UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO ATTENTION OF
ECW-15J

VIA ELECTRONIC MAIL

Charles Bodden, Director of Laboratory and Environmental Compliance
North Shore Water Reclamation District
P.O. Box 750
14770 W. Wm. Koepsel Dr.
Gurnee, IL 60031
chbodden@northshorewrd.org

Subject: June 13 to 16, 2022 Pretreatment Compliance Inspection Report for the North Shore Water Reclamation District

Dear Mr. Bodden:

Please find enclosed a copy of the inspection report generated as a result of the pretreatment compliance inspection of the North Shore Water Reclamation District, conducted by the U.S. Environmental Protection Agency from June 13 to 16, 2022. The purpose of the inspection was to conduct a review of the City's pretreatment program implementation. During the inspection, EPA observed several areas of concern; these are listed in the enclosed report. Please provide a written response to the areas of concern identified in the report within 30 days. In your response, please include a description of actions taken to correct any issues documented in the inspection report. Your response should be submitted electronically to ellens.newton@epa.gov and r5pretreatment@epa.gov. Where it is infeasible to submit electronically, you may mail the information to:

Newton Ellens, Water Enforcement and Compliance Assurance Branch, EPA Region 5
77 W. Jackson Blvd. (ECW-15J)
Chicago, Illinois 60604-3590

If you have any questions or concerns regarding this letter, or the inspection report, please contact Newton Ellens at (312) 353-5562 or at ellens.newton@epa.gov.

Sincerely,

MOLLY SMITH

Digitally signed by MOLLY SMITH
Date: 2022.09.27 12:23:35 -05'00'

Molly Smith,
Section 1 Supervisor
Water Enforcement and Compliance Assurance Branch

Enclosure

Pretreatment Compliance Inspection
North Shore Water Reclamation District, Gurnee, Illinois

Control Authority Name and Address
North Shore Water Reclamation District
P.O. Box 750
14770 W. Wm. Koepsel Dr.
Gurnee, Illinois 60031

Responsible Official
Dave Miller, Executive Director

Inspection Participants

North Shore Water Reclamation District
Charles Bodden, Director of Laboratory and Environmental Compliance
Dave Miller, Executive Director[1]
Josephine Meincke, Environmental Compliance Coordinator[2]
John Reuskens, Industrial Environmental Controller
Tony Favero, Laboratory Supervisor/QA Manager

Environmental Protection Agency, Region 3
James Kline, Physical Scientist
Edward Simas, Enforcement Officer/Inspector

Environmental Protection Agency, Region 5
Matthew Schulte, Physical Scientist
Jessica Stromsdorfer, Environmental Engineer
Newton Ellens, Pretreatment Program Manager

Inspector:
Inspector Signature: NEWTON ELLENS Digitally signed by NEWTON ELLENS Date: 2022.09.26 13:04:36 -05'00'
Report Date:

Approver Name & Title: MOLLY SMITH
Approver Signature Digitally signed by MOLLY SMITH Date: 2022.09.27 12:26:55 -05'00'
Approval Date:

[1] Mr. Miller was only present for the opening interview.
[2] Ms. Meincke was only present for the opening interview and closing conference.

Contents

SECTION 1.0: INTRODUCTION

The U.S. Environmental Protection Agency conducted a Federal Pretreatment Compliance Inspection (PCI) of the North Shore Water Reclamation District (North Shore WRD or District) from June 13 to 16, 2022. The purpose of the inspection was to evaluate the procedures and implementation of North Shore WRD's pretreatment program. Special Condition 10 of North Shore WRD's National Pollutant Discharge Elimination System (NPDES) Permit No. IL0030171 requires North Shore WRD to operate its approved industrial pretreatment program. The industrial pretreatment program was approved on December 27, 1984. EPA's inspection consisted of:

1. Review of requested submittals prior to on-site inspection;
2. Interviews and discussion with North Shore WRD staff;
3. Industrial User (IU) file reviews; and
4. Site visits at two IUs: Roquette and Coral Chemical.

On June 13, 2022, inspectors Newton Ellens, Matthew Schulte, and Jessica Stromsdorfer arrived at the North Shore WRD—Gurnee Water Reclamation Facility (Gurnee WRF) in Gurney, IL. We were joined by James Kline and Edward Simas of EPA, Region 3. We met Messrs. Bodden, Miller, and Reuskens, and Mses. Meincke and Favero. EPA inspectors presented their credentials and began the inspection.

SECTION 2.0: SITE BACKGROUND AND PRELIMINARY REVIEW

North Shore WRD has three water reclamation facilities (WRFs):

1. North Shore WRD Clavey Road WRF (Clavey Rd. WRF);
2. Gurnee WRF; and
3. North Shore Waukegan WRF (Waukegan WRF).

The Clavey Rd. WRF has a design flow rate of 17.8 million gallons per day (MGD), and an actual flow rate of 12.9 MGD.

The Gurnee WRF has a design flow rate of 23.6 MGD, and an actual flow rate of 12.99 MGD.

The Waukegan WRF has a design flow rate of 22.0 MGD, and an actual flow rate of 16.3 MGD.

Each of North Shore WRD's WRFs has the following treatment processes:

1. Primary—fine screening, primary clarification, and grit removal;
2. Secondary—two-stage activated sludge, biological phosphorous removal; and
3. Tertiary—sand filtration and ultra-violet disinfection.

SECTION 3.0: SUPPLEMENTAL DATA REVIEW/INTERVIEW

North Shore WRD provided the following information about its pretreatment program to EPA. Specifically, North Shore WRD provided written information prior to the PCI, then clarified that information during the opening interview.

A. Pretreatment Program Modification:

North Shore WRD submitted the following proposed pretreatment program changes to EPA, Region 5, Water Division on May 4, 2022, for review and approval:

1. A technical re-evaluation of its local limits. For the re-evaluation, North Shore WRD determined local limits for each of its WRFs, then applied the most restrictive limits to all three WRFs.
2. A modification of its sewer use ordinance, creating a stand-alone pretreatment ordinance.
3. Minor corrections to its enforcement response plan. The corrections change the following titles:
    a. "Director of Laboratory Services" to "Director of Laboratory and Environmental Compliance," and
    b. "General Manager" to "Executive Director."

B. Legal Authority:
North Shore WRD and the Lake County Department of Public Works (LCDPW) agreed, via contract, to allow the District to assume responsibility for the development, implementation, and operation of North Shore WRD's pretreatment program within LCDPW's Northeast Central Service Area.[3]

C. IU Characterization:
North Shore WRD definition of a significant industrial user (SIU) is consistent with the Federal definition under the General Pretreatment Regulations (40 C.F.R. Part 403).

North Shore WRD's sewer use ordinance has unique industrial codes for industrial users, including:
1. I00: A zero discharger that otherwise would be subject to categorical regulations. It has no reasonable potential to discharge.
2. I04: A non-categorical SIU.
3. I05: A categorical industrial user (CIU).

North Shore WRD stated that its proposed SUO, currently under review with the EPA Region 5 permit's section, follows EPA model pretreatment ordinance; the industrial codes listed above will not be included.

North Shore WRD conducts the following industrial waste survey activities:
1. Submits industrial waste surveys to select industrial users (IUs);
2. Maintains a list of active IUs in its industrial waste (IW) file system and electronic file system;
3. Submits "metal finishing surveys" to selected IUs;
4. Conduct surveillance drive-bys;
5. End-of-pipe (EOP) sampling and monitoring;
6. Makes telephone calls;
7. Searches internet websites;
8. Reviews connection permits, business directories, water usage records, and websites; and
9. Review online notes of business board meetings.

North Shore WRD has 26 SIUs. Thirteen of those SIUs are categorical and 13 are non-categorical. After EPA reviews and approves the District's proposed changes to its pretreatment program, North Shore WRD may re-designate some of its zero-dischargers as non-significant CIUs.

North Shore WRD uses the following to identify substantial changes in IU flow:
1. IU change notices;

[3] In a September 23, 2022, follow-up telephone call, District staff stated that it made an initial agreement with LCDPW in 1994. The District and LCPDW signed an updated, formal agreement in 2015.

2. IU wastewater sampling and monitoring;
3. IU site visits; and
4. IU water usage records.

North Shore WRD sent 137 surveys to dental facilities. Under 40 C.F.R. Part 441, subject dental facilities must submit a one-time compliance report to the District. Of the 137 dental facilities, 86 facilities responded to the survey and submitted a one-time compliance report.[4]

D. Hauled Waste:

The following is a description of North Shore WRF's hauled waste program:

- Section 7.03 of the District's SUO (Trucked Discharges) covers hauled waste regulations.
- North Shore WRD may accept hauled waste at the Waukegan WRF.
- North Shore WRD only accepts septage wastewater originating within the District's Facilities Planning Boundaries.
- Each hauler must complete a control ticket for each load.
- Haulers are required to take a sample of each load discharged.
- North Shore WRD staff also take random confirmation split samples.
- District laboratory staff randomly analyze samples to confirm pollutant concentrations are domestic in nature.

In the mid-2000's, North Shore WRD accepted thousands of hauled loads. Currently, the District only has one permitted hauler. The hauler has been permitted since August 2021 but has not hauled any waste to the District.

Under the District's SUO, North Shore WRD can accept waste other than septage on a case-by-case bases. The District, however, will only accept septage as a matter of practice.

E. Application of Pretreatment Standards and Requirements

North Shore WRD has set local limits for the following pollutants:

- Toxic Pollutants:
    - Arsenic
    - Cadmium
    - Hexavalent chromium
    - Chromium
    - Copper
    - Cyanide
    - Lead
    - Mercury
    - Nickel
    - Phenols
    - Selenium
    - Silver

[4] In a September 23, 2022, follow-up telephone call, District staff stated that it sent surveys to dentists in June 2019. Dentists then sent survey results to the District through the end of 2020. At this time, the District does not have a formal plan to address dentists that did not respond to its survey.

    - Zinc
- Other Pollutants:
    - pH
    - Biological Inhibition
    - Sulfide—water

The District selected the above list of pollutants through evaluation of local limits and appropriate regulations for sludge disposal and water quality. The biological inhibition limit was based on potential WRF inhibition.

The most stringent criteria for the District's chromium and arsenic local limits were sludge regulations (under 40 C.F.R. Part 503). For other local limits, the most stringent criteria were the receiving water quality standards.

North Shore WRD applied a uniform allocation for the local limits.

Currently, the SUO includes a list of "guideline limits." These are not local limits, but District has the discretion on whether to include guideline limits in IU permits. The inspection team shared with the District that EPA issued letters to Illinois POTWs in October 2015. In its letters, EPA stated that it will not approve any SUOs that contain guideline limits. The District stated that its proposed SUO does not include guideline limits.

In addition to its local limits, North Shore WRD identified the following pollutants of concern:

- Phosphorus
- Sulfate
- Ammonia
- Barium
- Biochemical oxygen demand
- Chemical oxygen demand
- Fluoride
- Iron
- Dissolved iron
- Manganese
- Nitrate
- Oil and grease
- Total dissolved solids
- Total suspended solids

In order to address these issues, the District:

1. Is optimizing biological phosphorous removal process and constructing chemical back-up systems at each of its WRFs;
2. Implements a surcharge program for sulfate; and
3. Issues site-specific IU permits for the other pollutants of concern.

F. Compliance Monitoring:
Generally, North Shore WRD conducts all sampling activities for its permitted IUs (i.e., the District does not require its IUs to monitor their discharge). One exception is for pharmaceutical IUs; the District will collect samples for six months of each year; each pharmaceutical IU collects samples for the other six months. North Shore WRD will retrieve samples collected by IUs.

North Shore WRD will collect samples more frequently for its larger permitted IUs, and for permitted IUs exceeding pretreatment standards.

If the District's sample analysis results shows that an IU has exceeded pretreatment standards, then the District will re-sample and re-analyze the IU's discharge within 30 days, unless the District requires the IU to conduct the sampling.

North Shore WRD samples non-permitted IUs at a frequency ranging from annually to once every three years. Also, North Shore WRD inspects non-permitted IUs on an "as needed" basis.

North Shore WRD and its contract laboratory (Eurofins) split laboratory analysis responsibilities, based on the pollutant parameter:

Pollutant Parameter	**North Shore WRD**	**Eurofins**
Metals (including mercury)		X[5]
Cyanide	X	
Organics		X
FOG		X
Phenol		X
Biological Inhibition	X	

Sulfide, pH, and conductivity analysis are conducted in the field.

Both Eurofins and North Shore WRD's in-house laboratory are accredited with the NELAP Institute and comply with all TNI standards for quality assurance/quality control (QA/QC)—including splits, blanks, spikes, control samples and duplicates, and continuing calibration verification (CCV).

During IU inspections, North Shore WRD reviews the following:

- Process areas,
- Pretreatment facilities,
- Chemical and hazardous waste storage areas,
- Chemical spill prevention areas,
- Hazardous waste handling procedures,
- Sampling procedures,
- Laboratory procedures,
- Monitoring records,
- Hauled waste manifests,
- Facility changes since the last inspection,

[5] North Shore WRD plans to start conducting metals analysis in-house.

- Water usage summaries,
- Sampling procurement and handling,
- Chain of custody forms,
- Log books,
- Spill plans, and
- Need for a slug control plan.

The District evaluates or reevaluates a SIU's need to have a slug control plan annually, during each inspection. The District evaluates any changes in the:

- Chemicals used,
- Volume of chemicals stored, and
- Chemical storage method.

G. Enforcement:

North Shore WRD cited three SIUs for being in significant noncompliance in 2021:

- EMCO (for methylene chloride exceedances);
- Corral Chemical (for reporting violations); and
- Eagle Foods (for phosphorous exceedances).

District staff stated that one mile of its sewer line collapsed about three to four years ago (at the Waukegan junction with the Gurnee interceptor). The collapse was caused by sulfide in the sewer. District staff did not believe that IU discharges caused the collapse.[6]

H. Data Management/Public Participation:

North Shore WRD uses several data/record systems:

- Laboratory Information Management System (to track analytical data),
- Great Plains System (providing access to IU water usage records), and
- Permit Tracking Program (provides access to the District's sewer connections and Illinois Environmental Protection Agency permits).

North Shore WRD has a records retention policy. Records are kept for at least three years; some files are kept indefinitely.[7]

Regarding public access: The District provides access to records in compliance with the Illinois Freedom of Information Act. The public can submit information requests through the District's website. Additionally, the District provides access to some documents on its website.

Regarding confidential information: Section 6.06 of North Shore WRD's SUO provides that the District will safeguard information that an IU designates as confidential.

[6] In a September 23, 2022, follow-up telephone call, District staff clarified this and stated an isolated section of sewer line collapsed—not one mile of sewer line. The sewer line was constructed in the 1960's. Domestic sewage can generate hydrogen sulfide gas. District staff theorized that turbulence at the Waukegan junction caused the release of hydrogen sulfide gas.

[7] In a September 23, 2022, follow-up telephone call, District staff stated all pretreatment files are kept indefinitely.

North Shore WRD's Board of Trustees holds public meetings on revisions to the District's SUO and/or local limits, to accommodate public participation.

I. Resources:
The District uses 4.35 FTE for pretreatment plan implementation. The District's annual pretreatment operating budget is $547,460.

SECTION 4.0: FILE REVIEWS

4.1 IU Identification

IU Permit Number	IU Name	IU Type	Avg total flow (gpd)	Avg process flow (gpd)	Visited During Audit?	Reviewer	Categorical Pretreatment Standard
97-50	Coral Chemical Company	Non-Categorical SIU		4083	yes	Jessica Stromsdorfer	none
03-72	Payson Casters, Inc.	Zero-Discharge			no	Matthew Schulte	40 CFR PART 433 METAL FINISHING POINT SOURCE CATEGORY
93-94	Naval Station Great Lakes (NSGL)	Non-Categorical SIU	1.56 gpd		no	James Kline	none
00-68	Waukegan Architectural, Inc.	CIU	350	280	no	Newton Ellens	40 CFR PART 433 METAL FINISHING POINT SOURCE CATEGORY
96-51	EMCO Chemical Distributors	Non-Categorical SIU	5500	As of 09/17/20, the EMCO Pretreatment system is not operational.	no	Edward Simas	none
94-25	Roquette America, Inc.	CIU	0.14 MGD		yes	Matthew Schulte	40 CFR PART 414 ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS
93-23	Pfanstiehl, Inc.	CIU		13680	no	Jessica Stromsdorfer	40 CFR PART 439 PHARMACEUTICAL MANUFACTURING POINT SOURCE CATEGORY

4.2 Facility Information

Coral Chemical Company
135 Le Baron St.
Waukegan, Illinois 60085

The manufacturing facility receives liquid and granular raw materials. Those raw materials are blended into aqueous chemical blends, including industrial strength cleaners, metal working fluids, zinc and iron phosphating chemicals and wastewater treatment chemicals for metal finishing wastes. Once those aqueous materials are blended, they are packaged in five 330-gallon containers or a tank wagon. They are stored and then shipped to the customer.

Laboratory and manufacturing waste water gets collected into sumps, which feed into a 4,500-gallon holding tank. This feeds into a 2,400-gallon batch treatment tank. A sample is taken from the treatment tank to determine the amount of coagulant required. The pH will be lowered to 5.0-6.0 with sulfuric acid. The precipitation process will use a ferric and calcium-based treatment coagulant that will further bring the pH down to below 4.0. Sodium hydroxide will then be added to raise the pH to around 9.0 to precipitate out any metals. The addition of the iron and calcium will act on phosphorus/phosphate to make them insoluble. Anionic polymer will then be added to agglomerate the precipitated solids. The solids will settle, and treated water will be decanted into the sanitary sewer at the single compliance point. This is done in batches. The sludge is pumped to a 2,000-gallon sludge thickening tank which feeds the filter-press. The sludge produced from the filter press will be sent as special waste to a non-hazardous landfill.

Payson Casters, Inc.
2323 Delany Rd.
Gurnee, Illinois 60031

Payson Casters, Inc. is federally regulated under 40 CFR 433.17 Metal Finishing for operation of phosphating parts cleaning equipment. Payson Casters, Inc. is a manufacturer of casters and conveyor line equipment. Currently there is no discharge from the phosphating process or for from any process at Payson. The only discharge is sanitary wastewater. The phosphating is a cleaning process which removes oils / greases from parts and prepares the part for a powder painting.
Payson Casters has opted for zero discharge of process wastewater.

Naval Station Great Lakes (NSGL)
310 B Street Bldg. 1H
Great Lakes, Illinois 60088

NSGL operates under the Dept. of the Navy and includes a Public Works Center (PWC). The total number of personnel on the base is approximately 26,400, of which 21,700 permanently reside on base. NSGL is the Navy's largest training installation and is located on over 1,600 acres. NSGL has 1,153 buildings with over 50 tenant commands. NSGL's mission is to enable and sustain fleet operations and support to all tenant commands. The average flow represents 11.5% of the District's average influent flow.

Waukegan Architectural, Inc.
3505 16th St
Zion, Illinois 60099

Waukegan Architectural Inc. is a fabricator of architectural and memorial bronze doors, windows, grills, and miscellaneous items.

EMCO Chemical Distributors
2100 Commonwealth Ave
North Chicago, Illinois 60064

EMCO Chemical Distributors is an industrial organic blender and distributor. The raw products handled by EMCO include solvents, glycol ethers, alcohols, ketones, organic acids, inorganic bases, surfactants, and resins. EMCO steam cleans the interior of tank trucks and totes that transport raw materials or blended products, as well cleaning of tanks used for chemical blending. The EMCO wastewater treatment system (Advanced Ozonation/Peroxidation, or "AOP") has not been operational since 2017. Process wastewater, tanker truck steam-cleaning wastewater, is routed to 'black' totes, which are for off-site disposal. There are three total outfalls to the city of North Chicago sewers and its tributary to the Gurnee Water Reclamation Facility (GWRF). The facility discharges in batches, with previous batches of treated wastewater upwards of 2,750 gallons. The black totes are the size of about 200 gallons.

Roquette America, Inc.
1550 Northwestern
Gurnee, Illinois 60031

Roquette America, Inc. manufactures Sorbitol (liquid and crystalline) and related polyols by catalytic hydrogenation. The discharge from the Roquette site is directed into an 8" sanitary sewer on the west side of the property. The end-of-pipe discharge from Roquette to the Gurnee Water Reclamation Facility (GRWF) averages at 0.140 MGD. The Roquette nickel discharge is approximately 66% of the GWRF influent for the time-period.

Pfanstiehl, Inc.
1219 Glen Rock Avenue
Waukegan, Illinois 60085

The facility manufactures sugar derivatives, carbohydrate intermediates, other industrial chemicals, and pharmaceutical products. The site has not used a pretreatment system since 2009. There is a 12,000-gallon tank for wastewater before discharge, where the facility can adjust pH if needed. There is one outfall to the sewer system.

4.3 IU Evaluation

A. Issuance of IU Control Mechanism

Statement of Non-transferability

Each IU permit requires the IU to provide advance notice of a transfer of ownership to the District, but none of the IU permits require the IU to provide a copy of the permit to the new owner.

Applicable effluent limits (local limits, categorical standards, Best Management Practices)

The SUO includes local limits for the following pollutant parameters: arsenic, cadmium, hexavalent chromium, chromium, copper, cyanide, lead, mercury, nickel, phenols, selenium, silver, zinc, pH, biological inhibition, and sulfide. Permits for the following IUs, however, only include a subset of the District's local limits:

- Naval Station Great Lakes–The IU permit has local limits for pH, sulfide, and mercury.
- Waukegan Architectural–The IU permit has local limits for pH, cyanide, mercury, nickel, and zinc.[8]
- Roquette America, Inc.—The IU permit has local limits for pH, mercury, and nickel.
- Pfanstiehl, Inc.—The IU permit has local limits for pH, copper, and mercury.
- Coral Chemical—The IU permit has local limits for pH, chromium, nickel, zinc, and mercury.

Other effluent limit issues:

- The Waukegan Architectural IU permit does not include TTO limits (under 40 C.F.R. Part 433). The IU permit gives the IU discretion on whether to implement a TOMP, instead of requiring TTO monitoring or TOMP implementation. Also, the IU permit has a cyanide local limit as a monthly average. Finally, the list of limits does not include units.
- The Pfanstiehl IU permit includes a cyanide local limit as a monthly average limit. Also, according to the IU permit, Pfanstiehl is subject to 40 C.F.R. §§ 439.26 and 439.36. (PSES, Pharmaceutical Manufacturing Point Source Category Subparts B and C, respectively). 40 C.F.R. §§ 439.26 and 439.36 have different effluent limits for the same pollutant parameter (methylene chloride). The IU permit applies the most stringent effluent limit for methylene chloride, instead of applying an alternative methylene chloride limit using the combined wastestream formula.

Self-monitoring requirements

- Waukegan Architectural, Inc.:
    - The permit does not include a description of the process for seeking a waiver for a pollutant neither present nor expected to be present in the discharge in accordance with § 403.12(e)(2).
    - The permit requires semi-annual sampling. However, District staff stated that they collect all samples (not the IU).
    - The permit does not specify that 24-hour composite samples must be flow-proportional.
- Coral Chemical Company (Waukegan, IL): The IU permit includes a map showing the location of two sample manholes (northern and southern). The permit only includes sample requirements

[8] Waukegan Architectural has local limits and categorical limits (under the Metal Finishing Category) for the following pollutants: cadmium, chromium, copper, lead, and silver. The categorical limit for each of these pollutant parameters is more stringent; therefore, the District chose to include the categorical limit for each of these parameters, instead of the local limit.

for the northern manhole. The fact sheet for the IU permit states that there are no sample requirements for the southern manhole, but the IU permit does not clarify this.

Notification requirements

- Waukegan Architectural, Inc.
  - The permit does not include upset notification requirements per 40 C.F.R § 403.16(c)(3).
  - The permit requires the IU to repeat sampling, but it does not require the IU to submit sample results with 30 days.

B. Application of IU Pretreatment Standards:

IU Classification/Categorization

- Naval Station Great Lakes (NSGL) - According to Mr. John Reuskens, Industrial Environmental Controller, the District does not know what the 50 tenant commands do nor do they know what occurs in the over 1,100 buildings at the NSGL. Mr. Reuskens did not have any supporting documentation or certifications of what is, maybe, or has been discharged from any of these buildings or tenants.

- The Roquette America, Pfanstiehl, and Waukegan Architectural IU permits do not indicate whether the associated IU is a new or existing source.

C. CA Compliance Monitoring

- Pfanstiehl, Inc. – The District had some errors in its summary monitoring data. Specifically, the November 18, 2020, District monitoring report lists pretreatment limit units as milligram per liter (mg/L), but the District's summary of that monitoring report lists some pretreatment limit units as microgram per liter (µg/L).
- Coral Chemical Company – North Shore WRD did not analyze all regulated pollutants. For the July-December 2020 period, the District did not sample all parameters (only pH).
- Naval Station Great Lakes (NSGL) – The District's monitoring data does not include analytical results for "toxic pollutants" parameters (a subset of local limits): arsenic, cadmium, hexavalent chromium, chromium, copper, cyanide, lead, mercury, nickel, phenols, selenium, silver, and zinc.
- Waukegan Architectural, Inc. - No samples collected for the following local limit pollutant parameters: hexavalent chromium, phenols, biological inhibition, or sulfides.
- The District's monitoring reports for Pfanstiehl did not include a description of lab methods.
- Roquette America, Inc. - Some parts of the District's inspection checklist were not filled out.
- District staff keep a log book to document IU sampling activities. EPA requested to see and inspect the log book. District staff, however, did not provide the log book for EPA staff. [9]

[9] North Shore WRD provided copies of pages from its automatic sampler set-up log book and field sampling log book in a June 27, 2022, email.

D. CA Enforcement Activities

EMCO Chemical Distributors - In an October 21, 2021, correspondence, the District cited and fined EMCO Chemical Distributors $5,250 for failing to timely notify the District about effluent limit violations.

E. IU Self-Monitoring Reports and Other Documents

- Coral Chemical Company – The IU permit for Coral Chemical Company requires self-monitoring for the following local limits: pH, mercury, chromium, nickel, and zinc. However:
    - For the July-December reporting 2020 period, the District only collected pH samples. The Coral Chemical Company IU permit requires the IU to monitor its discharge for any pretreatment pollutant parameters not monitored by the District. Coral Chemical did not sample its discharge for the remaining pretreatment pollutant parameters during this period.
    - Aside from the July to December 2020 period, Coral Chemical Company only submitted self-monitoring reports for zinc during the past 5 years.
- Naval Station Great Lakes (NSGL) – The IU did not sample and analyze all required pretreatment pollutant parameters.
- Pfanstiehl, Inc. – The second quarter 2021 self-monitoring report did not include the certification required per 40 C.F.R. § 403.12(l).
- Waukegan Architectural, Inc. - The IU has a February 12, 2019, spill plan. The District stated that the plan is also a slug discharge control plan, although it is not labeled as such. The spill plan does not include a description of discharge practices, or procedures for immediately notifying the POTW about slug discharges.

SECTION 5.0: INDUSTRIAL USER SITE VISITS

Roquette America, Inc.
1550 Northwestern
Gurnee, Illinois 60031

Date of site visit: June 15, 2022

Inspection participants:

Roquette
Aric Lehrkamp, Process Engineer
Zach Weiss, Production Supervisor
Mary Chekal, QA Manager

North Shore WRD
Chuck Bodden, Director of Laboratory and Environmental Compliance
John Reuskens, Industrial Environmental Controller

EPA
James Kline, Physical Scientist
Edward Simas, Enforcement Officer/Inspector
Matthew Schulte, Physical Scientist
Jessica Stromsdorfer, Environmental Engineer
Newton Ellens, Pretreatment Program Manager

EPA and North Shore WRD entered the Roquette facility at 2:20 p.m.

Opening interview: Roquette staff stated the following:

- Roquette is a French-owned company.
- The facility was built in 1982. Roquette acquired the facility in 1992.
- Roquette has 37 employees at the facility.
- The facility receives raw product (dextrose) from a sister facility in Keokuk, Iowa:
    - Fifty to 60 trucks per week, and
    - Six to nine railcars per week.
- Roquette manufactures two types of polyols (artificial sweeteners):
    - Sorbitol; and
    - Maltitol.
- The Roquette facility makes 60% of the sorbitol produced in the country.
- Roquette sells its product to:
    - Industrial customers (e.g., adhesive manufacturers);
    - Pharmaceutical manufacturers (e.g., fillers or excipients); and
    - Food manufacturers.
- Roquette is subject to 40 C.F.R. Part 414.
- The facility monitors its discharge for pH, mercury, and nickel.
- Roquette's IU permit application deadline is August 2, 2022. Roquette will apply to change the flow-weighted average effluent limits in its IU permit.
- Roquette has a history of nickel effluent limit violations.
    - The nickel violations are not significant noncompliance violations.
    - Roquette formerly used nickel as a catalyst in its operation; Roquette currently does not use a nickel catalyst.
    - The facility uses the following to remove nickel from its process wastewater:
        - Decanters;
        - Magnet;
        - Diatomaceous earth; and
        - Ion exchangers.
    - In the middle of 2021, there was a change in management. Staff familiar with the nickel control process left Roquette.
    - Facility staff found that the magnet used to remove nickel stopped working sometime around the end of 2021, or the beginning of 2022. The magnet was repaired on February 18, 2022.
    - Currently, operators periodically check the nickel removal process to ensure proper operation.
- Roquette and North Shore WRD conduct different types of sampling at the facility:
    - Roquette collects flow-proportional composite samples; and

    - North Shore WRD collects time-proportional composite samples.
- The facility shuts down annually (for a week) for maintenance. Roquette plans to shut down sometime in September or October of this year.
- Roquette has two manholes it uses for sample collection:
    - One manhole is to check its process; and
    - One manhole is for compliance evaluation.
- The facility receives water from the Village of Gurnee, part of the Joint Action Water Agency (JAWA).
- Regarding solid waste disposal:
    - The facility hauls nickel waste for recycling;
    - The facility rarely generates hazardous waste. Last year, it hauled miscellaneous paint waste for disposal; and
    - Finally, the facility hauls bio-sludge and used diatomaceous earth for disposal.
- Regarding operational changes—Roquette plans to design and install a deionized water tank for production processes.[10]
- Roquette keeps five to seven years of records on-site.

Walkthrough

The inspection team saw the following process areas:

- Pretreatment
    - Two equalization tanks (15,000 and 20,000 gallons)
    - Aeration basin (Attachment I, Photo 1):
        - Sixty gallon per minute (gpm) flow rate; and
        - Micronutrients are added for sugar consumption.
        - Dissolved oxygen concentration goal is 1.5 to 2.5 milligrams per liter (mg/L).
    - Clarifier—150 to 160 gpm flow rate (Attachment I, Photo 2 and Attachment II, Photo 7)
- Composite sampler (Attachment I, Photo 4 and Attachment II, Photo 1)
    - Roquette uses a refrigerated automatic sampler (for Manhole #127) to collect 24-hour composite samples. Roquette gives its samples to the District for analysis.
    - The temperature readings inside the refrigerator were above 6ºC:
        - The digital temperature reading inside the refrigerator was 44ºF (Attachment II, Photo 1). This temperature equals 6.7ºC.
        - A mercury thermometer inside the refrigerator read 10ºC (Attachment II, Photo 3).
- Sample manholes
    - Manhole #125 (Attachment II, Photo 4): Roquette staff stated that categorical wastewater flows through Manhole #125. However, Roquette uses samples from this manhole for internal plant monitoring—not for compliance sampling.[11]
    - Manhole #127: Roquette staff stated that a combined wastestream flows through Manhole #127. Roquette collects compliance samples from this manhole.
- Flow meter (Attachment II, Photo 2)
    - The discharge flow rate, according to the flow meter, was 60.3 gallons per minute.

[10] In a September 23, 2022, follow-up telephone call, District staff stated that Roquette has purchased this tank, and plans to install in the first half of 2023.

[11] Despite Roquette staff's statement, Roquette's IU permit includes categorical limits for Manhole #125.

- Wash Bay/Raw Material and Recovery
    - Trailers and railcars are washed in this area.
    - Most of the wash water from this area is transferred to the facility's reclamation system.
- Load out control room
- Powder Plant
    - Syrup with a high solids content is crystalized.
    - Plant process equipment is cleaned for maintenance.
- Powder Laboratory
    - Product is analyzed before shipment.
    - The laboratory is washed every two months. Staff uses mostly water for cleaning; sometimes they use bleach.

Closing conference:

- Mr. Reuskens requested the following records/data:
    - Bills of lading for biosludge and diatomaceous earth disposal;
    - Capacity of aeration tank and clarifier;
    - Information on buffers used for pH meter calibration; and
    - HACH unit model number.
- Mr. Reuskens stated the following concerns for the sample refrigerator (for Manhole #127):
    - The temperature in the refrigerator was above 6ºC, and there was a sample inside the automatic sampler;
    - Roquette staff needs to start recording sample temperatures in a log book; and
    - Roquette staff needs to start annually calibrating the sample thermometer.

EPA and District staff left the Roquette facility at 5:20 p.m.

Coral Chemical Co.
135 Le Baron St.
Waukegan, Illinois 60085

Date of site visit: June 16, 2022

Inspection participants:

Coral Chemical
James May, QC Technician
Debra Davies, Senior Analytical Chemist
Sue Moore, Technical Compliance Specialist

North Shore WRD
Chuck Bodden, Director of Laboratory and Environmental Compliance
John Reuskens, Industrial Environmental Controller

EPA
James Kline, Physical Scientist
Edward Simas, Enforcement Officer/Inspector

Matthew Schute, Physical Scientist
Jessica Stromsdofer, Environmental Engineer
Newton Ellens, Pretreatment Program Manager

EPA and North Shore WRD entered the Coral Chemical facility at 1:04 p.m.

Opening interview: Coral Chemical staff stated the following:

- Coral Chemical manufactures industrial cleaners and lubricants.
- The company sells its products to metalcraft and agricultural businesses.
- Quaker Houghton acquired Coral Chemical in December 2020.
- The facility is open from 6:00 a.m. to 2:30 p.m., Monday through Friday.
- Occasionally, the facility is open on Saturdays. Facility staff will work on plant issues for:
    - Electrical systems;
    - Facility compressor; and
    - Waste treatment.
- Coral Chemical has 20 employees at the facility.
- Coral Chemical plans to move its operations to a new facility in Zion, IL, sometime in the summer of 2023.
- The company generates wastewater through washing tanks and containers.
- Facility drains lead to a sump, then to a waste holding tank.
- There is also a containment pit outside. Water collecting in the pit is pumped to a waste holding tank.
- Coral Chemical has had recent zinc and nickel effluent limit violations. Staff conduct the following steps to treat wastewater with high metal concentrations:
    - Add reagent;
    - If metal concentrations are 1.8 mg/L or higher, then dilute wastewater; and
    - For excessively high metal concentrations, haul wastewater off-site.
- Coral Chemical has the following pretreatment process units:
    - Outside holding tank
    - Treatment tank
        - Zinc and nickel concentration testing,
        - pH adjustment and flocculant (ferric chloride) addition—following is a process description:
            - The pH is lowered below 7;
            - Flocculant is added; then
            - The pH is raised to 9.
    - Sludge tank
    - Filter press
    - City holding tank
- North Shore WRD collects most of Coral Chemical's samples.
- The facility is a small quantity generator; hazardous waste is occasionally hauled away for disposal.

Mr. Reuskens asked for an updated spill contingency plan. The company plans to add emergency contact information to the plan,

Walkthrough:

- Main Receiving Dock (Attachment I, Photos 5 and 6)
  - For shipping and receiving
  - Trench drain—leads to a waste holding tank
- Compliance sample point (Attachment 2, Photo 4)
  - The District lowers a composite sampler into the sampling manhole
  - Also, the District collects pH grab samples
  - Coral Chemical has occasionally collected samples at this point (four grabs over a 24-hour period)
- Manual Pump Out Area (Attachment I, Photos 7 and 8; and Attachment II, Photo 9)
  - Raw product is pumped into the facility, and finished product is pumped out
  - Product spills and stormwater is pumped to waste treatment
- Empty Tote Storage Area (Attachment I, Photo 9, and Attachment II Photo 10)
  - 330-gallon totes are stored in this area
  - Coral Chemical's customers return totes after using their product. The totes are cleaned, then stored in this area
- Mezzanine Liquid Area (Attachment I, Photo 10)
  - Coral Chemical uses tanks in this area for production and for filling totes
- Liquid Waste Pit (Attachment I, Photo 11)
- Used Oil Storage (Attachment I, Photos 12 and 13))
  - There were several totes stored in this area. One tote sitting at the top of a stack was labelled "used zinc water." Coral Chemical staff stated that this tote contained hazardous waste. Mr. Kline stated that, under RCRA rules, Coral Chemical must put a "hazardous waste" label on the tote.
- Pretreatment:
  - Outside Holding Tank (Attachment I, Photo 15)
    - 3,300-gallon capacity
    - The digital float level reading for the tank was 3.105 feet (Attachment I, Photo 14)
  - Holding Tank #3 (Attachment I, Photo 17)
  - Treatment Tank
    - 2,400-gallon capacity
    - Operators have the option to add ferric chloride, caustic, sulfuric acid, and/or polymer
  - Sludge Tank (Attachment I, Photos 18 and 19)
    - 2,400-gallon capacity
  - City Holding Tank (Attachment I, Photo 19)
    - 2,100-gallon capacity
    - Stores treated wastewater to be discharged
- Product test laboratory - Customers may request tests on Coral Chemical's products.

Mr. Reuskens voiced concerns over Coral Chemical's practice of diluting wastewater to comply with pretreatment standards.[12] The company's staff stated that they dilute one-half of a wastewater batch to

[12] 40 C.F.R § 403.6(d) prohibits diluting a discharge to comply with pretreatment standards.

improve flocculation. Mr. Reuskens advised Coral Chemical staff to add process water to wastewater batches, instead of City water.

Closing conference:
Mr. Reuskens requested the following:

- Last two manifest sheets for filter cake shipments;
- Last two pages of pretreatment records; and
- Updated spill plan.

Regarding catastrophic spills at the facility, Coral Chemical stated that they would handle such spills internally. If necessary, the company would hire a hazardous waste crew. Coral Chemical stated that facility staff undergo annual training to handle spills.

Mr. Kline stated that the facility needs a better housekeeping routine. He saw 55-gallon drums stored horizontally, and that fluid from some drums was dripping on the floor.

EPA and District staff left the Roquette facility at 4:00 p.m.

SECTION 6.0: LIST OF DOCUMENTS RECEIVED AFTER THE INSPECTION

Mr. Bodden sent the following documents in three June 27, 2022, emails:

1. Wastewater Discharge Control Document, Fact Sheet No. 96-51, CDC Effective Date December 1, 2020, to September 30, 2025 (EMCO Chemical Distributors)
2. December 15, 2000, North Shore Sanitary District, Permit Application for Commercial or Industrial Sewer Connection (EMCO Chemical Distributors)
3. Illinois Environmental Protection Agency, Application for Permit or Construction Approval (EMCO Chemical Distributors)
4. Illinois Environmental Protection Agency, Water Pollution Control Permit No. 1995-EE_4351, Issued August 24, 1995
5. August 12, 2020, North Shore Water Reclamation District memo, from John S. Reuskens to EMCO Chemical Inspection File
6. November 19, 2021, North Shore Water Reclamation District memo from John S. Reuskens to EMCO Chemical Inspection File
7. October 21, 2021, North Shore Water Reclamation District Notice of Violation (and attachments) from John S. Reuskens to Carter Hanson, EMCO Chemical Distributors
8. Map, titled “2022 Wastewater Collection Points, EMCO Chemical Distributors, Inc.”
9. EMCO Chemical Distributors, Inc., Work Instruction, “Wastewater Discharge Management,” Effective June 24, 2022
10. Cover and two pages from North Shore WRD’s automatic sampler set-up log book
11. Cover and two pages from North Shore WRD’s field sampling log book

SECTION 7.0: SUMMARY OF FINDINGS

A. Areas of Concern

40 C.F.R. Part	Site Background & Inspection Observations	Report Section
§ 403.8(f)(2)(i)	North Shore WRD sent 137 surveys to dental facilities. Under 40 C.F.R. Part 441, subject dental facilities must submit a one-time compliance report to the District. Of the 137 dental facilities, 86 facilities responded to the survey and submitted a one-time compliance report.	3.0 C.
§§ 403.8(f)(2)(iv), 403.12(g)(5), and 136.3, Table II	At Roquette, temperature readings inside the sample refrigerator were above 6ºC: • The digital temperature reading inside the refrigerator was 46ºF (that equals 7.8ºC) • A mercury thermometer inside the refrigerator read 10ºC.	5.0
§ 403.8(f)(2)(iv)	Roquette uses samples from Manhole #125 for internal plant monitoring—not for compliance sampling. However, Roquette's IU permit includes categorical limits for this manhole.	5.0
§ 403.8(f)(5) and 403.6(d)	Mr. Reuskens voiced concerns over Coral Chemical's practice of diluting wastewater to comply with pretreatment standards. The company's staff stated that they dilute one-half of a wastewater batch to improve flocculation. Mr. Reuskens advised Coral Chemical staff to add process water to wastewater batches, instead of City water.	5.0
40 C.F.R. Part	**File Reviews**	**Report Section**
§ 403.8(f)(1)(iii)(B)(2)	Each IU permit requires the IU to provide advance notice of a transfer of ownership to the District, but none of the IU permits require the IU to provide a copy of the permit to the new owner.	4.3 A.
§ 403.8(f)(1)(iii)(B)(3)	The Sewer Use Ordinance includes local limits for the following pollutant parameters: arsenic, cadmium, hexavalent chromium, chromium, copper, cyanide, lead, mercury, nickel, phenols, selenium, silver, zinc, pH, biological inhibition, and sulfide. Permits for the following IUs, however, only include a subset of the District's local limits: • Naval Station Great Lakes–The IU permit has local limits for pH, sulfide, and mercury.	4.3 A.

	• Waukegan Architectural–The IU permit has local limits for pH, cyanide, mercury, nickel, and zinc. • Roquette America, Inc.—The IU permit has local limits for pH, mercury, and nickel. • Pfanstiehl, Inc.—The IU permit has local limits for pH, copper, and mercury. • Coral Chemical—The IU permit has local limits for pH, chromium, nickel, zinc, and mercury. Other effluent limit issues: • The Waukegan Architectural IU permit does not include total toxic organics (TTO) limits (under 40 C.F.R. Part 433). The IU permit gives the IU discretion on whether to implement a TOMP, instead of requiring TTO monitoring or TOMP implementation. Also, the IU permit has a cyanide local limit as a monthly average. Finally, the list of limits does not include units. • The Pfanstiehl IU permit includes a cyanide local limit as a monthly average limit. Also, according to the IU permit, Pfanstiehl is subject to 40 C.F.R. §§ 439.26 and 439.36. (PSES, Pharmaceutical Manufacturing Point Source Category Subparts B and C, respectively). 40 C.F.R. §§ 439.26 and 439.36 have different effluent limits for the same pollutant parameter (methylene chloride). The IU permit applies the most stringent effluent limit for methylene chloride, instead of applying an alternative methylene chloride limit using the combined wastestream formula.	
§ 403.8(f)(1)(iii)(B)(4)	Self-monitoring requirements • The Waukegan Arch permit does not include a description of the process for seeking a waiver for a pollutant neither present nor expected to be present in the discharge in accordance with § 403.12(e)(2). • Waukegan Architectural, Inc. - The permit requires semi-annual sampling. However, District staff stated that they collect all samples (not the IU). • Coral Chemical Company (Waukegan, IL) – The IU permit includes a map showing the location of two sample manholes (northern and southern). The permit only includes sample requirements for the northern manhole. The fact sheet for the IU permit states that there are no sample requirements for the southern manhole, but the IU permit does not clarify this. • Waukegan Architectural, Inc. - The permit does not specify that 24-hour composite samples must be flow-proportional.	4.3 A.

§ 403.8(f)(1)(iii)(B)(4)	Notification requirements
	
	• Waukegan Architectural, Inc.:
	  o The permit does not include upset notification requirements per 40 C.F.R § 403.16(c)(3).
	  o The permit requires the IU to repeat sampling, but it does not require the IU to submit sample results with 30 days.
		4.3 A.

§ 403.8(f)(2)(iii)	IU Classification/Categorization • Naval Station Great Lakes (NSGL) - According to Mr. John Reuskens, Industrial Environmental Controller, the District does not know what the 50 tenant commands do nor do they know what occurs in the over 1,100 buildings at the NSGL. Mr. Reuskens did not have any supporting documentation nor certifications of what is, maybe or has been discharged form any of these buildings or tenants. • The Roquette America, Pfanstiehl, and Waukegan Architectural IU permits do not indicate whether the associated IU is a new or existing source.	4.3 B.
§§ 403.8(f)(2)(v) and 403.8(f)(2)(vii)	CA Compliance Monitoring • Roquette America, Inc. – The District documented chain of custody and sampling activity in a log book; The District did not provide the log book for review, despite EPA's requests.[13] • Pfanstiehl, Inc. - Some errors in summary data – The November 18, 2020, District Monitoring report lists the limit value as mg/L, but they are labeled as ug/L. • Coral Chemical Company – North Shore WRD did not analyze all regulated pollutants. For the July-Dec 2020 period, the District did not sample all parameters (only pH). • Naval Station Great Lakes (NSGL) - no analysis for "toxic pollutants" parameters (a subset of local limits): arsenic, cadmium, hexavalent chromium, chromium, copper, cyanide, lead, mercury, nickel, phenols, selenium, silver, and zinc. • Waukegan Architectural, Inc. - No samples collected for the following local limit pollutant parameters: hexavalent chromium, phenols, biological inhibition, or sulfides. • The District's monitoring reports for Pfanstiehl did not include a description of lab methods.	4.3 C.

[13] North Shore WRD provided copies of pages from its automatic sampler set-up log book and field sampling log book in a June 27, 2022, email.

	• Roquette America, Inc. - Some parts of the inspection form are not filled out during the inspection. • District staff keep a log book to document IU sampling activities. EPA requested to see and inspect the log book. District staff, however, did not provide the log book for EPA staff.[14]	
§§ 403.8(f)(2)(iv) and 403.12(l)	IU Self-Monitoring • Coral Chemical Company – The IU permit for Coral Chemical Company requires self-monitoring for the following local limits: pH, mercury, chromium, nickel, and zinc. However: o For the July-Dec 2020, the District only collected pH samples. The Coral Chemical Company IU permit requires the IU to monitor its discharge for any pretreatment pollutant parameters not monitored by the District. Coral Chemical, however, did not sample its discharge for the remaining pretreatment pollutant parameters during this period. o The IU only submitted self-monitoring reports for zinc during the past 5 years. • Naval Station Great Lakes (NSGL) – The IU did not sample and analyze all required pretreatment pollutant parameters • Pfanstiehl, Inc. – The second quarter 2021 self-monitoring report did not include the certification required per 40 C.F.R. § 403.12(l). • Waukegan Architectural, Inc. - The IU has a February 12, 2019, spill plan. The District stated that the plan is also a slug discharge control plan--although it is not labeled as such. The spill plan does not include a description of discharge practices, or procedures for immediately notifying the POTW about slug discharges.	4.3 E.
§ 403.8(f)(2)(vi)	Slug Discharge Control Plan Waukegan Architectural, Inc. - The IU has a February 12, 2019, spill plan. The District stated that the plan is also a slug discharge control plan--although it is not labeled as such. The spill plan does not include a description of discharge practices, or procedures for immediately notifying the POTW about slug discharges.	4.3 E.

[14] North Shore WRD provided copies of pages from its automatic sampler set-up log book and field sampling log book in a June 27, 2022, email.

B. Program Recommendations

40 C.F.R. Part	Site Background & Inspection Observations	Report Section
§ 403.8(f)(2)(vi)	Mr. Kline stated that the Coral Chemical facility needs a better housekeeping routine. During the inspection it was noted that 55-gallon drums were stored horizontally, and that fluid from some drums was dripping on the floor. The District should ensure that Coral Chemical's slug control plan accounts for such spills.	5.0