harp, Eighth Engineering Foundation Conference on Environmental Engineering, Pacific Grove, CA, February 1978.

"A Review of Cyanide of Refinery Wastewaters," R.G. Kunz, J.E. Huff, and J.P. Casey, Third Annual Conference of Treatment and Disposal of Industrial Wastewater and Residues, Houston, TX, April 1978. Published as: "Refinery Cyanides: A Regulatory Dilemma," Hydrocarbon Processing, pp 98-102, January 1978.

"Disinfection of Wastewater Effluents in Illinois-A Cost-Benefit Analysis," L.L. Huff and J.E. Huff, Illinois Water Pollution Control Association 2nd Annual Conference, Kankakee, IL, May 20, 1981.

"Treatment of High Strength Fatty Amines Wastewater - A Case History," J.E. Huff and C.M. Muchmore, 52nd Conference - Water Pollution Control Federation, Houston, TX, October 1979. Published JWPCF, Vol. 54, No. 1, pp 94-102, January 1982.

"Measurement of Water Pollution Benefits - Do We Have the Option?" L.L. Huff, J.E. Huff, and N.B. Herlevson, IL Water Pollution Control Assn 3rd Annual Conference, Naperville, IL, May 1983.

"Evaluation of Alternative Methods of Supplementing Oxygen in a Shallow Illinois Stream," J.E. Huff and J.P. Browning, IL Water Pollution Control Assn 6th Annual Meeting, Naperville, IL, May 7, 1985.

"Engineering Aspects of Individual Wastewater System Design," J.E. Huff, 22nd Annual Northern Illinois Onsite Wastewater Contractors Workshop, St. Charles, IL, February 27, 1995.

"Total Maximum Daily Loadings (TMDL) and Ammonia Conditions in the Fox River Waterway," J. C. Huff and S. D. LaDieu, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.

"The Illinois Ammonia Water Quality Standards: Effluent Implications & Strategies for Compliance," L.R. Cunningham & J. E. Huff, Illinois Water '98 Conference, Urbana, IL, Nov. 16, 1998.



## RESUME

### **James E. Huff, P.E.** Senior Consultant (Retired)

"Phase II Storm Water Regulations – Compliance Strategies for the Gas Transmission/Distribution Industry," J.E. Huff, American Gas Association 2003 Operations Conference, Orlando, Florida, April 28, 2003.

"Endocrine Disruptors or Better Living Through Chemistry," J. E. Huff, Illinois Association of Wastewater Agencies Fall Meeting, Bloomington, IL, November 14, 2003.

"Permitting Wastewater Treatment Plant Expansions in Northeast Illinois in the 21st Century", J.E. Huff, 28th Annual Illinois Water Environment Association Conference, Bloomington, IL, March 6, 2007.

"Lessons Learned from the New Lenox Decision," R. Harsch, R. Sly, and J.E. Huff, Illinois Association of Wastewater Agencies, Annual Meeting, Springfield, IL, March 12, 2009.

"Implementation of Antidegradation in Illinois," J.E. Huff, Indiana ACEC Environmental Business Conference, Indianapolis, IN, September 16, 2009.

"Removal of Low Head Dams to Improve Water Quality and other DuPage River/Salt Creek Workgroup Watershed Management Efforts", J.E. Huff and D. Bounds, IAFSM, Annual Meeting, March 10, 2010.

"Stream Dissolved Oxygen Improvement Study-Salt Creek and East Branch DuPage River," S. McCracken and J.E. Huff, Watershed Science Bulletin, Vol 3, Issue 1, pgs 17-23, February 2012.

"The Science Behind the Chloride Water Quality Standard", J E Huff, Chicago Area Waterway Chloride Workshop, Oct 29, 2015.

"Municipal Separate Storm Sewer System (MS4) Permit Requirements", J E Huff, APWA Chicago Metro Chapter Expo, May 18, 2016.

### **Affiliations/Memberships**

- ACEC-Illinois (past Environmental Committee Member and Past Chairman)
- ACEC-Illinois (past Board of Directors, Vice President, and Secretary/Treasurer)
- Water Environment Federation Member
- Illinois Water Environment Association
- National Water Well Association

**ATTACHMENT 2**  
**Permit**



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR

LISA BONNETT, DIRECTOR

217/782-0610

June 10, 2016

CITGO Petroleum Corporation Lemont Refinery  
135<sup>th</sup> Street and New Avenue  
Lemont, Illinois 60439

Re: CITGO Petroleum Corporation Lemont Refinery  
NPDES Permit No. IL0001589  
Final Permit

Gentlemen:

The following are responses to your comment letter dated November 13, 2012:

1. Special condition 11 incorporates the bypass provisions of 40 CFR 122.41(m) and upset provisions of 40 CFR 122.41(n) by reference and requires submittal of a plan to address upsets as required by AS 08-8. The Illinois EPA cannot provide relief from the ammonia standards of 40 CFR 419 as they are federal standards and must be met at all times. The Illinois Pollution Control Board (IPCB) granted relief from the ammonia standards of 35 IAC 304.122(b) until December 31, 2013. While that relief has since expired, if you request to extend this relief you must reapply to the IPCB.
2. The ammonia limits at outfall 001 are from 35 IAC 304.122(b). The footnote was added to page 2 as requested.
3. The maximum load limits of BOD<sub>5</sub>, phenols, and cyanide on outfall 001 were calculated based on 8.35 MDG DMF.
4. The two reformers and alkylation unit were included in the calculation of production based load limitations in the public noticed permit.
5. See number 1 for the June 10, 2015 comments on page 1 of this letter.
6. Since hexavalent chromium is not used at the facility, the sampling frequency was reduced to 1/month.
7. The sampling frequency for the pollutants limited at outfall 001 was reduced from 2/week to 1/week.
8. At outfall 002 fluoride limits were modified to the current limits of 15/28.6 mg/L and phenols were modified to the current limits of 0.3/0.6 mg/L as requested.
9. Stormwater from refinery process areas tributary to outfall 002 meets the definition of contaminated runoff as specified in 40 CFR 419.11(g) and is not eligible to be managed using only best management practices (BMPs).
10. The adjusted standard limits for ammonia at outfall 002 were removed as requested.

The following are responses to your comments/agenda items of June 10, 2015:

1. BOD<sub>5</sub>, phenols, chromium (total), and chromium (hex) load limits were discussed and evaluated in subsequent correspondence. See September 15 and November 25, 2015 letters for final determination. The TSS concentration limits will be modified to 25/50 mg/L as requested. They were correctly listed in the public notice/fact sheet and in error on page 2 of the permit. Cyanide load limits will be changed to 4.8/13.93 lbs/day as requested. The DMF of 8.35 MGD will be included to page 2 of the permit as requested. Chromium, phenols, oil and grease monitoring were removed from special condition 10 as requested.
2. See number 1 for the November 13, 2012 comments on page 1 of this letter.
3. Special Conditions 12(4) and 14 were revised.
4. Special Condition 15 was revised.

Adjusted standards for ammonia in AS 08-8 expired on December 31, 2013. The adjusted ammonia standards and corresponding footnote on page 2 was removed.

Special Condition 13 was revised as requested by USEPA.

4302 N. Main St., Rockford, IL 61103 (815) 987-7760  
595 S. State, Elgin, IL 60123 (847) 608-3131  
2125 S. First St., Champaign, IL 61820 (217) 278-5800  
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000  
412 SW Washington St., Suite D, Peoria, IL 61602 (309) 671-3022  
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200  
100 W. Randolph, Suite 10-300, Chicago, IL 60601

The following are responses to your comments of September 15, 2015:

1. The frequency for monitoring pH has been changed to 1/week as requested.
2. Chromium (total) load limits will be changed to 9.3/26.5 lbs/day and chromium (hex) load limits will be changed to 0.7/1.8 lbs/day as requested.
3. TDS language was added as Special Condition 16 as requested.
4. When the facility does not discharge stormwater, then report "no stormwater discharge" in DMR.
5. Special Condition 10 is the metal monitoring requirement and should not include stormwater credit. Stormwater credits are allowed per 40 CFR 419.23(f)(2) and will be added as new Special Condition #17.
6. See number 1 for the November 13, 2012 comments on page 1 of this letter.
7. CITGO – Lemont Refinery does not have any relief for ammonia, TDS and chloride, and is therefore required to meet secondary contact standards (or effluent standards) at end of pipe. Even though 10:1 dilution is available, the Agency cannot allow dilution for acute toxicity from an unknown toxicant or parameters. Special Condition 12 will remain.
8. A new 316(b) rule has been adopted and Special Condition 14 has been revised to require compliance with the new 316(b) rule.
9. The DMF of 8.35 MGD will be added in Outfall 001 to the permit as requested.

The following are responses to your comments of November 25, 2015:

1. The BOD<sub>5</sub> loading limits would be 966/2785.56 lbs/day based on the DAF = 5.79 MGD and DMF = 8.35 MGD. 2472 lbs/day of BOD<sub>5</sub> is the current daily maximum limit and will remain to prevent backsliding. The phenols loading limits would be 14.48/28.97 lbs/day based on the DAF = 5.79 MGD and DMF = 8.35 MGD. 10.28 lbs/day of phenols is the current monthly average limit and will remain to prevent backsliding.
2. See number 4 for the September 15, 2015 comments on page 2 of this letter.
3. Special condition 11 incorporates the bypass provisions of 40 CFR 122.41(m) and upset provisions of 40 CFR 122.41(n) by reference and requires submittal of a plan to address upsets as required by AS 08-8.
4. See number 7 for the September 15, 2015 comments on page 2 of this letter.

The following are responses to your comments of January 21, 2016:

Citgo has previously been granted a 10:1 ZID for ammonia, chloride, and sulfates. Therefore, effluent toxicity attributed to these parameters is authorized up to, but not in exceedance of 11.0 Toxic Units (Effluent LC50 = 9.1%). Special Condition 12 language has been revised.

Special Condition 6 was revised pursuant to the Final NPDES Electronic Reporting Rule.

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

Pursuant to the Final NPDES Electronic Reporting Rule, all permittees must report DMRs electronically beginning no later than December 21, 2016. The Agency utilizes NetDMR, a web based application, which allows the submittal of electronic Discharge Monitoring Reports instead of paper Discharge Monitoring Reports (DMRs). More information regarding NetDMR can be found on the Agency website, <http://epa.state.il.us/water/net-dmr/index.html>. If your facility is not registered in the NetDMR program, a supply of preprinted paper DMR Forms will be sent to your facility during the interim period prior to your registration in the NetDMR program. Additional information and instructions will accompany the preprinted DMRs. Please see the attachment regarding the electronic reporting rule.

The attached Permit is effective as of the date indicated on the first page of the Permit. Until the effective date of any re-issued Permit, the limitations and conditions of the previously-issued Permit remain in full effect. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date.

Should you have questions concerning the Permit, please contact Shu-Mei Tsai at 217/782-0610.

Sincerely,



Alan Keller, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

SAK:SMT:12031303.bah

Attachment: Final Permit

cc: Compliance Assurance Section  
Des Plaines Region  
DRSCW  
Records  
USEPA  
Billing  
CMAP

NPDES Permit No. IL0001589

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: June 30, 2021

Issue Date: June 10, 2016

Effective Date: July 1, 2016

Name and Address of Permittee:

CITGO Petroleum Corporation  
135<sup>th</sup> Street and New Avenue  
Lemont, Illinois 60439

Facility Name and Address:

CITGO Petroleum Corporation Lemont Refinery  
135<sup>th</sup> Street and New Avenue  
Lemont, Illinois 60439  
(Will County)

Discharge Number and Name:

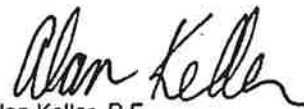
001 Process Wastewater, Non-Process Wastewater, Sanitary  
Wastewater, Miscellaneous Wastewater  
002 Stormwater Retention Basin  
003 Stormwater  
004 Stormwater  
005 Stormwater  
006 Stormwater  
007 Intake Screen Backwash  
008 Stormwater

Receiving Waters:

Chicago Sanitary and Ship Canal  
Illinois and Michigan Canal  
Illinois and Michigan Canal  
Illinois and Michigan Canal  
Illinois and Michigan Canal  
Illinois and Michigan Canal  
Chicago Sanitary and Ship Canal  
Illinois and Michigan Canal

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.



Alan Keller, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

SAK: SMT:12031303.bah



NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: 001 Treated Refinery Wastewater (DAF = 5.79 MGD / DMF = 8.35 MGD)

PARAMETER	LOAD LIMITS lbs/day		CONCENTRATION LIMITS mg/L		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Contributory Waste Streams:						
1) Process Wastewater			5) Hydrostatic Test Water			
2) Cooling Tower Blowdown			6) Chemical Cleaning			
3) Non-Process Wastewater, Stormwater, Utility Water, Boiler Blowdown			7) Seneca, Oxbow, Linde Process Water			
4) Sanitary Waste Water			8) Scrubber Wastewater			
Flow (MGD)	See Special Condition 1				1/Week	Continuous
pH	See Special Condition 2				1/Week	Grab
Temperature					1/Week	Single Reading
Total Residual Chlorine				0.05	1/Week	Grab
BOD <sub>5</sub>	966	2472			1/Week	Composite
CBOD <sub>5</sub>			20	40	1/Week	Composite
Oil and Grease	536	1006	15	20	1/Week	Grab
Total Suspended Solids	1475	2414	25	50	1/Week	Composite
Phenols	10.28	28.97	0.3	0.6	1/Week	Composite
Ammonia (as N)*	145	418	3.0	6.0	1/Week	Composite
COD	12871	24804			1/Week	Composite
Chromium (Total)	9.3	26.5		1.0	1/Week	Composite
Chromium (Hexavalent)	0.7	1.8	0.1	0.3	1/Week	Grab
Sulfide	9.7	22			1/Week	Composite
Cyanide	4.8	13.93	0.1	0.2	1/Week	Composite
Total Dissolved Solids	See Special Condition 15 and 16				1/Week	Composite

The monthly maximum temperature shall be reported on the DMR form.

\*The monthly average ammonia limits of 3.0 mg/L and 145 lbs/day shall apply whenever the monthly average discharge exceeds 100 lbs day and the daily maximum ammonia limits of 6.0 mg/l and 418 lbs/day shall apply whenever the daily discharge exceeds 200 lbs/day.

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: 002 Stormwater Retention Basin (Intermittent Discharge)

PARAMETER	LOAD LIMITS lbs/day		CONCENTRATION LIMITS mg/L		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Contributory Waste Streams:						
1) Refinery Stormwater		7) Biomass				
2) Treated Process Water (Fire Water)		8) Off Site Stormwater Runoff				
3) Utility Water		9) Exxon Mobil Terminal Stormwater				
4) Boiler Blowdown		10) Oxbow Stormwater				
5) Tank Farm Stormwater		11) Oneok Stormwater				
6) Hydrostatic Test Water		12) Linde Stormwater				
		13) Seneca Stormwater				
Flow (MGD)	See Special Condition 1				Daily When Discharging	
pH	See Special Condition 2				Daily When Discharging	Grab
BOD <sub>5</sub>			20	40	Daily When Discharging	Grab
Oil and Grease			15	30	Daily When Discharging	Grab
Total Suspended Solids			25	50	Daily When Discharging	Grab
Phenols			0.3	0.6	Daily When Discharging	Grab
Chromium (Total)				1.0	Daily When Discharging	Grab
Chromium (Hexavalent)			0.1	0.3	Daily When Discharging	Grab
Fluoride			15	28.6	Daily When Discharging	Grab
Ammonia (as N)						
Mar-May/Sep-Oct				9.1	Daily When Discharging	Grab
Jun-Aug				14.7		
Nov-Feb				10.9		

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

- From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: 007 Intake Screen Backwash (DAF = 0.027 MGD)

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/L		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
Flow (MGD)	See Special Condition 1				1/Week	
Total Residual Chlorine	See Special Condition 5			0.05	Daily when Chlorinating	Grab

NPDES Permit No. IL0001589

Effluent Limitations and Monitoring

From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfalls: 003, 004, 005, 006, and 008 Stormwater Runoff (Intermittent Discharge)

See Special Condition 13.

NPDES Permit No. IL0001589

Special Conditions

SPECIAL CONDITION 1. Flow shall be measured in units of Million Gallons per Day (MGD) and reported as a monthly average and a daily maximum on the monthly Discharge Monitoring Report.

SPECIAL CONDITION 2. The pH shall be in the range 6.0 to 9.0. The monthly minimum and monthly maximum values shall be reported on the DMR form.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 5. All samples for Total Residual Chlorine shall be analyzed by an applicable method contained in 40 CFR 136, equivalent in accuracy to low-level amperometric titration. Any analytical variability of the method used shall be considered when determining the accuracy and precision of the results obtained.

SPECIAL CONDITION 6. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) Forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee will be required to submit electronic DMRs (NetDMRs) instead of mailing paper DMRs to the IEPA beginning December 21, 2016. More information, including registration information for the NetDMR program, can be obtained on the IEPA website, <http://www.epa.state.il.us/water/net-dmr/index.html>.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 25th day of the following month, unless otherwise specified by the permitting authority.

Permittees not using NetDMRs during the interim period before December 21, 2016 shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attention: Compliance Assurance Section, Mail Code # 19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

SPECIAL CONDITION 7. The use or operation of this facility shall be by or under the supervision of a Certified Class K operator.

SPECIAL CONDITION 8. In the event that the permittee must request a change in the use of water treatment additives, the permittee must request a change in this permit in accordance with Standard Conditions - - Attachment H.

SPECIAL CONDITION 9. The Agency has determined that the effluent limitations in this permit constitute BAT/BCT for storm water which is treated in the existing treatment facilities tributary to outfalls 001 and 002 for purposes of this permit reissuance, and no pollution prevention plan will be required for such storm water. In addition to the chemical specific monitoring required elsewhere in this permit, the permittee shall conduct an annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity, and determine whether any facility modifications have occurred which result in previously-treated storm water discharges no longer receiving treatment. If any such discharges are identified the permittee shall request a modification of this permit within 30 days after the inspection. Records of the annual inspection shall be retained by the permittee for the term of this permit and be made available to the Agency on request.

SPECIAL CONDITION 10. The Permittee shall monitor the effluent from outfall 001 and 002 for the following parameters on a semi-annual basis. If no discharge from Outfall 002 occurs during a semi-annual (six months) period, no metals monitoring is required at Outfall 002, and "No Discharge" shall be reported on the DMR for that semi-annual reporting period. This Permit may be modified with public notice to establish effluent limitations if appropriate, based on information obtained through sampling. The sample shall be a 24-hour effluent composite except as otherwise specifically provided below and the results shall be submitted to the address in special condition 6 in June and December. The parameters to be sampled and the minimum reporting limits to be attained are as follows:

NPDES Permit No. IL0001589

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<u>STORET CODE</u>	<u>PARAMETER</u>	<u>Minimum reporting limit</u>
01002	Arsenic	0.05 mg/L
01007	Barium	0.5 mg/L
01027	Cadmium	0.001 mg/L
00940	Chloride	1.0 mg/L
01042	Copper	0.005 mg/L
00718	Cyanide (grab) (weak acid dissociable)	5.0 ug/L
00720	Cyanide (grab not to exceed 24 hours) (total)	5.0 ug/L
00951	Fluoride	0.1 mg/L
01045	Iron (total)	0.5 mg/L
01046	Iron (Dissolved)	0.5 mg/L
01051	Lead	0.05 mg/L
01055	Manganese	0.5 mg/L
71900	Mercury (grab)**	1.0 ng/L*
01067	Nickel	0.005 mg/L
01147	Selenium	0.005 mg/L
01077	Silver (total)	0.003 mg/L
00945	Sulfate	1.0 mg/L
01092	Zinc	0.025 mg/L

Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states.

\*1.0 ng/L = 1 part per trillion.

\*\*Utilize USEPA Method 1631E and the digestion procedure described in Section 11.1.1.2 of 1631E.

**SPECIAL CONDITION 11.** The bypass provisions of 40 CFR 122.41(m) and upset provisions of 40 CFR 122.41(n) are applicable to this permit.

**SPECIAL CONDITION 12.** The Permittee shall conduct biomonitoring using effluent collected from Outfall 001

Biomonitoring

1. Acute Toxicity - Standard definitive acute toxicity tests shall be run on at least two trophic levels of aquatic species (fish, invertebrate) representative of the aquatic community of the receiving stream. Testing must be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fifth Ed.) EPA/821-R-02-012. Unless substitute tests are pre-approved; the following tests are required:
  - a. Fish - 96 hour static LC<sub>50</sub> Bioassay using fathead minnows (*Pimephales promelas*).
  - b. Invertebrate 48-hour static LC<sub>50</sub> Bioassay using *Ceriodaphnia*.
2. Test Requirements - The above test shall be conducted annually using 24-hour composite samples unless otherwise authorized by the IEPA. Effluent samples must be analyzed for ammonia, chloride, and sulfate, given that these parameters may be associated with acute toxicity.
3. Reporting - Results shall be reported according to EPA/821-R-02-012, Section 12, Report Preparation, and shall be submitted to IEPA, Bureau of Water, Compliance Assurance Section within one week of receipt from the laboratory. Results from ammonia, chloride, sulfate, as well as any other parameter believed to contribute to effluent toxicity, must be included in the bioassay report.
4. Toxicity – The Permittee has previously been granted a 10:1 ZID for ammonia, chloride, and sulfates, therefore effluent toxicity attributed to these parameters is authorized up to, but not in exceedance of, 11.0 Toxic Units (Effluent LC<sub>50</sub> = 9.1%). However, should a bioassay result in acute toxicity to ≥50% of test organisms and the effluent is found to contain non-toxic amounts of ammonia, chloride, and sulfate, the IEPA may require, upon notification, six (6) additional rounds of monthly testing on the affected organism(s) to be initiated within 30 days of the toxic bioassay. Results shall be submitted to IEPA within one (1) week of becoming available to the Permittee.
5. Toxicity Identification and Reduction Evaluation - Should any of the additional bioassays result in toxicity to ≥50% of organisms and the effluent is found to contain non-toxic amounts of ammonia, chloride, and sulfate, the Permittee must contact the IEPA within one (1) day of the results becoming available to the Permittee and begin the toxicity identification evaluation process in accordance with Methods for Aquatic Toxicity Identification Evaluations, EPA/600/6-91/003. The IEPA may also require, upon notification, that the Permittee prepare a plan for toxicity reduction evaluation to be developed in accordance with Toxicity

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Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, which shall include an evaluation to determine which chemicals have a potential for being discharged in the plant wastewater, a monitoring program to determine their presence or absence and to identify other compounds which are not being removed by treatment, and other measures as appropriate. The Permittee shall submit to the IEPA its plan for toxicity reduction evaluation within ninety (90) days following notification by the IEPA. The Permittee shall implement the plan within ninety (90) days or other such date as contained in a notification letter received from the IEPA.

The IEPA may modify this Permit during its term to incorporate additional requirements or limitations based on the results of the biomonitoring. In addition, after review of the monitoring results, the IEPA may modify this Permit to include numerical limitations for specific toxic pollutants. Modifications under this condition shall follow public notice and opportunity for hearing.

SPECIAL CONDITION 13.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

A. A storm water pollution prevention plan shall be maintained and implemented by the permittee for the storm water associated with industrial activity at this facility tributary to outfalls 003, 004, 005, 006, and 008. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. The permittee shall modify the plan if substantive changes are made or occur affecting compliance with this condition.

1. Waters not classified as impaired pursuant to Section 303(d) of the Clean Water Act.

Unless otherwise specified by federal regulation, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event.

2. Waters classified as impaired pursuant to Section 303(d) of the Clean Water Act

For any site which discharges directly to an impaired water identified in the Agency's 303(d) listing, and if any parameter in the subject discharge has been identified as the cause of impairment, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event. If required by federal regulations, the storm water pollution prevention plan shall adhere to a more restrictive design criteria.

B. The operator or owner of the facility shall make a copy of the plan available to the Agency at any reasonable time upon request.

Facilities which discharge to a municipal separate storm sewer system shall also make a copy available to the operator of the municipal system at any reasonable time upon request.

C. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this condition. After such notification, the permittee shall make changes to the plan and shall submit a written certification, signed in accordance with 40 CFR 122.41(k) and 40 CFR 122.22(b), that the requested changes have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.

D. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph H of this condition indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objective of controlling pollutants in storm water discharges. Amendments to the plan shall be made within 30 days of any proposed construction or operational changes at the facility, signed in accordance with 40 CFR 122.41(k) and 40 CFR 122.22(b), and shall be provided to the Agency for review upon request.

E. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from storm water outfalls at the facility. The plan shall include, at a minimum, the following items:

1. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate. Any map or portion of map may be withheld for security reasons.

2. A site map showing:

i. The storm water conveyance and discharge structures;

ii. An outline of the storm water drainage areas for each storm water discharge point;

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- iii. Paved areas and buildings;
  - iv. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
  - v. Location of existing storm water structural control measures (dikes, coverings, detention facilities, etc.);
  - vi. Surface water locations and/or municipal storm drain locations
  - vii. Areas of existing and potential soil erosion;
  - viii. Vehicle service areas;
  - ix. Material loading, unloading, and access areas.
3. A narrative description of the following:
- i. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
  - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;
  - iii. Existing structural and non-structural control measures to reduce pollutants in storm water discharges;
  - iv. Industrial storm water discharge treatment facilities;
  - v. Methods of onsite storage and disposal of significant materials.
4. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities. Also provide a list of any pollutant that is listed as impaired in the most recent 303(d) report.
5. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.
6. A summary of existing sampling data describing pollutants in storm water discharges.
- F. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
1. Storm Water Pollution Prevention Personnel - Identification by job titles of the individuals who are responsible for developing, implementing, and revising the plan.
  2. Preventive Maintenance - Procedures for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
  3. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
  4. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.
  5. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
    - i. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff. To the maximum extent practicable storm water discharged from any area where material handling equipment or activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water should not enter vegetated areas or surface waters or infiltrate into the soil unless



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adequate treatment is provided.

- ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges.
  - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges.
  - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
  - v. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination. Minimize the quantity of storm water entering areas where material handling equipment of activities, raw material, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water using green infrastructure techniques where practicable in the areas outside the exposure area, and otherwise divert storm water away from exposure area.
  - vi. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.
  - vii. Storm Water Reduction - Install vegetation on roofs of buildings within adjacent to the exposure area to detain and evapotranspire runoff where precipitation falling on the roof is not exposed to contaminants, to minimize storm water runoff; capture storm water in devices that minimize the amount of storm water runoff and use this water as appropriate based on quality.
6. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion. The plan shall describe measures to limit erosion.
  7. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution control plan. Training should address topics such as spill response, good housekeeping and material management practices. The plan shall identify periodic dates for such training.
  8. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.
- G. Non-Storm Water Discharge – You must document that you have evaluated for the presence of non-storm water discharges and that all unauthorized discharges have been eliminated. Documentation of your evaluation must include: (1) The date of any evaluation; (2) A description of the evaluation criteria used; (3) A list of the outfalls or onsite drainage points that were directly observed during the evaluation; (4) The different types of non-storm water discharges(s) and source locations; and (5) The action(s) taken, such as a list of control measures used to eliminate unauthorized discharges(s), if any were identified. For example, a floor drain was sealed, a sink drain was re-routed to sanitary, or an NPDES permit application was submitted for an unauthorized cooling water discharge.
- H. Quarterly Visual Observation of Discharges - The requirements and procedures of quarterly visual observations are applicable to all outfalls covered by this condition.
1. You must perform and document a quarterly visual observation of a storm water discharge associated with industrial activity from each outfall. The visual observation must be made during daylight hours. If no storm event resulted in runoff during daylight hours from the facility during a monitoring quarter, you are excused from the visual observations requirement for that quarter, provided you document in your records that no runoff occurred. You must sign and certify the document.
  2. Your visual observation must be made on samples collected as soon as practical, but not to exceed 1 hour or when the runoff or snow melt begins discharging from your facility. All samples must be collected from a storm event discharge that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measureable (greater than 0.1 inch rainfall) storm event. The observation must document: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. If visual observations indicate any unnatural color, odor, turbidity, floatable material, oil sheen or other indicators of storm water pollution, the permittee shall obtain a sample and monitor for the parameter or the list of pollutants in Part E.4.
  3. You must maintain your visual observation reports onsite with the SWPPP. The report must include the observation date and time, inspection personnel, nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
  4. You may exercise a waiver of the visual observation requirement at a facility that is inactive or unstaffed, as long as there are no industrial materials or activities exposed to storm water. If you exercise this waiver, you must maintain a certification with your

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SWPPP stating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to storm water.

5. Representative Outfalls - If your facility has two or more outfalls that you believe discharge substantially identical effluents, based on similarities of the industrial activities, significant materials, size of drainage areas, and storm water management practices occurring within the drainage areas of the outfalls, you may conduct visual observations of the discharge at just one of the outfalls and report that the results also apply to the substantially identical outfall(s).
6. The visual observation documentation shall be made available to the Agency and general public upon written request.
- I. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response and the appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.

Conduct routine facility inspections of all areas of the facility where industrial materials or activities are exposed to stormwater, and of all stormwater control measures used to comply with the effluent limits contained in this permit. Routine facility inspections must be conducted at least quarterly (i.e., once each calendar quarter) although in many instances, more frequent inspection (e.g., monthly) may be appropriate for some types of equipment, processes, and control measures or areas of the facility with significant activities and materials exposed to stormwater. Perform these inspections during periods when the facility is in operation. You must specify the relevant inspection schedules in your SWPPP document. These routine inspections must be performed by qualified personnel with at least one member of your stormwater pollution prevention team participating. At least once each calendar year, the routine facility inspection must be conducted during a period when a stormwater discharge is occurring.
- J. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
- K. The plan is considered a report that shall be available to the public at any reasonable time upon request. Confidential Business Information (CBI) may be withheld from the public, but may not be withheld from those staff cleared for CBI review within the Agency or the operator of the municipal separate storm sewer system.
- L. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.
- M. Facilities which discharge storm water associated with industrial activity to municipal separate storm sewers may also be subject to additional requirement imposed by the operator of the municipal system

Construction Authorization

Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention Plan developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

- N. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee there upon waives all rights thereunder.
- O. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
- P. Plans and specifications of all treatment equipment being included as part of the stormwater management practice shall be included in the SWPPP.
- Q. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding the required permit(s).

REPORTING

- R. The facility shall submit an electronic copy of the annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part I of this condition. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and

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any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s). The annual inspection report is considered a public document that shall be available at any reasonable time upon request.

- S. The first report shall contain information gathered during the one year time period beginning with the effective date of coverage under this permit and shall be submitted no later than 60 days after this one year period has expired. Each subsequent report shall contain the previous year's information and shall be submitted no later than one year after the previous year's report was due.
- T. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.
- U. The permittee shall retain the annual inspection report on file at least 3 years. This period may be extended by request of the Illinois Environmental Protection Agency at any time.

Annual inspection reports shall be mailed to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section  
Annual Inspection Report  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

- V. The permittee shall notify any regulated small municipal separate storm sewer owner (MS4 Community) that they maintain coverage under an individual NPDES permit. The permittee shall submit any SWPPP or any annual inspection to the MS4 community upon request by the MS4 community.

SPECIAL CONDITION 14. Cooling Water Intake Structure

Based on available information, the Agency has determined that the operation of the cooling water intake structure meets the equivalent of Best Technology Available (BTA) in accordance with the Best Professional Judgment provisions of 40 CFR 125.3 and 40 CFR 125.90(b), based on information available at the time of permit reissuance.

However, the Permittee shall comply with the requirements of the Cooling Water Intake Structure Existing Facilities Rule as found at 40 CFR 122 and 125. Any application materials and submissions required for compliance with the Existing Facilities Rule, shall be submitted to the Agency no later than 4 years from the effective date of this permit.

Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.

If for any reason, the Cooling Water Intake Structure Existing Facilities Rule is stayed or remanded by the courts, the Permittee shall comply with the requirements below. The information required below is necessary to further evaluate cooling water intake structure operations based on the most up to date information.

- A. The permittee shall submit the following information/studies within 4 years of the effective date of the permit:

1. Source Water Physical Data to include:

- a. A narrative description and scaled drawings showing the physical configuration of all source water bodies used by the facility including aerial dimensions, depths, salinity and temperature regimes;
- b. Identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake's area of influence and the results of such studies; and
- c. Location maps.

2. Source Waterbody Flow Information

The permittee shall provide the annual mean flow of the waterbody, any supporting documentation and engineering calculations to support the analysis of whether the design intake flow is greater than five percent of the mean annual flow of the river or stream for purposes of determining applicable performance standards. Representative historical data (from a period of time up to 10 years) shall be used, if available.

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3. Taxonomic identification of all life stages of fish and shellfish and any species protected under Federal, State, or Tribal law (including threatened or endangered species) that are in the vicinity of the cooling water intake structure(s) and are susceptible to impingement and entrainment;
  4. A characterization of all life stages of fish and shellfish, and any species protected under Federal, or State law, including a description of the abundance and temporal and spatial characteristics in the vicinity of the cooling water intake structure(s). These can include historical data that are representative of the current operation of the facility and of biological conditions at the site.
- B. The permittee shall comply with the following requirements:
1. At all times properly operate and maintain the intake equipment as demonstrated in the application material supporting the BTA determination.
  2. Inform IEPA of any proposed changes to the cooling water intake structure or proposed changes to operations at the facility that affect impingement mortality and/or entrainment.
  3. Debris collected on intake screens is prohibited from being discharged back to the canal. Debris does not include living fish or other living aquatic organisms.
- C. All required reports shall be submitted to the Industrial Unit, Permit Section and Compliance Assurance Section at the address in Special Condition 13.

This special condition does not relieve the permittee of the responsibility of complying with any other laws, regulations, or judicial orders issued pursuant to Section 316(b) of the Clean Water Act.

SPECIAL CONDITION 15. The permittee will implement BMPs to reduce 77 tons per year of chlorides (127 tons as sodium chloride (rock salt)) in the facility's discharge to the receiving stream. This offset is based on the 1,500 mg/l TDS Water Quality Standard (WQS). The average annual salt usage for the four year period ending in April 2013 (475 tons of salt (sodium chloride) applied on an annual basis) is the starting point and baseline for usage reductions. In order to dampen the variability from the winters with heavy snowfall with the light winters, the permittee will be allowed to average the salt consumption over a four year period.

BMP reductions in salt usage elsewhere in the Refinery can also be used to achieve the 127 ton per year objective.

Within 6 months of the effective date of the permit, the permittee shall finalize the "Best Management Practice Manual for Ice Control Measures of Roadways, Parking Lots, and Sidewalks at the Cilgo Refinery." The BMP manual will be updated annually as needed.

The permittee shall keep records and submit a report annually by June 1<sup>st</sup> to the address in Special Condition 6.

The records shall consist of the following:

- Record of the precipitation event
- Estimated salt used per storm event resulting in usage of more than ½ ton of sodium chloride
- Training

The annual report will document the BMPs employed toward achieving the annual offset goal and consist of the following, if applicable:

- Storage practices
- Management practices
- Number and type of precipitation events
- Inches of snowfall for the winter
- Estimated salt applied per storm event resulting in usage of more than ½ ton of sodium chloride
- Salt applied per inch of snow fall
- Tons of salt (sodium chloride) used for the winter
- Training types and dates
- BMPs that were effectively deployed and the success rate of the individual BMPs
- BMPs that will be tried or improved for the next winter.
- Reductions in salt usage elsewhere in the refinery.
- Report off-site reductions, if any. Off-site reductions are based on a 1.25:1 ratio.

This BMP Special Condition will remain in effect until such time as the Total Dissolved Solids (TDS) water quality standard for the Chicago Sanitary and Ship Canal (CSSC) is eliminated by the Illinois Pollution Control Board, approved by USEPA, and the permit is modified.

The permittee will participate in the stakeholder group being formed and may request a variance from the chloride water quality standard. If the variance is granted by the IPCB and approved by the USEPA, the permit shall be modified to reflect the variance in

NPDES Permit No. IL0001589

Special Conditions

accordance with 40 CFR 122.62 and 122. 63.

SPECIAL CONDITION 16. The NPDES permit will have a TDS Load Limit of 348,000 pounds per day as a daily maximum limit applicable in the winter months (December through April). This is based on a DAF of 5.79 MGD and a maximum reported effluent TDS of 7,197 mg/L (The maximum effluent TDS concentration since 2010).

SPECIAL CONDITION 17. The discharge credit, if necessary, for contaminated storm water from non-process and process area storm water runoff, as applied to discharge 001, shall be as follows:

Additional storm water credit for the following parameters shall be based on the quantity of storm flow taken through process treatment.

Pounds per 1000 gallons of storm water flow\*

Parameter	Average	Maximum
COD	1.5	3.0
Chromium (Total)	0.0018	0.005
Chromium (Hexavalent)	0.00052	0.00052

**Dry Weather Flow:** The average flow from the wastewater treatment facility for the last three consecutive zero precipitation days. Previously collected storm water which is sent to process treatment during this period shall not be included in this computation.

**\*Storm Water Flows:** The storm water runoff treated in the wastewater treatment facility is that portion of flow greater than the dry weather flow. Measurement of previously collected contaminated storm water from tank dikes may also be used in computing storm water credit.

**Attachment H**

**Standard Conditions**

**Definitions**

**Act** means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

**Agency** means the Illinois Environmental Protection Agency.

**Board** means the Illinois Pollution Control Board.

**Clean Water Act** (formerly referred to as the Federal Water Pollution Control Act) means Pub. L 92-500, as amended. 33 U.S.C. 1251 et seq.

**NPDES** (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

**USEPA** means the United States Environmental Protection Agency.

**Daily Discharge** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

**Maximum Daily Discharge Limitation** (daily maximum) means the highest allowable daily discharge.

**Average Monthly Discharge Limitation** (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**Average Weekly Discharge Limitation** (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

**Best Management Practices** (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Aliquot** means a sample of specified volume used to make up a total composite sample.

**Grab Sample** means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

**24-Hour Composite Sample** means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

**8-Hour Composite Sample** means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

**Flow Proportional Composite Sample** means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

- (1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- (2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.
- (3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- (5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.
- (6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62 and 40 CFR 122.63. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- (7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
- (8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency or USEPA (including an authorized contractor acting as a representative of the Agency or USEPA), upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- (d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. Records related to the permittee's sewage sludge use and disposal activities shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503). This period may be extended by request of the Agency or USEPA at any time.
- (c) Records of monitoring information shall include:
  - (1) The date, exact place, and time of sampling or measurements;
  - (2) The individual(s) who performed the sampling or measurements;
  - (3) The date(s) analyses were performed;
  - (4) The individual(s) who performed the analyses;
  - (5) The analytical techniques or methods used; and
  - (6) The results of such analyses.
- (d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

- (a) **Application.** All permit applications shall be signed as follows:
  - (1) For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;
  - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
  - (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
- (b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a

person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- (1) The authorization is made in writing by a person described in paragraph (a); and
  - (2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and
  - (3) The written authorization is submitted to the Agency.
- (c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (d) **Certification.** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(12) **Reporting requirements.**

- (a) **Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when:
  - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source pursuant to 40 CFR 122.29 (b); or
  - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements pursuant to 40 CFR 122.42 (a)(1).
  - (3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- (b) **Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) **Transfers.** This permit is not transferable to any person except after notice to the Agency.
- (d) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

- (e) **Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).
  - (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
  - (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.
- (f) **Twenty-four hour reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24-hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24-hours:
- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit.
  - (2) Any upset which exceeds any effluent limitation in the permit.
  - (3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit or any pollutant which may endanger health or the environment.  
The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.
- (g) **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs (12) (d), (e), or (f), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12) (f).
- (h) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.
- (13) **Bypass.**
- (a) **Definitions.**
    - (1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
    - (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - (b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (13)(c) and (13)(d).
- (c) **Notice.**
- (1) **Anticipated bypass.** If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
  - (2) **Unanticipated bypass.** The permittee shall submit notice of an unanticipated bypass as required in paragraph (12)(f) (24-hour notice).
- (d) **Prohibition of bypass.**
- (1) Bypass is prohibited, and the Agency may take enforcement action against a permittee for bypass, unless:
    - (i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
    - (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
    - (iii) The permittee submitted notices as required under paragraph (13)(c).
  - (2) The Agency may approve an anticipated bypass, after considering its adverse effects, if the Agency determines that it will meet the three conditions listed above in paragraph (13)(d)(1).
- (14) **Upset.**
- (a) **Definition.** Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
  - (b) **Effect of an upset.** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (14)(c) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
  - (c) **Conditions necessary for a demonstration of upset.** A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
    - (2) The permitted facility was at the time being properly operated; and
    - (3) The permittee submitted notice of the upset as required in paragraph (12)(f)(2) (24-hour notice).
    - (4) The permittee complied with any remedial measures required under paragraph (4).
  - (d) **Burden of proof.** In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.



- (15) **Transfer of permits.** Permits may be transferred by modification or automatic transfer as described below:
- (a) **Transfers by modification.** Except as provided in paragraph (b), a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued pursuant to 40 CFR 122.62 (b) (2), or a minor modification made pursuant to 40 CFR 122.63 (d), to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act.
  - (b) **Automatic transfers.** As an alternative to transfers under paragraph (a), any NPDES permit may be automatically transferred to a new permittee if:
    - (1) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
    - (2) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage and liability between the existing and new permittees; and
    - (3) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.
- (16) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
    - (1) One hundred micrograms per liter (100 ug/l);
    - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6 dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
    - (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
    - (4) The level established by the Agency in this permit.
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.
- (17) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
- (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
  - (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  - (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (18) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
- (a) User charges pursuant to Section 204 (b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
  - (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
  - (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.
- (19) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.
- (20) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.
- (21) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.
- (22) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Additional penalties for violating these sections of the Clean Water Act are identified in 40 CFR 122.41 (a)(2) and (3).
- (23) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.
- (24) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (25) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.
- (26) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.
- (27) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board or any court with jurisdiction.
- (28) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.

ATTACHMENT 3  
Chicago Sanitary & Ship Canal Chloride Data  
at Citgo's Water Intake



**ATTACHMENT 4**  
**Residential Anti-Icing Cut Sheet**



# RESIDENTIAL ANTI-ICING

## What is anti-icing?

**Anti-icing emphasizes prevention rather than reacting to snow/ice accumulation:**

- Anti-icing is a pro-active approach to winter road and residential area maintenance. It involves the application of a saturated salt solution to roadways, driveways, sidewalks, and steps ahead of a winter storm.

**Anti-icing prevents ice from forming and melts snow:**

- Anti-icing forms a bond-breaker between hard surfaces and the snow and ice layer. Salt solutions melt snow more quickly and prevent ice forming on a surface. It is similar to how cooking oil prevents food from sticking to the frying pan.

**Less salt is required to prevent ice bonding than to remove ice after it has bonded to the surface.**

- Anti-icing can maintain safe, non-slippery surfaces and melt snow fall up to 2".

## What are the benefits of anti-icing?

- **Improved Safety.** Improved winter conditions on roadways, driveways, sidewalks and steps means safer surroundings for you and your family.
- **Environmental Impacts.** Anti-icing results in an average 30% reduction in the amount of salt applied on a seasonal bases. This reduction decreases the environmental impact of chlorides (salt) on surface and water resources.
- **Time and Energy Savings.** By creating a bond-breaker between hard surfaces and the snow and ice layer, anti-icing prevents ice from forming on a surface. This saves you the time and effort of typical snow and ice removal.
- **Cost savings.** Anti-icing can decrease the amount of salt necessary and keep money in your pocket.



Anti-icing in left lane. No application in right lane.



Typical anti-icing equipment for roadways.



Anti-icing application



Anti-icing application vs. No application



# HOW YOU CAN HELP

- Applying a brine solution (water and rock salt) to your driveways, sidewalks, and steps before a winter storm event will help create a safe area with less ice and snow.
- Utilizing an anti-icing container and a homemade salt solution you can be a part of the solution while saving time, energy, money, and helping the environment!

## Create your own Anti-Icing Can

- You can create your own anti-icing can with many different types of containers, generally 100 ounces or more.
- Use the salt to water mixing ratio chart for use. Do not use more salt than recommended. More salt does not necessarily mean better results.



1  
Drill eight to ten 1/8" holes into the top of the cap on whatever container you choose.



2  
Drill a single 1/8" vent hole on the topside of the container, below the cap.



3  
If there is an inner pour spout, carefully cut it out with razor knife.



4  
An example of a finished container.

## How to use the anti-icing can

1. Find volume of anti-icing container on the front label.
2. Measure appropriate amount of salt using salt to water mixing ratio chart below. Do not utilize more salt than recommended. More salt does not necessarily mean better results.
3. Pour measured salt into anti-icing container.
4. Fill anti-icing can to the top with warm water.
5. Place cap back on top of container.
6. Place hand or other object over the container cap to prevent spilling during mixing.
7. Shake container until salt rocks are dissolved. Some undissolved impurities will remain present.
8. Use anti-icing can to spread lines of salt solution over outside surfaces such as driveways, sidewalks, and steps. Application works best prior to winter storm events.
9. Repeat steps before any winter storm event or weekly during winter season.
10. Effectiveness increases after several applications as salt enters concrete/asphalt pores.

Anti-icing is effective down to pavement/sidewalk temperatures of 20°F.

Water to Salt Mixing Ratios	
 100 oz. Water	+  3 Cups Rock Salt
 1 Gallon Water	+  3.5 Cups Rock Salt
 150 oz. Water	+  4.5 Cups Rock Salt
 2.5 Gallons Water	+  8.75 Cups Rock Salt