

**CLEAN WATER ACT INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

Purpose: Clean Water Act – Industrial User Inspection

Facility: Tuf-Tile Inc.
905 Tesler Road
Lake Zurich, Illinois

Date of Inspection: April 24, 2025

U.S. EPA Representatives: Jennifer Bush, Environmental Scientist, (312) 886-0879
E-Mail Address: Bush.Jennifer@epa.gov
Sophie Bazan, Physical Scientist, (312) 886-6068
E-Mail Address: Bazan.Sophie@epa.gov

Facility Representatives: Jeff Jones, Paint Supervisor

Report Prepared by: Jennifer Bush, Environmental Scientist, (312) 886-0879
Water Enforcement and Compliance Assurance Branch, Section 1
Bush.Jennifer@epa.gov

Inspector Signature: JENNIFER BUSH

Digitally signed by
JENNIFER BUSH
Date: 2025.06.18
09:31:47 -05'00'

Approver Name and Title: Molly Smith, Section 1 Supervisor, Water Enforcement and Compliance Assurance Branch, U.S. EPA Region 5 Enforcement and Compliance Assurance Division

Approver Signature: MOLLY SMITH

Digitally signed by
MOLLY SMITH
Date: 2025.06.23
08:47:03 -05'00'

Purpose of Inspection:

The purpose of the inspection performed by the U.S. Environmental Protection Agency (EPA) was to investigate elements of the Clean Water Act (CWA) and associated pretreatment regulations with respect to Tuf-Tile Inc. (“Tuf-Tile” or “Facility”), located at 905 Tesler Road Lake Zurich, Illinois 60047.

Background:

Tuf-Tile Inc. is a metal finishing facility for Americans with Disability Act (ADA) compliant tile and door products. The facility discharges wastewater to the Village of Lake Zurich (“Village”). Tuf-Tile has a permit for their wastewater discharge through the Village, however, the Village does not run a Federally approved pretreatment program. Additionally, the Illinois Environmental Protection Agency (IEPA) does not run an approved pretreatment program. Tuf-Tile is a categorical industrial user, as defined in 40 C.F.R. § 403.6, due to the powder coating metal finishing process onsite. Therefore, the EPA is both the Approval Authority and Control Authority, as defined in 40 C.F.R. § 403.3(c) and (f).

Tuf-Tile provided EPA with the most recent Wastewater Discharge Permit (“Permit”) issued by the Village of Lake Zurich. The Permit (Permit Number LZ20-2019) has an effective date of April 1, 2023 and an expiration date of March 31, 2027. The Permit from the Village outlines the monitoring requirements provided to Tuf-Tile for various pollutants. Tuf-Tile is also required to submit periodic compliance reports to EPA on a semi-annual basis.

Inspection:

Opening Conference

Jennifer Bush and Sophie Bazan of EPA arrived at the facility on April 24, 2025, at 12:30 p.m. CDT and were met by Jeff Jones (Paint Supervisor). The Opening Conference began at 12:36 p.m. CDT. During the Opening Conference, EPA staff presented their credentials and confirmed there was no claim of Confidential Business Information (CBI). The Opening Conference ended at 1:26 p.m. CDT. The following information was provided to EPA by Tuf-Tile staff:

- **General Plant Information:**
 - Tuf-Tile Inc. is a powder coating facility owned by Tuf-Tite Corporation, located across the street from the Tuf-Tile facility. The Tuf-Tite facility’s address is 1200 Flex Court Lake Zurich, Illinois 60047.¹
 - The Tuf-Tile facility opened in 2019.
 - There are 6 employees onsite.

¹ All information within this inspection report refers only to the Tuf-Tile facility and does not include the Tuf-Tite Corporation, unless explicitly stated otherwise.

- The facility operates five days a week, Monday through Friday. There is one shift, 7:00 a.m. - 4:00 p.m.
- Other than the powder coating operations, the facility is used as a storage warehouse for the Tuf-Tite Corporation located on Flex Court.
- Final products are shipped to customers nationwide, primarily to municipalities.
- Manufacturing Process:
 - Tuf-Tile operates as a metal finishing facility for ADA compliant tiles and doors (example: bumped tiles on sidewalks/crosswalks). The only operation onsite is powder coating.
 - Tiles are produced by external companies and are shipped to the facility for powder coating application. Tuf-Tile receives tiles approximately every two months.
 - Products are hung overhead on a conveyor belt to move through the powder coating process.
 - Since the facility opened in 2019, Tuf-Tile staff estimated the powder coating operation onsite is used two (2) times per week on average.
- Water Usage and Waste Generation:
 - Tuf-Tile receives water and discharges wastewater to the Village of Lake Zurich.
 - Other than domestic use, water is only used in the powder coating area.
 - The process wastewater is generated and discharged from the 6-stage rinse series ("Paint Line Rinse Series").
 - The Paint Line Rinse Series prior to the powder coating process is listed below:
 - Stage 1: Alkaline Cleaner
 - Stage 2: Reverse Osmosis (RO) Rinse
 - Stage 3: RO Rinse
 - Stage 4: Zirconium – used for adhesion and corrosion prevention
 - Stage 5: RO Rinse
 - Stage 6: RO Rinse
 - The RO rinse stages discharge to a 3000-gallon holding tank ("Rinse Holding Tank"), which is discharged to the Village.
 - Stage 3 backflows into Stage 2, and Stage 2 is discharged into the Rinse Holding Tank. Stage 6 backflows into Stage 5, and Stage 5 is discharged into the Rinse Holding Tank.
 - The Rinse Holding Tank is automatically batch discharged to the Village once the tank reaches a certain level.
 - Tuf-Tile is continuously replenishing the water in Stage 3 and Stage 6 in order to keep the rinse water as "clean" as possible.
 - Stage 1 is kept at 140 degrees Fahrenheit. Due to evaporation, Stage 2 is also used to replenish Stage 1 water as needed.
 - Approximately once per year, Stage 1 and Stage 4 are discharged to a 5000-gallon holding tank ("Concentrate Tank"). The Concentrate Tank is slowly added to the Rinse Holding Tank for discharge to the Village. Tuf-Tile staff told EPA they cannot discharge Stage 1 and Stage 4 into the Concentrate Tank at the same time; Stage 1 and Stage 4 are always discharged separately, on an as-needed

- basis. Stage 1 is discharged first. Once the Rinse Holding Tank is completely empty, Stage 4 is pumped into the Rinse Holding Tank for discharge as well.
- Chemical storage onsite is kept near the Onsite Waste Treatment Area.
 - There are no floor drains in the warehouse that could discharge to the Village.
 - Pretreatment:
 - Overflow from Stage 2 and Stage 5 discharges into the Rinse Holding Tank.
 - From the Rinse Holding Tank, the wastewater goes through the following stages within the Onsite Waste Treatment:
 - Stage 1: Add coagulant and adjust pH to the 4.0 – 5.0 S.U range. This stage begins the process of pulling metals from the discharged wastewater.
 - Stage 2: Adjusts the pH to 9.0 S.U. and continue to remove the solids from wastewater.
 - Stage 3: Flocculation: Tuf-Tile staff add flocculant and coagulant.
 - Stage 4: Clarifier: Allows particles to settle at the bottom and the clean water continues to the final stage.
 - Stage 5: Final pH adjustment to 6.0 – 9.0 S.U. range.
 - In the clarifier, the settled solids/sludge is pumped to a sludge holding tank. The solids in the sludge holding tank go through a filter press, and any decant water from the filter press is sent back into Stage 3 of the Onsite Waste Treatment (flocculation stage).
 - Solids from the filter press are stored in a gaylord box and are hauled offsite by Covanta Environmental Solutions. Tuf-Tile staff estimated approximately one gaylord box of sludge is hauled offsite per year.
 - Wastewater Sampling:
 - There is one outfall from the Tuf-Tile facility to the Village of Lake Zurich sanitary sewer system.
 - Tuf-Tile has a third party (Scientific Control Laboratories) conduct all compliance sampling of the effluent. Scientific Control Laboratories bring in their own sampling equipment when onsite.
 - Tuf-Tile staff told EPA that during the first three years of operation, the Village required the facility to conduct monthly sampling of pollutants. The most recent Permit reduced most required monitoring to a quarterly basis.
 - Tuf-Tile is required to sample pollutants on the following frequencies:
 - Daily: pH
 - Quarterly: Ammonia Nitrogen and Zinc;
 - Semi-Annually: Hexavalent Chromium, Cyanide, Oil and Grease, Cadmium, total Chromium, Copper, Lead, Manganese, Mercury, Nickel, and Silver;
 - The Permit states a Total Toxic Organics Certification Form may be submitted in lieu of TTO sampling on a semi-annual basis.
 - Annually: Biochemical Oxygen Demand (BOD), Chloride, Chemical Oxygen Demand (COD), and Total Suspended Solids (TSS).

- Tuf-Tile had an exceedance of Ammonia in calendar year 2024. Tuf-Tile staff told EPA the exceedance was due to a cleaning supply getting into the Onsite Waste Treatment System last year, which caused the exceedance. Following the exceedance, the Village increased the Ammonia sampling frequency from semi-annual to quarterly.
- Tuf-Tile told EPA that on production days, staff analyze the levels of Zinc, Iron, and Fluoride within the wastewater.
- The Village conducts their own sampling of Tuf-Tile's discharge once a year. There is no set schedule for the Village's sampling.

Plant Walk Through

The plant walk through began at 1:30 p.m. CDT and Tuf-Tile staff showed EPA the following:

- Powder Coating Area
 - The tile products finished at the facility are composed of cast iron and galvanized steel.
 - Paint Line Rinse Series:
 - A cement secondary containment area is located underneath the entirety of the paint line rinse series.
 - Stage 1:
 - Alkaline stage.
 - 1565-gallon tank.
 - Stage 2:
 - RO rinse.
 - 675-gallon tank.
 - Stage 3:
 - RO rinse.
 - 675-gallon tank.
 - Stage 4:
 - Zirconium stage.
 - 900-gallon tank.
 - Stage 5:
 - RO rinse.
 - 675-gallon tank.
 - Stage 6:
 - RO rinse.
 - 675-gallon tank.
 - Tuf-Tile staff told EPA that when conductivity in Stage 1 or Stage 4 reaches 200 $\mu\text{S}/\text{cm}$, the stages are discharged into the Concentrate Tank. A conductivity meter runs continuously in the stages.

- The control system located near the Paint Line Rinse Series includes information on pH readings, temperature, gallons in each stage, amount of sludge generated, and automatic stop/start capabilities.
- If pH readings indicate a stage is outside of the designated pH range, the control system will automatically shut off the Paint Line Rinse Series. Tuf-Tile staff told EPA the pH in Stage 4 of the series may need adjustment at times, but most pH adjustment only happens in the Onsite Waste Treatment system.
- Collection pumps on the Paint Line Rinse Series track water levels when discharging to the Concentrate Tank or Rinse Holding Tank.
- All records for sampling (from the last 6 years) are kept onsite.
- Onsite Waste Treatment System:
 - There is a flow meter on both the influent and effluent of the Onsite Waste Treatment System.
 - The sludge pumping and sludge drying process takes approximately four (4) hours to complete.
- At the time of the inspection, Tuf-Tile kept an Accidental/Slug Discharge Plan near the Onsite Waste Treatment System. Tuf-Tile told EPA this plan is signed and reviewed every month. (Photo 9).
- At the time of the inspection, Tuf-Tile kept Safety Data Sheets (SDSs) near the Onsite Waste Treatment System. (Photo 9).
- All chemicals for waste treatment are kept on yellow lining.
- Outfall to the Village of Lake Zurich.

The site walk-through ended at 1:55 p.m. CDT.

Closing Conference

The Closing Conference began at 1:56 p.m. CDT. EPA and Tuf-Tile staff discussed the following:

- EPA inquired about the semi-annual reports submitted by Tuf-Tile/Tuf-Tite. The address on the most recent semi-annual report (dated July 11, 2024) includes the address of Tuf-Tile Corporation. The industry name listed on the semi-annual report includes Tuf-Tite.
- During the site walk through, the pH buffers located near the Onsite Waste Treatment Area indicated expiration dates of September 2023 (pH 4.0 buffer) and November 2023 (pH 7.0 buffer).
 - During the Closing Conference, Tuf-Tile staff told EPA the pH buffers stored near the Onsite Waste Treatment area are not used regularly, but only used as backup if needed. Typically, Tuf-Tile uses pH paper for analyzing pH levels.
 - Even though the buffers are only used as backup, Tuf-Tile staff told EPA the replacement pH buffers had already been ordered at the time of the inspection.
 - Tuf-Tile has pH checked regularly by Americo Chemical, who supplies Tuf-Tile with chemicals used within the process. Americo visits Tuf-Tile every two months to verify chemical levels.

- EPA requested the current Village of Lake Zurich Permit and the last three years of data from the sampling conducted of the wastewater discharge to the Village.

EPA staff completed the Closing Conference at 2:06 p.m. CDT and left the facility at 2:08 p.m. CDT.

Post-Inspection Activities

Jeff Jones provided the following documents to EPA via email on April 29, 2025:

1. "Permit";
2. "Changes";
3. "0079_250429081939_001" (Sampling data from January 2022 – December 2024); and,
4. "0080_250429084140_001" (Wastewater treatment system log sheet from January 2022 – December 2024).

EPA reviewed the documents provided by Tuf-Tile. Additional areas of concern are provided below.

- Tuf-Tile is required to submit periodic compliance reports to EPA during the months of June and December (40 CFR § 403.12(e)(1)). EPA has received periodic compliance report submissions on the following dates:
 - October 5, 2022;
 - August 7, 2023;
 - January 10, 2024; and,
 - July 12, 2024.
- EPA does not have record of submission of the Baseline Monitoring Report from Tuf-Tile (40 CFR § 403.12(b)).
- EPA does not have record of submission of the 90-Day Compliance Report from Tuf-Tile (40 CFR § 403.12(d)).
- All semi-annual reports submitted to EPA include a Total Toxic Organics (TTO) certification statement for facilities with no toxic organic use, certifying a TOMP is implemented. However, EPA has no record of the TOMP submission or approval. (40 C.F.R. § 413.03)

Attachments

- A. Photo Log: Photos taken during U.S. Environmental Protection Agency Inspection of Tuf-Tile Inc. (April 24, 2025)

Tuf-Tile Inc.
EPA Inspection April 24, 2025
All photos taken by Jennifer Bush, Environmental Scientist, U.S. EPA
Camera: Ricoh WG-4 SR Adventure Proof, Serial No. 3101181



1: RIMG0289

Description: Overview of control system for Onsite Waste Treatment System

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:36 p.m. CDT



2: RIMG0290

Description: Overview of Paint Line Rinse Series with Stage 1 in foreground and Rinse Holding Tank/Concentrate on right side.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:39 p.m. CDT



3: RIMG0291

Description: Cement secondary containment – internal trench located underneath the Paint Line Rinse Series.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:40 p.m. CDT



4: RIMG0292

Description: Overview of Onsite Waste Treatment Area with Primary Clarifier 1 and 2 on right side (Stage 1 in back right corner, Stage 2 in front right corner, Stage 3 flocculation on left side).

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:44 p.m. CDT



5: RIMG0293

Description: Oneiste Waste Treatment Area following Stage 3 flocculation. Clarifier and final pH adjustment.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:45 p.m. CDT



6: RIMG0294

Description: Sampling location from Onsite Waste Treatment Area before discharge is pumped to the lift station and sanitary sewer line. Blue flowmeter of effluent in background.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:46 p.m. CDT



7: RIMG0295

Description: pH buffers near Onsite Waste Treatment Area with expiration dates in September 2023 and November 2023.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:48 p.m. CDT



8: RIMG0296

Description: Sludge holding tank on left side, with sludge drying unit on right side. Process occurs after waste treatment.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:50 p.m. CDT



9: RIMG0297

Description: Record table with ~6 years of records and log sheets, with Slug Discharge Plan hanging on wall.

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:52 p.m. CDT

Wastewater Treatment System Logsheet

yr2025

Name	Date	sample time taken	Effluent Water				pH	Time Taken	Notes
			Zinc (mg/L)	Iron (mg/L)	Fluoride (mg/L)	Method # 4500-B			
			< 1.5	< 10.0	< 6.7	6.9-9.0			
	3/5	9:26	.09	.02	4.22	7.60	9:32		
	3/7	9:12	.07	.07	4.32	7.61	9:18		
	3/10	9:59	.03	.14	3.98	7.73	10:02		
	3/11	9:42	.06	.07	4.42	7.59	9:46		
	3/12	9:36	.13	.07	4.52	7.55	9:43		
	3/12	12:15	.44	.04	4.48	7.63	12:21		
	3/13	9:50	.38	.04	4.55	7.82	10:00		
	3/14	9:31	.19	.03	4.63	7.55	9:39		
	3/19	9:31	.06	.11	4.12	7.36	9:35		
	3/20	9:56	.08	.06	3.86	7.71	10:00		
	3/21	10:16	.00	.32	2.78	7.28	10:20		
	3/25	9:40	.00	.21	3.28	7.59	9:46		
	4/7	9:50	.00	.10	2.86	7.43	9:54		
	4/7	12:45	.10	.07	4.32	7.00	12:47		
	4/16	9:33	.00	.08	4.68	7.26	9:36		
	4/21	11:16	.03	.16	3.94	7.82	11:19	PM Class Final	
	4/22	9:39	.03	.13	4.52	7.15	9:45		
	4/23	9:50	.00	.18	4.86	7.69	9:53		
	4/24	9:31	.00	.17	5.62	7.25	9:39		

04/24/2025 13:51

10: RIMG0298

Description: Close-up photograph of daily log sheet

Location: Tuf-Tile Inc. Powder Coating Area

Date/Time: April 24, 2025/1:53 p.m. CDT