BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

NOTICE OF FILING

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

Marie Tipsord, Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph St., Suite 11-500
Chicago, IL 60601-3218

Stefanie N. Diers, Assistant Counsel
Illinois Environmental Protection Agency
1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794

Persons included on the attached
SERVICE LIST

Please take notice that on November 22, 2013, we filed electronically with the Office of the Clerk of the Illinois Pollution Control Board the attached **Pre-Filed Testimony of: Larry Tyler, Bruce Nelson, Roger Klocek and James Huff**, a copy of which is served upon you.

CITGO PETROLEUM CORPORATION and
PDV MIDWEST, LLC, Petitioners

By: _____

Jeffrey C. Fort
Irina Dashevsky
Dentons US LLP
233 S. Wacker Drive
Suite 7800
Chicago, IL 60606-6404

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

IN THE MATTER OF:	)	
	)	
WATER QUALITY STANDARDS AND	)	R08-09 SubDocket D
EFFLUENT LIMITATIONS FOR THE	)	(Rulemaking - Water)
CHICAGO AREA WATERWAY SYSTEM	)	
AND THE LOWER DES PLAINES RIVER	)	
PROPOSED AMENDMENTS TO 35 ILL	)	
Adm. Code Parts 301, 302, 303 and 304	)	

PRE-FILED TESTIMONY OF BRUCE NELSON

I. INTRODUCTION

My name is Bruce Nelson. I am currently Citgo Lemont Refinery's Fire & Safety Supervisor and Training Coordinator. I began working for the Lemont Refinery in 1987 in the Yard Pool and bid into the Lab, where I worked until I took an opening at the Hydrofluoric Acid Unit. I became a fire brigade volunteer while in the Lab and stayed active while at the HF Unit. I was chosen to become a member of the Refinery's full time Fire Department when it was established in 1991. I have attained numerous Illinois State Fire Marshal and national emergency response certifications, along with becoming a licensed EMT/Paramedic.

I am is the narrator of the video, which is an exhibit hereto, and will be shown by the Citgo Lemont Refinery at the hearing to illustrate eye-witness details regarding the electric fish barrier system, as well as the associated safety zone and regulated navigation zone. I have extensive firsthand experience with the conditions of the Chicago Sanitary and Ship Canal, including barge activity in the vicinity of the Refinery's discharge. I was aboard the boat when the video footage was taken and participated in the creation of this video.

II. VIDEO TRANSCRIPT

Introduction

CITGO's Lemont plant is situated in the Chicago Sanitary and Ship Canal, just north of the electric field-based fish barrier that is operated by the U.S. Army Corps of Engineers. This fish barrier was constructed to prevent the migration of invasive fish species in both directions between the Great Lakes and the Mississippi River basins.

The United States Coast Guard established a Regulated Navigational Area ("RNA") around the fish barrier in order to protect mariners passing through the barrier. This area is just north of the 135th Street Bridge in Romeoville Illinois and has evolved to encompass approximately two miles of the Sanitary and Ship Canal, from the south end of the Midwest Generation station, mile marker 295.5 to the south end of the CITGO barge loading dock, mile marker 297.2. While in this RNA, mariners must follow specific safety requirements that are not typical for normal operations.

This video shows the conditions and layout of the Sanitary and Ship Canal in and around the RNA.

Footage

This is the view from north of the CITGO Canal Barge Loading Dock heading south. As we go further down stream you will see us entering the RNA. The loading arms of the CITGO Dock are in view ahead on the left. On the right side the banks of the canal are limestone. As you can see this is not a natural condition, rather the stone has been vertically blasted in order to create the channel for the canal so that boats and barges may move upstream and downstream. There is no overhang or quiet areas.

The Ship Canal is fairly narrow and bends from a north-south direction to a north-easterly direction. To navigate this turn barge traffic scrapes the west bank. You can see the evidence of that scrapping half way up the limestone side of the canal. In the past when we used to install our boom anchoring inserts on these walls they were occasionally brushed off by passing barges so now we make sure to find protected crevices for these anchors.

We are now in the RNA just south of the CITGO dock. The narrowness of the Canal is quite apparent. The canal is subject to chop and turbulence from the surface water traffic. There is a fairly small tug boat just ahead on the right and yet it was responsible for generating the fairly significant chop seen here.

As we get close to the fish barrier you will notice there is an abundance of warning signs throughout the RNA reminding personnel that they are approaching the fish barrier and what necessary precautions must be taken to transit the barrier. While the hazard signs speak for themselves, what most people don't realize is that the safety procedures followed by the industries in and around the RNA also had to be altered as a result of the barrier. For example, Citgo's Facility Response Plan had to be changed to explain how our oil spill team would capture a spill that passed through our primary containment collection site since our response boat was too short to pass through the electric fish barrier. The end result required us to obtain a regulation size boat and pick a site about one mile away downstream and either launch our new boat at the old Cargill grainery to place the oil spill boom or manually attempt to pull the boom across the canal at the collection site.

At this point we are just north of the pipeline arch approaching the electrified barriers. Although it can't be seen from here, the barriers consist of electrode arrays that are perpendicular

to the water flow and lying near the bottom of the Canal. These arrays are driven by repetitive high voltage pulses that create strong electric fields in the water. A few years ago the Army Corps actually conducted a study comparing the voltage gradients measured in the Canal to the electric shock safety standards and other scientific studies and concluded that currents induced in a person immersed in water that includes an electric field created by a fish barrier can be life threatening. As a result of the risks associated with the fish barrier, the Coast Guard established a "Safety Zone" within the RNA, which ranges from this arch to approximately 450' south of the 135th Street Bridge.

We are now on the other side near the south border of the RNA looking north - upstream, as you can see the arch is up ahead and we are surrounded by duplicate signage posted on the banks of the south end of the RNA.

A few things to note about the RNA as we look at the south end of the Safety Zone. The RNA places multiple requirements on all vessels. Vessels are prohibited from loitering in the RNA and may enter the area only for the purpose of transiting to the other side and must continue through without stopping. Also, all personnel on open decks are required to wear a Coast Guard approved personal floatation device. Vessels may not moor or lay up on the right or left descending banks of the RNA. Additionally, only one vessel is permitted in the Safety Zone at a time. Vessels may not pass each other and all vessels must make a SECURITE call when approaching the barrier to announce intentions and work out passing arrangements on either side.

Also notice the debris floating here on the surface. This type of debris is typical especially after a significant rain. Trees, branches, and other materials are carried downstream to this area and generate hazards for vessels passing through.

Again you see the duplicate warning signs as the fish barrier approaches.

A Demonstration Barrier was originally built to test the feasibility of the electric fish barrier device to deter fish movement past the barrier. This barrier ultimately proved to work well enough to justify installation and use of permanent barriers now called Barrier 2A and Barrier 2 B. The strength of the field is measured in volts per inch. At one time I asked what this meant and was told that an instrument with conductors one inch apart was inserted into the water and the voltage between these conductors was the strength of the field.

The metal building with a catwalk above the roof contains the equipment to power and control the first permanent Fish Barrier – 2A. Notice the generators just left of the building – these were installed to cover a loss of normal electrical power supply.

Here is a closer look at Barrier 2A and the emergency generators.

This is the power and control building for the newest barrier 2B. As we pan through here you can see that the building and generators for this barrier have been noticeably upgraded. Both of these barriers can produce up to 4 volts per inch in their electrified fields but are currently operating at 2 volts per inch and normally only one is in service at time. The other is on standby, ready to power up if needed.

Now we are switching over to a view of the west bank, still heading upstream. You can see that additional warning signage has been installed for the original demonstration barrier, which I am told is also being replaced soon by a permanent barrier.

As the camera pans to the right showing the east bank, the small building in the foreground is the power and control building for the demonstration barrier. This barrier is only able to produce 1 volt per inch in the electrified field.

The "no wake" sign indicates that the barge loading areas along the canal are no wake zones. This means that vessels should pass through slow enough so that they do not create a wave large enough to potentially cause a barge to break away from its mooring, which again indicates how narrow this part of the Canal is.

Lastly, we approach CITGO's effluent outfall location which is just north of the arch and the Safety Zone. It is about one tenth of a mile from the Safety Zone. While the Safety Zone was installed to avoid the outfall, Citgo had to make several other changes to its operations in order to accommodate the Safety Zone and the RNA. The Outfall is so close to the Safety Zone that, I am told, the mixing zone from the outfall extends into the Safety Zone.

Finally, I'd like to mention that just north of the outfall, about 60 feet, is the intake location for the refinery and this is where the raw water is drawn into the refinery.

END

III. CONCLUSION

Thank you, this concludes my pre-filed testimony.

Bruce Nelson

CERTIFICATE OF SERVICE

I, the undersigned, certify that on November 22, 2013, I served electronically the attached **Pre-Filed Testimony of: Larry Tyler, Bruce Nelson, Roger Klocek and James Huff**, upon the following:

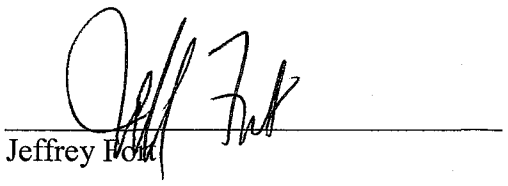
John Therriault, Clerk
Pollution Control Board
James R. Thompson Center
100 West Randolph St., Suite 11-500
Chicago, IL 60601

and by U.S. Mail, first class postage prepaid, to the following persons:

Marie Tipsord, Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph St., Suite 11-500
Chicago, IL 60601

Stefanie N. Diers, Assistant Counsel
Illinois Environnemental Protection Agency
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

The participants listed on the attached
SERVICE LIST



Jeffrey Fort

SERVICE LIST

Frederick M. Feldman, Esq.
Louis Kollias
Margaret T. Conway
Ronald M. Hill
Metropolitan Water Reclamation District
100 East Erie Street
Chicago, IL 60611

Andrew Armstrong
Matthew J. Dunn-Chief
Susan Hedman
Office of the Attorney General
Environmental Bureau North
69 West Washington Street, Suite 1800
Chicago, IL 60602

Roy M. Harsch
Drinker Biddle & Reath
191 N. Wacker Drive, Suite 3700
Chicago, IL 60606-1698

Bernard Sawyer
Thomas Granto
Metropolitan Water Reclamation District
6001 W. Pershing Road
Cicero, IL 60650-4112

Claire Manning
Brown Hay & Stephens LLP
700 First Mercantile Bank Blvd.
205 S. Fifth St., P.O. Box 2459
Springfield, IL 62705-2459

Lisa Frede
Chemical Industry Council of Illinois
1400 E. Touhy Ave.
Suite 110
Des Plaines, IL 60018

Fredric Andes
Erika Powers
Barnes & Thornburg
1 N. Wacker Dr., Suite 4400
Chicago, IL 60606

Alec M. Davis
Katherine D. Hodge
Matthew C. Read
N. LaDonna Driver
Hodge Dwyer & Driver
3150 Roland Avenue
P.O. Box 5776
Springfield, IL 62705-5776

James L. Daugherty-District Manager
Thorn Creek Basin Sanitary District
700 West End Avenue
Chicago Heights, IL 60411

John Reichart
American Water Company
727 Craig Road
St. Louis, MO 63141

Jessica Dexter
Environmental Law & Policy Center
35 E. Wacker Dr., Suite 1600
Chicago, IL 60601

Keith Harley
Elizabeth Schenkier
Chicago Legal Clinic, Inc.
211 West Wacker Drive, Suite 750
Chicago, IL 60606

Robert VanGyseghem
City of Geneva
1800 South St.
Geneva, IL 60134-2203

Frederick D. Keady, P.E.-President
Vermillion Coal Company
1979 Johns Drive
Glenview, IL 60025

Cindy Skrukrud
Jerry Paulsen
McHenry County Defenders
110 S. Johnson Street, Suite 106
Woodstock, IL 60098

W.C. Blanton
Husch Blackwell LLP
4801 Main St., Suite 1000
Kansas City, MO 64112

Dr. Thomas J. Murphy
2325 N. Clifton St.
Chicago, IL 60614

Stacy Meyers-Glen
Openlands
25 E. Washington, Suite 1650
Chicago, IL 60602

Lyman Welch
Alliance for the Great Lakes
17 N. State Street, Suite 390
Chicago, IL 60602

James Huff-President
Huff & Huff, Inc.
915 Harger Road, Suite 330
Oak Brook, IL 60523

Kenneth W. Liss
Andrews Environmental Engineering
3300 Ginger Creek Drive
Springfield, IL 62711

Albert Ettinger
Environmental Law & Policy Center
53 W. Jackson, Suite 1664
Chicago, IL 60604

Mark Schultz
Navy Facilities and Engineering Command
201 Decatur Avenue Building 1A
Great Lakes, IL 60088-2801

Irwin Polls
Ecological Monitoring and Assessment
3206 Maple Leaf Drive
Glenview, IL 60025

James E. Eggen
City of Joliet,
Director of Public Works & Utilities
921 E. Washington St.
Joliet, IL 60431

Jack Darin
Sierra Club, Illinois Chapter
70 E. Lake St., Suite 1500
Chicago, IL 60601-7447

Kay Anderson
American Bottoms RWTF
One American Bottoms Road
Sauget, IL 62201

Susan Charles
Thomas W. Dimond
Ice Miller LLP
200 West Madison Street, Suite 3500
Chicago, IL 60606

Vicky McKinley
Evanston Environment Board
223 Grey Avenue
Evanston, IL 60202

Olivia Dorothy
Office of Lt. Governor
Room 414 State House
Springfield, IL 62706

Kristen Laughridge Gale
Susan M. Franzetti
Nijman Franzetti LLP
10 South LaSalle St.
Suite 3600
Chicago, IL 60603

Bob Carter
Bloomington Normal Water Reclamation
P.O. Box 3307
Bloomington, IL 61711

James L. Daugherty
Thorn Creek Basin Sanitary District
700 W. End Ave
Chicago Heights, IL 60411

Ann Alexander, Senior Attorney
Natural Resources Defense Council
2 N. Riverside Plaza, Suite 2250
Chicago, IL 60606

Jared Policicchio
Chicago Department of Law
30 N. LaSalle Street
Suite 1400
Chicago, IL 60602