



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

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BOSTON, MA 02109-3912

Drafted Date: July 5, 2022
Finalized Date: *Dated as shown on electronic signature*

Subj: Inspection Report
Clean Water Act
Design Standards Corporation

From: John (Jack) Melcher, Enforcement Officer

JOHN MELCHER Digitally signed by JOHN
MELCHER
Date: 2022.08.01 09:44:09 -04'00'

Michelle Coombs, Inspector
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COOMBS
Date: 2022.08.01 07:22:46
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Appendices:

- Appendix A - Diagram for the Wastewater Treatment System
- Appendix B - Waste Treatment and Testing SOP
- Appendix C - Photographs
- Appendix D - Monitoring and Reporting Procedures
- Appendix E - Aerial Photograph
- Appendix F - VOAs
- Appendix G - BNAs
- Appendix H - Cyanide
- Appendix I - Metals
- Appendix J - Pesticides and PCBs

I. Facility Information

- A. *Facility Name:* Design Standards Corporation, Inc.
- B. *Facility Location:* 957 Claremont Rd
Charlestown, NH 03603
- C. *Facility Contacts:* Patrick Flanagan, Facilities Manager
603-826-7744 x139
Patrick.Flanagan@designstandards.com
- D. *NPDES ID No(s):* NHPIU0003 (wastewater pretreatment)
NHD000006 (stormwater)

II. Background Information

- A. *Date(s) of inspection:* June 22, 2022
- B. *Weather Conditions:*
Light, intermittent rain
- C. *US EPA Representative(s):*
John (Jack) Melcher, Enforcement Officer
Michelle Coombs, Inspector
William Sommer, Inspector
- D. *State/Local Representative(s):*
Ken Vandenburg, Chief Operator, Town of Charlestown Water &
Wastewater Department
- E. *Federally Enforceable Requirements Covered During the Inspection:*
40 C.F.R. Part 403 – General Pretreatment Regulations for Existing and New
Sources of Pollution¹
40 C.F.R. § 433.17 – Metal Finishing Point Source Category, Pretreatment
Standards for New Sources²
40 C.F.R § 122.26 – National Pollutant Discharge Elimination System
("NPDES") regulation for the discharge of stormwater
- F. *Previous Enforcement Actions:*
No EPA Clean Water Act enforcement actions are on record since at least
March 26, 2009.

III. Type and Purpose of Inspection

EPA conducted an Industrial User ("IU") Evaluation Inspection and an IU Sampling Inspection to evaluate compliance with the General Pretreatment Regulations at 40 C.F.R. Part 403 and the Metal Finishing Point Source Category, Pretreatment Standards for New Sources at 40 C.F.R. § 433.17.

EPA conducted a Compliance Evaluation Inspection to evaluate compliance with the National Pollutant Discharge Elimination System ("NPDES") regulation for the discharge of stormwater at 40 C.F.R § 122.26.

IV. Facility Description

The Facility manufactures medical devices.

¹ Available at: <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N/part-403?toc=1>

² Available at: <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N/part-433?toc=1>

EPA's Enforcement Compliance History Online ("ECHO") website provides general environmental compliance data for Design Standards Corporation, Inc. ("Design Standards" or "the Facility").³

A. Wastewater

The Facility discharges wastewater from anodizing and tumbling processes. The Facility's treatment system consists of pH adjustment, coagulation, and sedimentation.

EPA's previous on-site inspection to evaluate the Facility's compliance with the Pretreatment Standards was on March 26, 2009.

The New Hampshire Department of Environmental Services ("NH DES") performed an Industrial User Site Visit on May 7, 2021.

According to Periodic Reports on Continued Compliance submitted to EPA by the Facility, average daily flows from the Facility are approximately 15 gallons per day and maximum daily discharges are approximately 500 gallons per day.

The Facility discharges to the Town of Charlestown Publicly Owned Treatment Works (NPDES Permit No. NH0100765). Mr. Vandenburg has been the Chief Operator for the Town since May 2022.

B. Stormwater

EPA's previous on-site inspection to evaluate the Facility's compliance with the NPDES stormwater regulations was on March 25, 2009. During this inspection, no discharges of stormwater were noted.

The Facility has not submitted a Notice of Intent for coverage under EPA's Multi-Sector General Permit ("MSGP") for Stormwater Discharges Associated with Industrial Activity nor a No Exposure Certification providing notice that stormwater discharges are present, but no industrial activities are exposed to stormwater.

V. Inspection

Mr. Melcher announced the inspection to the Facility on June 9, 2022.

Mr. Melcher, Ms. Coombs, and Mr. Sommer ("the EPA inspectors") arrived at approximately 08:00 on June 22, 2022.

Unless otherwise noted, this report describes conditions at the Facility/property as observed by EPA inspector(s), and/or through records provided to and/or information

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³ Available at: <https://echo.epa.gov/detailed-facility-report?fid=110017226704>. Accessed on June 24, 2022.

reported to EPA inspector(s) by Facility representatives and as understood by the inspector(s). This report may not capture all operations or activities ongoing at the time of the inspection. This report does not make final determinations on potential areas of concern. Nothing in this report affects EPA's authorities under federal statutes and regulations to pursue further investigation or action.

A. Opening Conference

The EPA inspectors and Mr. Vandenburg met with Mr. Flanagan of Design Standards. The EPA inspectors presented credentials. Mr. Melcher provided a copy of the Small Business Resources Information Sheet and explained the purpose of the inspection.

Mr. Flanagan explained that he was responsible for safety, wastewater, and preventative maintenance. Mr. Flanagan has worked for the Facility since approximately 2016.

Mr. Flanagan said that, since the last EPA inspection, Design Standards had closed its Ceda Road facility and moved all its operations to the 957 Claremont Road facility.

Mr. Flanagan said that the Facility employs approximately 80 people on two shifts, with 90% of people working first shift. Operations during second shift include CNC machining and wire electric discharge machining ("EDM"). Wastewater generated by CNC machining is skimmed for oil and then drummed and treated offsite.

Mr. Flanagan said that the Facility discharges wastewaters associated with passivation, electropolishing, and tumbling. Passivation and electropolishing wastewaters are collectively referred to by the Facility as "nitric wastewater." Batches of either nitric wastewaters or tumbling wastewaters are run through the wastewater treatment system. Batches each have a 250-gallon volume. Once four batches have been collected in a 1,000-gallon tank, a composite sample is analyzed and, if the sample is within standards, the 1,000-gallon tank is discharged into the Town of Charlestown sewer over a two-day period.

Mr. Flanagan provided the inspectors with a flow diagram for the wastewater treatment system, included as Appendix A of this report.

Following the inspection, Mr. Flanagan provided the inspectors with a Standard Operating Procedure for the wastewater treatment system ("Waste Treatment and Testing SOP,") included as Appendix B of this report.

B. Wastewater Treatment Room

At approximately 08:45, the EPA inspectors, Mr. Vandenburg, and Mr. Flanagan went to the wastewater treatment room. In the wastewater treatment room, they were joined by Joe LaPlante, Facilities Technician.

Select photographs taken during the inspection are included as Appendix C of this report.

Mr. Flanagan said that each 1,000-gallon batch discharged by the Facility includes batches of tumbling wastewaters and batches of nitric wastewaters, with nitric wastewater batches being slightly more frequent. Mr. Flanagan said that nitric wastewaters are more concentrated than tumbling wastewaters, so the Facility does not discharge a 1,000-gallon batch that is made up of only nitric wastewaters.

Photograph 1 (“Photo 1”) shows the interior of the interior of the “Pre Treatment Tank.” The Pre Treatment Tank is stacked on top of the “Post Treatment Tank;” the tanks have a blue exterior.

Mr. Flanagan explains that wastewater is pumped into the Pre Treatment Tank, its pH raised by adding sodium hydroxide, a flocculant (“B-45 Polymer”) is added, and then the wastewater is pumped through the filter press. According to the Waste Treatment and Testing SOP, for tumbling wastewater, an additional initial step is taken: “polyal-201” is added to the wastewater to lower the pH to between 3.5 and 4.0 Standard Units (“S.U.”).

Photo 2 shows, in the foreground, a green-colored diaphragm pump that sends wastewater from the Pre Treatment Tank to the filter press. The filter press is located to the right of the photo. The Post Treatment Tank is visible on the left side of the photo. The gray-colored diaphragm pump in the background of the photo pumps wastewater from the Post Treatment Tank to the 1,000-gallon Holding Tanks.

Photo 3 shows the filter press. Filtrate from the filter press flows to the Post Treatment Tank. Filter cake generated by the filter press is shipped off as hazardous waste.

Photo 4 shows pipes conveying wastewater into the Holding Tanks.

Photo 5 shows pipes conveying wastewater away from the Holding Tanks. The round, red caps are locked covers on the discharge valves. A sampling port on the discharge pipe is visible in the foreground of the photo. Wastewater from the Holding Tanks flows to a discharge pump, which was not photographed.

The wastewater treatment flow diagram shows that a diversion valve is present following the pump from the Holding Tanks, giving the Facility the ability to divert off-spec wastewaters back to the Pre Treatment Tank.

Photo 6 shows a wastewater flow meter. The flow meter is not shown on the wastewater treatment flow diagram.

A sink was connected to a drum with a media visible inside and then plumbed into the wastewater discharge pipe. A letter from Zachary Lorch, of the New Hampshire Department of Environmental Services Hazardous Waste Management Bureau, dated January 4, 2021, was posted on the exterior of the Pre Treatment Tank. The letter says that “mop water is treated onsite through an oil water separator that operates using oil absorbant pads.”

Photo 7 shows the discharge pipe going into the floor from the wastewater treatment room. Mr. Flanagan said that the pipe connects to the Town of Charlestown sewer.

Mr. Flanagan said that there were no floor drains in the Facility.

C. Facility Wastewater Sampling

Mr. Flanagan described how the Facility performs its wastewater sampling.

Metals sampling is performed by manually compositing grab samples from each of the four batches processed to fill a 1,000-gallon Holding Tank. Grab samples are taken in untreated glass jars from the Post Treatment Tank following the treatment of each batch and are stored in a refrigerator. Once four batches have been processed, each grab sample is mixed by shaking the jar and a portion of each jar is poured into a pre-preserved (with acid) sample jar provided by the laboratory, Eastern Analytical. The Facility typically fills a Holding Tank once or twice in a quarter, so wastewater grab samples are typically stored for weeks before compositing.

Cyanide sampling is performed by collecting a grab sample into a pre-preserved sample bottle provided by the laboratory from the sampling port of the discharge pipe from a Holding Tank. The grab sample is taken at the beginning of draining the Holding Tanks after first draining off a volume of wastewater approximating the stagnant water in the pipe between the Holding Tank and the sampling port.

pH sampling is performed by collecting a grab sample from the sampling port of the discharge pipe from a Holding Tank and analyzing the sample using a portable pH meter. Mr. LaPlante showed Mr. Melcher the pH standards used to calibrate the probe – each had an expiration date in 2024. Mr. LaPlante said that the Facility did not keep records of pH calibrations.

Mr. Melcher said that his review of the Facility's Periodic Reports on Continued Compliance did not find either monitoring for the list of Total Toxic Organics in the Metal Finishing Point Source Category regulations or a certification statement in lieu of monitoring, as provided for in the regulations.

D. EPA Wastewater Sampling

EPA conducted sampling of the facility's pretreated effluent during the inspection on June 22, 2022. According to Mr. Flanagan, compliance samples are collected from the sampling valve on the final holding tank. At 09:20, EPA collected grab samples for the analysis of volatile organic compounds ("VOCs"), base/neutral and acid extractables ("BNAs"), pesticides, polychlorinated biphenyls ("PCBs"), total cyanide, and total metals. An instantaneous grab sample was collected for pH and total residual chlorine ("TRC") for in-situ screening. The sample was field tested for pH using an Oakton "pHtestr" pH meter and TRC using a HACH "DR300" colorimeter. The pH was 7.87 S.U. and the TRC was 0.02 mg/L.

The total metals samples were collected in 250-mL HDPE containers and preserved with nitric acid to attain a pH of less than 2 S.U. The total cyanide samples were collected in 250-mL HDPE containers and preserved with sodium hydroxide to attain a pH of above 12 S.U. The BNA samples were collected in 1-liter amber jars with no preservative

added. The pesticides/PCBs samples were collected in 1-liter amber jars with no preservative added. The VOC samples were collected in 40-mL amber vials and preserved with hydrochloric acid to attain a pH of less than 2 S.U. All samples were then placed in coolers with ice to maintain an internal temperature of less than 4 degrees Celsius and delivered to the EPA New England Regional Laboratory in North Chelmsford, Massachusetts to be analyzed.

Descriptions of wastewater sampling results are provided in Section VI of this report.

E. Process Tour

At approximately 10:00, the EPA inspectors, Mr. Vandenburg, Mr. Flanagan, and Mr. LaPlante visited a waste storage area. Photo 8 shows a tank where wastewaters from tumbling are accumulated. Mr. Flanagan pointed out drums holding wastewater from electropolishing and passivation processes.

At approximately 10:05, the group visited the tumbling area. Several tumbling machines were observed. Mr. Flanagan said that tumbling was performed using a solution of soap and water.

At approximately 10:10, the group visited the electropolishing and passivation area.

Photo 9 shows an electropolishing bath labeled “Citric acid.” Photo 10 shows a drum where citric acid wastewaters are collected.

Photo 11 shows an electropolishing bath labeled “Power Kleen.” Mr. Flanagan said that this is a nitric acid bath. A drum of “Moletrics Power Kleen 500 Electropolishing Solution” is observed.

Photo 12 and Photo 13 show passivation baths.

Photo 14 shows a bin labeled “cupric sulfate” and “sulfuric acid.”

Photo 15 shows a bin labeled “110 acid.”

Photo 16 shows an ultrasonic cleaning machine. Mr. Flanagan said that the machine was used for a product run at one point but is not used regularly.

Photo 17 shows one bin labeled “Nitric Acid B” and another bin labeled “Nitric Acid A.”

Mr. Flanagan said that, occasionally, other solutions are used for passivation (such as cupric sulfate, sulfuric acid, and “110 acid”), the majority of “nitric wastewaters” are from processes using citric acid or nitric acid.

F. Records Review

At approximately 10:15, the EPA inspectors, Mr. Vandenburg, and Mr. Flanagan met in a conference room to discuss wastewater and stormwater records.

Table 1 shows the applicable Metal Finishing Point Source Category, Pretreatment Standards for New Sources at 40 C.F.R. § 433.17.

Table 1 - Metal Finishing Point Source Category, Pretreatment Standards for New Sources

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
Cadmium (T)	0.11	0.07
Chromium (T)	2.77	1.71
Copper (T)	3.38	2.07
Lead (T)	0.69	0.43
Nickel (T)	3.98	2.38
Silver (T)	0.43	0.24
Zinc (T)	2.61	1.48
Cyanide (T)	1.2	0.65
TTO	2.13	

Mr. Melcher said that his review of the Periodic Reports on Continued Compliance submitted since January 1, 2019, found potential instances of non-compliance with the Metal Finishing Point Source Category, Pretreatment Standards for New Sources, as displayed in Table 2.

Table 2 – Potential Wastewater Non-Compliance

Sample Date	Location	Parameter	Result	Result Units
2/12/2019	Tank 1	Chromium (T)	2.8	mg/l
3/20/2019	Tank 1	Chromium (T)	2.8	mg/l
9/5/2019	Tank 1	Copper (T)	2.3	mg/l

Mr. Melcher explained that, for months during which only a single sample is collected, the monthly average standard is applicable for determining compliance. However, the chromium observed in February and March of 2019 exceeded both the daily maximum standard and the monthly average standard.

Mr. Melcher asked if the Facility had followed its procedure of preparing a composite sample and obtaining a laboratory analysis prior to discharge for these events. Mr. Flanagan said that the procedure had been followed and provided emails from Dave Duquette, the former Chief Operator at the Town of Charlestown, dated February 26, 2019; March 29, 2019; April 12, 2019; April 30, 2019; and May 30, 2019, giving permission to discharge the wastewater despite the results in the attached analytic reports.

Mr. Melcher and Mr. Flanagan reviewed the Town's discharge permit for the Facility and concluded that the Pretreatment Standards for metals in the permit were identical to the federal regulations.

Mr. Melcher asked if the reason that samples were collected in March and April was that the General Pretreatment Regulations require re-sampling within 30 days of becoming aware of a violation of Pretreatment Standards. Mr. Flanagan said that he did not remember being aware that there had been a violation.

Prior to the inspection, Mr. Melcher had emailed Mr. Flanagan a copy of EPA Region 1's Monitoring and Reporting Procedures document, attached in Appendix D of this report. Mr. Melcher said that, as explained in the document, Region 1 had established new procedures for submitting non-compliance notifications via an email address (R1.ECAD.pretreatment@epa.gov). Mr. Melcher said that Region 1 also requested that electronic copies of Periodic Reports on Continued Compliance be submitted to this email address as well.

G. Stormwater Tour

At approximately 10:45, the EPA inspectors, Mr. Vandenburg, and Mr. Flanagan conducted a tour of the exterior of the building.

Appendix E shows an aerial photograph of the Facility marked up by EPA.

A covered dumpster and a covered scrap metals storage area were observed near the southeast corner of the building.

A generator and air handling equipment were observed on the southwest side of the building. A berm was observed to the southwest of the building and no discrete channels were observed.

Photo 18 shows a swale on the northwest side of the building. Mr. Flanagan said that no downspouts were present. The roof is pitched to drain to the southeast and northwest sides of the building.

Photo 19 shows the area on northeast side of the building. EPA marked up the photo to circle the outlet of a culvert. A swale was observed on the southeast side of the building. A swale was observed on the outlet side of the swale leading into a thickly vegetated area.

Mr. Melcher said that it appeared that the Facility did have stormwater discharges.

H. Closing Conference

At approximately 11:00, the EPA inspectors, Mr. Vandenburg, and Mr. Flanagan held a closing conference. Mr. Melcher summarized areas of potential concern.

The Facility's practices for compositing wastewater for metals analysis may not be consistent with the guidelines establishing test procedures in 40 C.F.R. Part 136. Typically, samples taken for metals analysis are acidified following sample collection.

The Facility's Periodic Reports on Continued Compliance submitted since January 1, 2019, indicate instances of non-compliance with the Metal Finishing Point Source Category, Pretreatment Standards for New Sources. Mr. Flanagan said that he would contact the vendor of the wastewater treatment system, Beckart Environmental, and request assistance regarding determining the cause of the non-compliance and advice regarding corrective actions.

The Facility's Periodic Reports on Continued Compliance do not include either monitoring for the list of Total Toxic Organics in the Metal Finishing Point Source Category regulations or a certification statement in lieu of monitoring, as provided for in the regulations.

The Facility primary business is included within the Fabricated Metal Products sector identified in the MSGP for Stormwater Discharges Associated with Industrial Activity ("the MSGP") and the Facility has a stormwater discharge. Therefore, the Facility should either pursue coverage under the MSGP or submit a No Exposure Certification providing notice that stormwater discharges are present, but no industrial activities are exposed to stormwater.

VI. Sampling and Analytical Results Summary

Table 3, below, provides a summary of the laboratory analytical results and field parameters collected during the inspection. For a full list of compounds analyzed for each parameter and their results, refer to the laboratory reports that are attached to this inspection report in Appendices F through J.

Table 3: Summary of Design Standards Corporation 6/22/22 Sampling Inspection

Sample #	Sample Date and Time	Sample Type	pH (S.U.)	TRC (mg/L)	Analytical Results (mg/L unless otherwise noted)		Pretreatment Standards for 40 CFR 433.17	
							Daily Maximum (mg/L)	Monthly Average (mg/L)
DSC	6/22/22 09:20	Grab	7.87	0.02	VOAs¹		2.13	N/A
					Bromomethane ²	0.0013		
					2-Butanone (MEK) ³	0.004		
					Tetrahydrofuran ³	0.036		
					BNAs¹	ND	2.13	N/A
					Total Cyanide	ND	1.20	0.65
					Total Metals⁴			
					Cadmium	ND	0.11	0.07
					Chromium	ND	2.77	1.71
					Copper	ND	3.38	2.07
					Lead	ND	0.69	0.43
					Nickel	0.15	3.98	2.38

					Silver	ND	0.43	0.24
					Zinc	ND	2.61	1.48
					Pesticides¹	ND	2.13	N/A
					PCBs¹	ND	2.13	N/A

Notes:

- 1: Compounds that were analyzed but not listed in this table are Not Detected above Reporting Limit (ND).
2. Compounds are Total Toxic Organics (TTO) subject to the Metal Finishing Point Source standards under 433.17.
3. Compound is not subject to the Total Toxic Organics (TTO) standard in the Metal Finishing Point Source regulations under 433.17, but was detected above the analytical reporting limit.
- 4; Metals within the pollutants of concern under the Metal Finishing Point Source Category under 40 CFR 433.17.