REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI) &
INDUSTRIAL STORMWATER
COMPLIANCE EVALUATION INSPECTION (CEI)

AT

Arconic Davenport Works
4879 State Street
Bettendorf, IA 52722-8030

NPDES NO: IA0003395
STATE PERMIT NO: 9433109

August 26-29, 2024

BY

U. S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

At the request of the Enforcement and Compliance Assurance Division, Water Branch, I conducted a Compliance Sampling Inspection and an Industrial Stormwater Compliance Evaluation Inspection at Arconic Davenport Works in Bettendorf, IA on August 26-29, 2024. The inspection was conducted under the authority of Section 308 of the Clean Water Act (as amended) and in accordance with EPA Region 7 Standard Operating Procedures. This narrative report and attachments present the results of the inspection.

PARTICIPANTS

Arconic Davenport Works
John Hylton, Environmental Engineer (Water), 563-459-3208, john.hylton@arconic.com
Jeremy Niemeier, Engineer Manager, 563-459-2728, jeremy.niemeier@arconic.com
Scott Mann, Environmental Health and Safety Manager, scott.mann@arconic.com

U.S. Environmental Protection Agency (EPA), Region 7
Brian D'Alfonso, Biologist, 913-551-5095, dalfonso.brian@epa.gov
Connor Finn, Life Scientist, 913-551-7244, finn.connor@epa.gov

INSPECTION PROCEDURES

I arrived unannounced at Arconic Davenport Works (hereinafter referred to as Arconic) at approximately 1:45 p.m. on August 24, 2024, and I introduced myself to Messrs. Hylton,

Niemeier and Mann. I presented my credentials. I then had a short entrance meeting explaining the purpose and procedures of the inspection. During the entrance meeting, I explained to Messrs. Hylton, Niemeier and Mann that I was going to conduct an inspection of the facility to determine its compliance with the National Pollutant Discharge Elimination System (NPDES) individual permit which includes the facility's industrial stormwater requirements in lieu of obtaining coverage under the state's general permit. I explained that I would complete a full walk-through inspection of the facility, complete a record review as necessary, and collect samples each day. During my inspection, I completed the Industrial User Inspection Checklist (attachment 1) and a facility walk-through with photos (attachment 2).

SAMPLING PROCEDURES

From August 26, 2024, through August 29, 2024, I used the facility's automatic composite sampler to collect 24-hour composite samples of the Outfall 009 influent from the facility. The sampler was programmed to collect evenly spaced aliquots every 30 minutes into a clean Nalgene bottle, which was stored in a chilled refrigerator. I returned each day to collect the samples. I removed the bottle, agitated its contents, and poured them into a clean, pre-labeled polyethylene container for the analysis of total Kjeldahl nitrogen (TKN), nitrate plus nitrite (NO3/NO2) and total phosphorus (TP). After the samples were collected, I preserved the samples with sulfuric acid (H2SO4). The analyses using the field meters were conducted within 15 minutes of collecting the sample. Flow numbers were provided by the facility using their meters.

From August 26, 2024, through August 29, 2024, I used the facility's automatic composite sampler to collect 24-hour composite samples of the Outfall 009 effluent from the facility. The sampler was programmed to collect evenly spaced aliquots every 30 minutes into a clean Nalgene bottle, which was stored in a chilled refrigerator. I returned each day to collect the samples. I removed the bottle, agitated its contents, and poured them into a clean, pre-labeled polyethylene container for the analysis of TKN, NO2/NO3, TP, total suspended solids (TSS), Oil and grease (O&G), zinc (Zn), aluminum (Al) and chromium (Cr). At the time of sampling, I preserved the Zn samples with 5 mL of nitric acid (HNO3). I collected a grab sample from the same location to measure the pH and temperature using field meters. The analyses using the field meters were conducted within 15 minutes of collecting the sample. Flow numbers were provided by the facility using their meters.

For all three days of sampling, I placed the samples I collected on ice in an insulated cooler, sealed the container, and hand delivered it to the EPA Region 7 Science and Technology Center (STC) on August 30, 2024, for analysis. Electronic field sheets and electronic chain of custody forms were emailed to the STC at the time of delivery. I followed Region 7 Laboratory Services and Applied Science Division (LSASD) standard operating procedures in the collection, packaging, transportation, and handling of the samples.

FACILITY DESCRIPTION

Arconic is an aluminum manufacturing and processing facility. Processes at the facility include alloying and casting of aluminum ingot; hot and cold rolling of aluminum sheet; hot rolling of aluminum plate; and aluminum finishing operations. The facility operates 24 hours a day, seven days a week over two to three shifts. Process wastewater and stormwater are discharged through nine physical outfalls (attachment 3). Most of these outfalls discharge a combination of stormwater and process wastewater, depending on precipitation events. All nine of the permitted outfalls discharge directly to the Mississippi River. The permit includes a tenth calculated outfall which includes Outfalls 002, 003, 004, 005, 006 and 009. All sanitary wastewater is discharged to the City's sanitary sewer system.

The facility obtains process water from three sources: purchased city water, well water from a contaminated well treatment system, and fresh water from the Mississippi River. The facility has a well on-site that is contaminated with tetrachloroethylene. This well is pumped and treated through an air stripper for process uses. Any excess water pumped and treated from the tetrachloroethylene-contaminated well is discharged through Outfall 007. Outfall 007 was not sampled during this inspection due to the facility not having any historical effluent violations in the data that I reviewed. The facility has conducted a water balance that accounts for all process water used. Mr. Hylton submitted a copy of it after the inspection (attachment 3).

Arconic is located on Highway 67 in Riverdale, Iowa, east of Davenport, IA. The latitude and longitude of the plant office are roughly 41.538981 and -90.458484, respectively, in Scott County, Iowa.

The facility's NPDES permit IA0003395 was issued on October 1, 2018 (attachment 5). The permit expired on February 14, 2023. The permit includes effluent limits for Al, Cr, Zn, cyanide (Cn), O&G, TSS, dichloroethane, tetrachloroethane, trichloroethane, total residual chlorine (TRC), pH and temperature. The permit also requires the facility to monitor for iron, copper, TN, TP, and flow. The facility operates under primary SIC code 3353 and a secondary SIC code 3355. At the time of inspection, the facility was operating on administratively extended permit, as the facility has entered into a consent decree with IDNR due to an administrative consent order (ACO) issued December 4th, 2018 (attachment 6). IDNR's public database shows that the facility's permit renewal is currently in process, and the facility has submitted a complete permit application.

The facility was last inspected by the IDNR on August 31, 2023 (attachment 7). The inspection report findings required the facility to comply with permit effluent limits, comply with all monitoring and reporting requirements, submit monthly discharge monitoring reports (DMRs), maintain the treatment plant in good working order at all times and continue improvement efforts per the facility's ACO.

FINDINGS AND OBSERVATIONS

The following findings were noted during the plant and record review.

Self-Monitoring Data Review

Prior to the inspection, I obtained a spreadsheet of the DMR data for Arconic from the Region 7 (R7) Data Team. The spreadsheet contained the information requested from January 2021 through July 2024. The facility also had copies of the DMRs on site. All DMR data obtained for this report can be found on ECAD's official electronic file management system. The facility had 68 effluent violations in that timeframe. This included ten for Al, six for O&G, nine for pH, 41 for TSS and two for Zn exceedances. There were also 34 violations listed for non-reported effluent data. This was noted as item #1 on the Notice of Preliminary Findings (NOPF) that was left on-site.

Sample Results

The analytical results from sampling conducted during the inspection were received on October 10, 2024, from the Region 7 STC laboratory (attachment 8). This data was not discussed during the exit interview. The analytical results for the samples I collected are presented in Tables 1 and 2 below. Results for pH and temperature were collected by me at the time of my inspection. Flow measurements were measured by facility instruments and provided to me after the inspection.

As described in attachment 8, for results followed by a J, the analyte is acceptable; the reported value is an estimate. For results followed by a UJ, the analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

Table 1: Analytical Results for Influent Samples Collected During Inspection at Outfall 009

Parameter	(August 27) Sample # 1	(August 28) Sample # 2	(August 29) Sample # 3	Permit Limits(Monthly/Daily)
TKN (mg/L)	11.3J	10.4	9.61	N/A
NO3/NO2 (mg/L)	0.05J	1.62	0.05	NA
TN (mg/L)	11.4J	12.0	9.66	NA
TP (mg/L)	6.8J	6.36	7.54	NA
Flow (MGD)	0.555	0.504	0.386	N/A

Table 2: Analytical Results for Effluent Samples Collected During Inspection at Outfall 009 and 004B

Parameter	(August 27) Outfall 009	(August 28) Outfall 009	(August 28) Outfall 004B	(August 29) Outfall 009	Outfall 801 Permit Limits[1](30-Day/Daily)
TSS (mg/L)	8.88	15.2	10.4	6.95	249.5/484.6 lbs/day
O&G (mg/L)	ND	ND UJ	ND	ND	163.8/246.9 lbs/day

Al (mg/L)	0.775	0.892	0.736	0.647	23.2/49.3 lbs/day
Cr (mg/L)	ND	ND	ND	ND	1.31/3.19 lbs/day
Zn (mg/L)	ND	ND	0.027	ND	4.05/9.76 lbs/day
TKN (mg/L)	4.62J	4.43	N/A	2.66J	N/A
NO3/NO2 (mg/L)	0.04J	1.21	N/A	0.52J	N/A
TN (mg/L)	4.66J	5.64	N/A	3.18J	N/A
TP (mg/L)	0.34J	0.29	N/A	0.26J	N/A
pH (S.U.)	7.38	7.16	N/A	7.07	6.0-9.0
Temp (ºF)	35.5	27.8	N/A	31.6	N/A
Flow (MGD)	0.559	0.504	1.139	0.416	N/A

1 Permit limits for pH are minimum followed by maximum.
2 "ND" denotes a non-detect result.
3 Permit limits are 30-day average followed by daily maximum.
4 Permit limits are for combined outfall 801, which includes outfalls 009 and 004B.

On August 27 and 28, 2024, there was a precipitation event at the facility causing outfall 004B to discharge. The facility collected compliance samples at outfall 004B and had extra volume. Facility personnel collected the extra volume in sample containers for me, and the samples were submitted to the R7 STC. Outfall 801 is a combined outfall for compliance purposes that includes outfalls 002, 003, 004, 005, 006 and 009. Outfall 004 is a combined outfall which includes outfalls 004A, 004B and 004C when all three are flowing. The precipitation event only caused discharge at outfall 004B; thus, the sample results for August 28, 2024, are a combination of outfalls 004B and 009.

EPA sample results from all days of the inspection showed compliance with effluent permit limits.

Laboratory

The facility utilizes Eurofins and Pace Analytical for all analyses except TRC, pH and temperature, which are analyzed on-site. During the inspection, I reviewed laboratory records to ensure that all analyses complied with requirements of 40 CFR part 136. I found that all holding times were met for the analysis reports that I reviewed.

During my inspection, I asked facility personnel if they calibrated the meters used for on-site analyses. They stated they do and provided me adequate calibration logs.

Collection System

The collection system for the facility is private and only collects wastewater and stormwater from the facility property. Sanitary waste is collected from facility buildings separately from all process wastewaters. Sanitary wastewater flows to the municipal wastewater treatment facility (WWTF).

The facility has five lift stations, one for each Outfall 002-006, that direct water back to the plant

for re-use in various processes. During precipitation events, excess water from these lift stations flows to the Mississippi River through the corresponding outfall and is reported to IDNR as a bypass.

Process wastewater and floor drains are collected and directed flow to the facility's pretreatment system After the pretreatment process is complete, it is discharged to the municipal WWTF.

Blowdown water from any system at the facility is collected and flows to the Blowdown Treatment Facility (BTF). This water is treated and discharged at outfall 009.

Other process wastewaters are collected and flow to the water reclamation center or the water treatment plant. Treated water from these two systems is reused in facility processes.

Operations and Maintenance

During the inspection I observed the facility's wastewater treatment processes. The facility has four wastewater treatment processes, three of which are covered by this permit. The facility has a pre-treatment process for wastewater sent to the municipal wastewater treatment facility that is cover by a separate pre-treatment permit.

The water reclamation center takes process wastewater from multiple locations in the facility to a non-contact cooling (photos 21 -22) tower then through an up-flow clarifier (photo 22). From the clarifier it goes to a wet well and is pumped through another cooling tower, then to a second wet well where it goes back to the facility for reuse. If there is a precipitation event that leads to a discharge, flows from the water reclamation center discharge at outfall 004C.

The water treatment plant receives process wastewater from the ingot plant and from other processes. The water treatment plant is operated by Solenis, a contract operator. The facility has two water towers that feed the water treatment plant. These are the Plant Water Tower and the Ingot Water Tower. Water goes through a clarifier (photo 17) and then to a reservoir for settling (photo 16). From the reservoir, water is sent back to the plant for re-use. As with the Water reclamation plant, if there are not precipitation events, all water treated goes back to the plant for re-use. When a precipitation event increases flows to a level that the treatment plant can't manage, water bypasses to outfall 004B.

The BTF receives clarifier blowdown from the other two treatment systems and other process wastewaters from the facility (photos 23-25). The BTF is operated by Veolia, a contract operator. BTF treatment starts with an EQ tank then flows to an acid retention tank where pH is adjusted. Wastewater then flows to a ferric chloride tank followed by a hydrated lime tank and then a lime retention tank. It then flows to an anionic flocculant addition tank followed by a mixing tank for flocculation. After flocculation, the water goes to a Lamella Clarifier. Blowdown from the clarifier goes to a sludge clarifier tank and then to a plate press. Clarified water goes to a sand filter then to a receiving tank and then finally discharges to outfall 009.

Sludge

Sludge is only generated at the BTF. Solids from the water reclamation center and the water treatment plant clarifiers flow to the BTF for further treatment. These solids, along with solids from other wastewater streams from the BTF treatment process are processed through a plate filter press (photo 26) to remove excess water. Excess water from the plate press goes back to the BTF for further treatment. Solids from the filter press are disposed of as solid waste at a landfill or reuse at a lime reclamation facility (cement kiln).

Stormwater

I also inspected the facility for compliance with their stormwater discharge requirements (see photos 3-15, 18-20 & 27). The facility's stormwater discharge requirements are included in their individual permit. Of the nine outfalls included in the permit, all outfalls, except Outfalls 007 and 009, include possible stormwater discharges. Outfalls 001 and 008 are the only outfalls that are solely related to stormwater. All other outfalls include a mixture of stormwater and process wastewater discharges depending on the amount of precipitation. The facility reports all discharges caused by precipitation at Outfalls 002-006 that are mixed with process wastewater as bypasses to IDNR. According to facility personnel, these increased flows due to stormwater also increase the loading of permitted constituents in their discharges, leading to the majority of their effluent exceedances described above.

At the time of my inspection, Outfall 004B was the only stormwater effected outfall that discharged. Outfall 004B discharged and was collected for samples by facility personnel on August 28th.

Facility personnel explained that the facility property also collects approximately 500 acres of stormwater flows from offsite properties that flow to the discharge point for outfall 006 exacerbating process wastewater bypasses caused by precipitation events.

Facility personnel also explained that as part of the facility's consent agreement with IDNR, they will be diverting Outfall 005 to a new wet well for Outfall 004. The flows from this new wet well will be diverted to a new 2MGD treatment plant.

I observed two large fuel tanks on the south portion of the facility property that were double-walled (photos 5-6). I also observed two large fuel tanks on the northeast side of the facility property that were located in secondary containment (see photo 27).

The facility's permit requires that they develop and implement a Stormwater Pollution Prevention Plan (SWPPP). At the time of inspection, my review of the SWPPP and all records required by the implementation of the SWPPP showed them to be adequate.

Summary

During the exit briefing on August 29, 2024, I discussed the facility's rights to claim confidential business information. The facility did not make any claims of confidentiality (attachment 9). During the exit briefing, I issued a NOPF for the following (attachment 10):

1. Failure to meet effluent limits.

The facility's response to the NOPF was received by postal mail on September 17, 2024, addressing the preliminary finding observed during the inspection (attachment 11). The facility's response includes the facility's explanation of the wastewater bypasses caused by stormwater.

BRIAN D'ALFONSO
Digitally signed by BRIAN D'ALFONSO
Date: 2024.12.23 10:50:22 -06'00'

Brian D'Alfonso
Biologist

JOSEPH HEAFNER
Digitally signed by JOSEPH HEAFNER
Date: 2024.12.23 11:07:24 -06'00'

Joseph Heafner
Acting Section Manager, WB/DWIS

Attachments:

1. Industrial User Inspection Checklist (6 pages)
2. Digital Photographs with Photo Log (29 pages)
3. Water Balance (3 pages)
4. Site Map (1 page)
5. NPDES Permit # IA0003395 (34 pages)
6. December 4th, 2018, Administrative Consent Order (5 pages)
7. August 31, 2023 IDNR Inspection (7 Pages)
8. Data Transmittal Packet for Activity BPD2412 (28 pages)
9. August 29, 2024, USEPA Confidential Business Information Notice (4 pages)
10. August 29, 2024, NOPF (1 page)
11. Arconic September 17, 2024, NOPF response (4 pages)