



United States Environmental Protection Agency Region 4
Clean Water Act – Wastewater Field Report
PT – Southern Impressions – 022422

SECTION A: Data System Coding

NPDES No.	MO/DAY/YR	Inspection-Type	Lead Inspector	Facility-Type
N/A	2/24/2022	IU (Industrial User Inspection)	David Phillips	Industrial User

SECTION B: Basic Field Data

Name and Location of Facility Inspected: <i>(For industrial users, add recipient POTW's NPDES permit number)</i> Southern Impressions 119 Milliken Drive Kingstree, SC 29556 Receiving POTW: SC0035971	Entry Date/Time: 2/24/2022 11:15 AM	Permit Effective Date: Local
	Exit Date/Time: 2/24/2022 2:30 PM	Permit Expiration Date: Local
Facility Representative(s) / Title / Contact Info: Mr. Randy Poplin, Plant Manager	Other Facility Data / Permits Held: SC00023200047 (CAA SIP)	
Facility Responsible Official / Contact Info: Mr. Randy Poplin, Plant Manager (484) 663-3746 rpoplin@southernimpressions.net	Additional Inspectors / Agency / Department: Ms. Lori Baxley / SCDHEC / Columbia Mr. Danny Nicholas / SCHDEC / Columbia Ms. Shauna Stevens / SCDHEC / Myrtle Beach	

SECTION C: Areas Evaluated

☒	Permit	☒	Potential for Discharge	☒	Regulated Processes	☒	Industrial Pretreatment System
☒	Record keeping Compliance	☒	Self-monitoring Compliance	☒	Self-reporting Compliance	☒	Municipal Sewage Treatment System
☒	Slug Discharge Controls	☒	Monitoring Data	☒	Self-Monitoring Equipment	☐	Solids Handling/Disposal
☐	Compliance with Enforcement Action	☒	Other: Unused treatment system adjacent to facility				

SECTION D: Summary of Findings / Comments

See attached Section D.

Lead Inspector Digital Signature:	ECAD Unit / Phone Number / E-mail WEB/WES – (404) 562-9773 – phillips.david@epa.gov
Supervisor Digital Signature:	ECAD Unit / Phone Number / E-mail WEB/WES – (404) 562-9257 – castillo.jairo@epa.gov

United States Environmental Protection Agency Region 4
Clean Water Act – Wastewater Field Report
PT – Southern Impressions – 022422 (Continued)

Section D: Summary of Findings / Recommendations

On 2/24/2022, the EPA and representatives of the South Carolina Department of Health and Environmental Control (SCDHEC) conducted an unannounced Industrial User Inspection of the Southern Impressions LLC (“Southern Impressions”) facility located at 119 Milliken Drive in Kingstree, South Carolina. The inspectors presented credentials to Mr. Randy Poplin, the Plant Manager, and conducted an opening conference. Mr. Poplin was interviewed, and select records were reviewed, before conducting a walk-through inspection of operations and the effluent point. An unused treatment system that is adjacent to the facility was also investigated. Preliminary findings were then shared with Mr. Poplin in a brief closing meeting. After the site inspection, EPA requested additional records from Mr. Poplin that were reviewed. The following report is a final summary of the inspection findings and observations.

The EPA’s Enforcement and Compliance History Online system identifies Southern Impressions as a textile manufacturer holding a minor CAA permit (SC00023200047). The facility does not hold a direct discharge permit or a stormwater permit. The facility does hold a Significant Industrial User permit for discharge to a POTW.

I. Industrial User Discharge History

a. Flow. Although the Southern Impressions facility is located in unincorporated Williamsburg County, the Town of Kingstree (POTW) is authorized by SCDHEC as the local pretreatment control authority. The POTW’s main treatment facility (SC0035971), which is about 1.5 miles away, has been receiving the facility’s process flow.

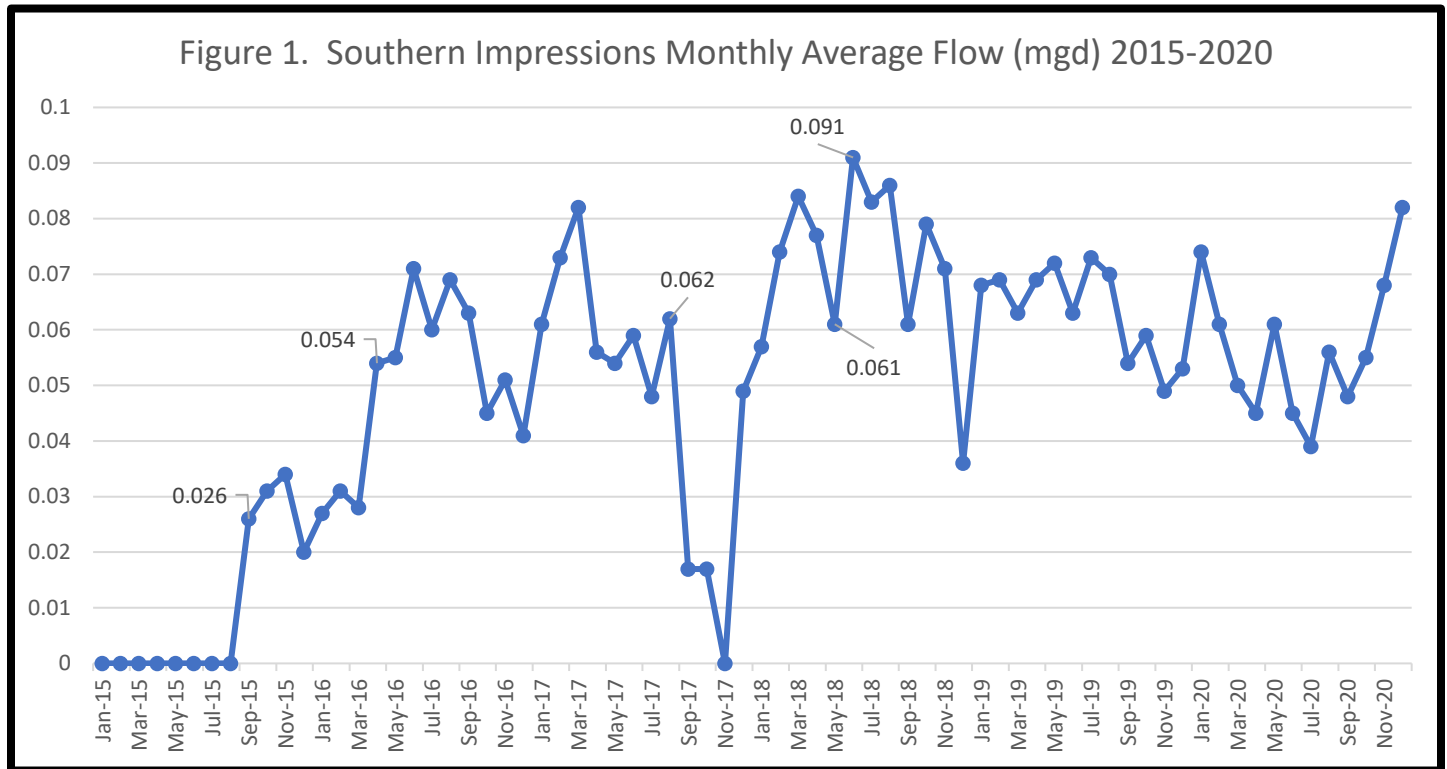
Mr. Poplin recalled that Southern Impressions moved into the facility towards the end of 2014 and began self-monitoring its discharge to the POTW sometime between 2016 and 2017. The prior EPA inspection of Southern Impressions on 4/18/2019 identified that timeframe more specifically as November 2016. Mr. Poplin noted that the sanitary flow at the facility discharges to a septic system, so the facility only discharges process wastewater and boiler blowdown to the POTW. Source water for the facility originates from a well.

The POTW has issued a series of Significant Industrial User permits (SIU Permits) to Southern Impressions for the following periods: 11/1/2014 – 10/31/2016, 11/1/2016 – 10/31/2018, 11/1/2018 – 12/31/2020, and 1/1/2021 – 12/31/2026.

Although all of these SIU Permit issuances required self-monitoring for any process discharge, the POTW control authority has contended that Southern Impressions only discharged non-process flow (boiler blowdown) between 2015 and late 2018, with process flow from fabric preparation added in late 2018, and process flow from fabric dyeing added in the late Spring of 2019. On this basis, the POTW began calendaring oversight inspections of Southern Impressions on 12/20/2017 and began calendaring oversight samplings on 8/14/2019.

The permit application that Southern Impressions submitted to the POTW in 2014 estimated the boiler blowdown contribution to be approximately 5,000 gallons per day (gpd). Flow data for Southern Impressions between 2015 – 2020 (Figure 1) demonstrates that a discharge to the POTW began in September 2015. This initial monthly average flow ranged 20,000 to 30,000 gpd, which was much higher than the 5,000 gpd expected from boiler blowdown alone.

By May 2016, the monthly average flow had elevated to 55,000 gpd or more. Between August and November 2017, the monthly average flow dropped precipitously back to zero. The next month, in December 2017, the average flow began elevating to a new peak of 84,000 gpd in March 2018. The monthly average flow increased again to 91,000 gpd in June 2018 before declining back to the 50,000 gpd range.



More recently, the average monthly discharge in January 2022 was reported as 65,400 gallons per day (0.065 mgd). Presuming 50,000 to 91,000 gpd conservatively reflects the range of monthly average flow when in full production, the discharge pattern in Figure 1 suggests that process discharges from start-up operations began in September 2015, and a full process flow was achieved by April 2016, which would be at least two years earlier than the timeframe understood by the POTW control authority. April 2016 would also predate the first self-monitoring report submitted by Southern Impressions, which the prior EPA inspection ascertained was November 2016.

b. Records Review. Mr. Poplin was requested to provide copies of the facility's SIU Permits and the self-monitoring reports (SMRs) submitted to the POTW during the previous three years (2/2019 – 1/2022). There was difficulty in locating a complete and signed copy of the current SIU Permit. However, valid copies of the current and preceding permits (signed by both the POTW and Mr. Poplin) were eventually presented. A review of these records yielded the following observations:

1. The current SIU Permit and its reporting form do not include the maximum pH local limit of 9.0, which is a discharge prohibition in §54.010(B)(2) of Title V, Kingstree Code of Ordinances. Such prohibitions are pretreatment standards, and they are applicable to all industrial users of the POTW whether or not they hold an individual SIU Permit that requires self-monitoring. The preceding SIU Permits issued by the POTW had included this maximum pH limit.

2. The maximum temperature value reported on the SMR originates from a single grab sample collected monthly rather than by a continuous monitoring of the discharge.
3. The expiration date of the current SIU Permit is identified as December 31, 2026, whereas it should be December 31, 2025, to meet state and federal requirements. Section II.17 of the SIU Permit also requires compliance with 40 CFR Part 439, Subpart A, which is not applicable to the operations on-site.
4. The self-monitoring records provided for inspection were incomplete. Valid SMRs were missing for 2/2019, 3/2019, 5/2019, and 6/2019. Lab results were missing for 2/2019, 3/2019, 4/2019, 5/2019, and 6/2019.
5. The self-monitoring results demonstrated that several pollutant loadings are highly variable. For the most recent self-monitoring period (1/2022), the weekly average flow ranged 41,946 – 100,355 gpd, biochemical oxygen demand (BOD₅) ranged 76 – 621 mg/L, chemical oxygen demand (COD) ranged 520 – 2,410 mg/L, pH ranged 8.47 – 9.47 (the upper end being an unidentified/unreported prohibition violation), extractable oil/grease ranged 32 – 37 mg/L, and total suspended solids (TSS) ranged 11.5 – 183 mg/L.
6. The most recent SMR (1/2022) indicated BOD₅, COD, and oil and grease concentrations had exceeded the daily maximum limits of the SIU Permit. There were also two weekly exceedances of the COD limit.

Comparison to a SMR for the preceding month (12/2021) found similar concerns: the reported BOD₅ (monthly average 341 mg/L, daily maximum 500 mg/L), COD (daily maximum 2,430 mg/L), and oil/grease (daily maximum 26 mg/L) exceeded the permitted discharge limitations.

Comparison to a SMR for an earlier period (7/2019) found similar concerns: the reported BOD₅ (monthly average 342 mg/L, daily maximum 393 mg/L), COD (monthly average 1,440 mg/L, daily maximum 2,780 mg/L), and maximum pH (11.9 s.u.) exceeded the permitted discharge limitations.

7. Color has not been limited by the POTW, but the current SIU Permit does require it to be monitored weekly. For the most recent self-monitoring period (1/2022), color ranged 27 – 390 ADMI. In the preceding month (12/2021), color averaged 626 ADMI and peaked at 1,100 ADMI. In 1/2022, the daily maximum total dissolved solids was 665 mg/L and conductivity was 713 µmhos/cm; both of those parameters are monitored once monthly without any limitations on loadings to the POTW.

II. Industrial User Compliance History

a. Kingstree Pretreatment Program Reports. Under 40 CFR § 403.12(i) and analogous SCDHEC requirements, the POTW routinely submits certified reports of its oversight activities and the industrial user compliance associated with its authorized pretreatment program. The POTW's reporting to SCDHEC concerning Southern Impressions for the previous three years is summarized in Table 1 below.

Table 1. Kingstree Semi-Annual Pretreatment Program Reporting on Southern Impressions

<i>Reporting Period</i>	<i># Violations</i>	<i># NOV Issued</i>	<i># Orders Issued</i>	<i>Penalties</i>	<i># SNC Notices</i>
7/1/2021-12/31/2021	10 ^a	5 ^a	0	\$500	1 (TRC-O&G)
1/1/2021 – 6/30/2021	3	1	0	\$0	0
7/1/2020 – 12/31/2020	1 ^b	0	0	\$0	0
1/1/2020 – 6/30/2020	0 ^c	0	0	\$0	0
7/1/2019-12/31/2019	0 ^c	0	0	\$0	0
1/1/2019 – 6/30/2019	0	0	0	\$0	0

^a Oil and Grease limit violations: 7/2021, 10/2021, 11/2021, 12/2021 (x2) and failures to meet pretreatment reporting requirements in 10/2021, 11/2021, and 12/2021.

^b Maximum pH exceedances. Kingstree determined it “not to be a problem” and also removed the limit from its 2021 SIU Permit. The actual number of exceedances was unreported.

^c Kingstree’s consultant preparing the reports (Shealy Environmental) noted “No information received.”

b. Analysis of Self-Monitoring Reports. Since the non-compliance identified during the onsite review of the 7/2019 and 12/2021 SMRs was absent from the POTW’s certified program reporting to SCDHEC, the EPA elected to independently perform a more extensive analysis of Southern Impressions’ compliance history. Following the onsite portion of the inspection, Southern Impressions was asked to supply its monthly SMR summaries for the 36-month period preceding the request (i.e., 4/2019 through 4/2022). Together with the POTW’s program reporting, this data from Southern Impressions yielded the following observations:

1. The monthly average BOD₅ and COD loadings reported by Southern Impressions over the 36-month period demonstrate that its discharge is incompatible with the biological treatment provided by the POTW. A discharge without pretreatment, which the POTW has allowed, would necessitate a BOD/COD ratio of 0.60 or higher to be compatible. None of the SIU Permits that the POTW has issued to Southern Impressions have contained limits that would ensure a compatible BOD/COD ratio without some pretreatment of the discharge. As shown in Figure 2, the discharge frequently has a BOD/COD ratio below 0.30, denoting a process wastestream that is not treatable biologically.
2. The pH reported by Southern Impressions has exceeded the daily maximum pH limit/prohibition for 34 of the 36 months between 4/2019 and 4/2022 (Figure 3).
3. The reported BOD₅ and COD have routinely exceeded both the concentration and mass pretreatment standards in the SIU Permits. Figures 4 and 5 describe the trends for daily maximum concentrations. The reported TSS values have similarly exceeded standards although less frequently.
4. In 3/2021, the Southern Impressions discharge exceeded all COD and TSS daily maximum and monthly average pretreatment standards (both concentration and mass) by orders of magnitude above historically reported values. Standards for maximum pH and BOD₅ were also exceeded that month. The monthly average color for 3/2021 was 11,000 ADMI units, and the daily maximum color was 50,000 ADMI units. The daily maximum total dissolved solids for 3/2021 was 12,010 ppd. Such values are well above those seen in a typical POTW influent.

The discharge in 3/2021 constituted a slug load to the POTW, which must be immediately notified to the POTW among other requirements. A record of Southern Impressions providing immediate notice to the POTW

of the slug discharge was not identified onsite. Correspondingly, the absence of this event from the POTW's program reporting to SCDHEC (Table 1 above) indicates that the POTW also did not identify the slug discharge when later receiving the SMR.

- As reviewed on a rolling quarterly basis, Southern Impressions has been in Significant Non-Compliance (SNC) with pretreatment standards for each of the 36 months between 4/2019 and 4/2022. As summarized in Table 2, Southern Impressions has self-reported exceeding pretreatment standards 186 times in this period. Overall, the individual exceedances of pretreatment standards have ranged between 1 and 3,200 percent. The relatively high COD and TSS limitations in the SIU Permits are being exceeded most severely, as well as the maximum pH limit/prohibition.

The exceedances have also routinely surpassed the 40 CFR § 403.8(f)(2)(viii) technical review criteria, qualifying Southern Impressions for Significant Non-Compliance (SNC) designations in 2019, 2020, 2021, and 2022. The frequency of violations of many limitations has also qualified Southern Impressions for Chronic SNC designations in 2019, 2020, 2021, and currently in 2022.

This SNC has continued despite the POTW making the following modifications before reissuing the SIU Permit effective in 2021: increasing allowances for TSS and COD, removing the monthly average COD concentration limit (which was being chronically violated at SNC levels), and removing the maximum pH limit.

According to the POTW's program reporting (Table 1), this ongoing Chronic SNC and TRC-SNC has not been identified or enforced. One exception is the TRC-SNC of the newer oil and grease limit that occurred in late 2021. The POTW has issued Notices of Violation, fines, and notified the public of that non-compliance, but it has not issued a compliance order with injunctive relief rectifying that non-compliance or the balance of ongoing SNC, as specified by its approved Enforcement Response Plan. The POTW has also not reported notifying the public of Southern Impressions' other SNC violations as required in 2019, 2020, and 2021.

Table 2. EPA Analysis of Southern Impressions' Self-Monitoring Reports (4/2019 - 4/2022)

Parameter	# Reported Violations				Range of Exceedances				SNC (TRC)				SNC (Chronic)											
	4/19-12/19	1/20-12/20	1/21-12/21	1/22-4/22	4/19-12/19	1/20-12/20	1/21-12/21	1/22-4/22	2019	2020	2021	2022	2019				2020				2021			
													Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
BOD - Mo Avg (mg/l)	5	7	9	1	3 - 70%	13 - 48%	6 - 86%	8%		X	X					X	X	X		X	X		X	
BOD - Dmax (mg/l)	6	8	12	3	7 - 204%	30 - 310%	17 - 383%	17 - 107%	X		X	X			X	X	X	X		X	X	X	X	X
BOD - Dmax (ppd)	1	1	1	0	61%	8%	23%	-																
COD - Mo Avg (mg/l)	6	11			10 - 279%	9 - 156%			X	X			X	X	X	X	X	X						
COD - Mo Avg (ppd)	3	0	2	0	8 - 122%	-	15 - 288%	-	X		X													
COD - Dmax (mg/l)	7	12	12	4	22 - 690%	41 - 510%	43 - 3,200%	115 - 775%	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
COD - Dmax (ppd)	3	5	1	1	68 - 317%	1 - 29%	592%	23%	X										X					
TSS - Mo Avg (mg/l)	0	0	1	1	-	-	504%	5%																
TSS - Mo Avg (ppd)	0	0	1	0	-	-	170%	-																
TSS - Dmax (mg/l)	2	6	1	1	65 - 168%	5 - 148%	2,796%	280%	X	X		X				X								
TSS - Dmax (ppd)	2	0	1	1	23 - 42%	-	1,221%	17%																
NH4-N - Dmax (mg/l)	0	1	0	1	-	42%	-	5%																
O&G - Dmax (mg/l)			9	2			40 - 280%	113 - 147%			X	X									X	X	X	X
pH - Dmax	9	12	11	3	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X

**Figure 2. Southern Impressions Discharge to POTW -
BOD/COD Ratio (2019-2022)**

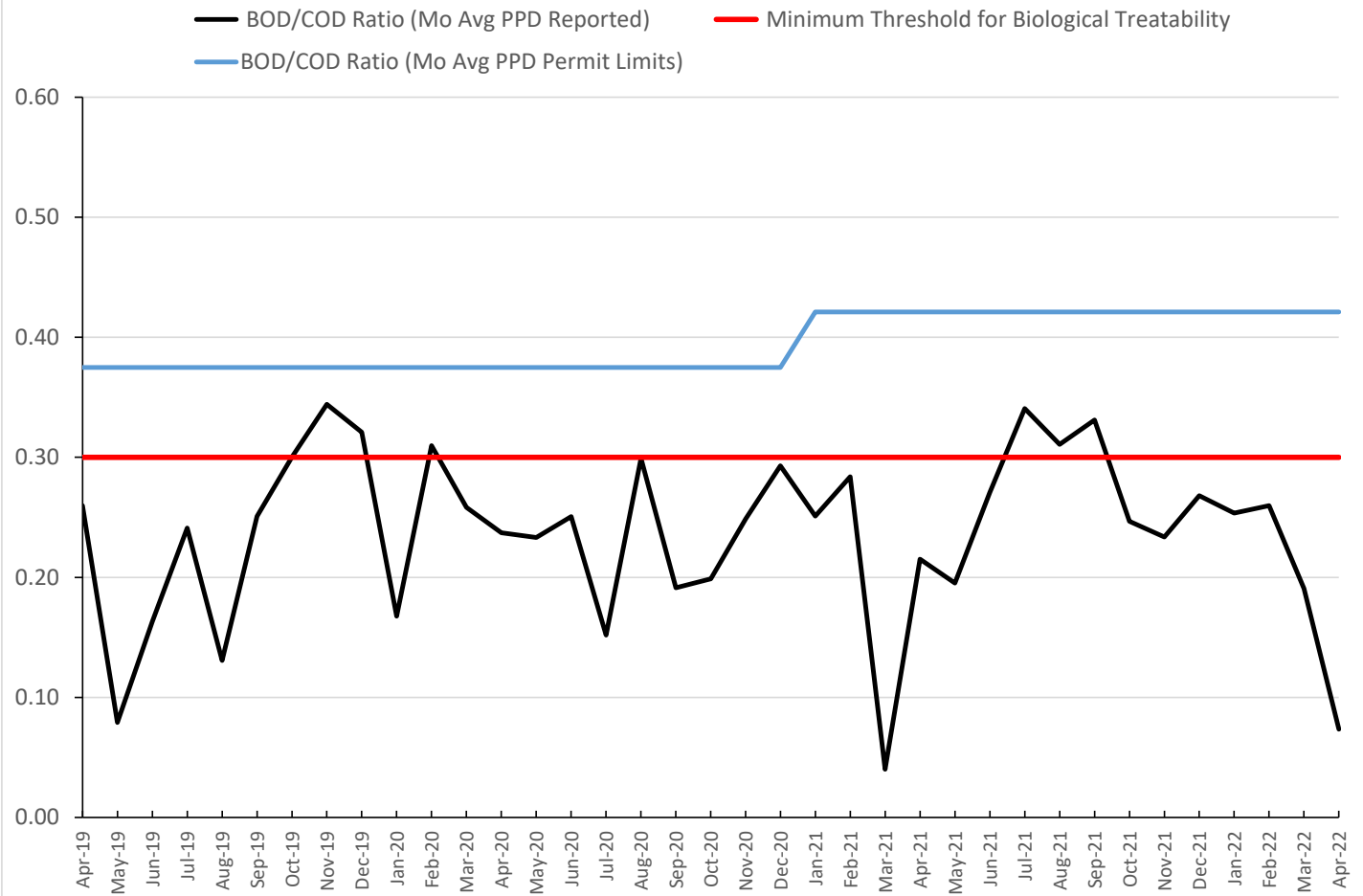
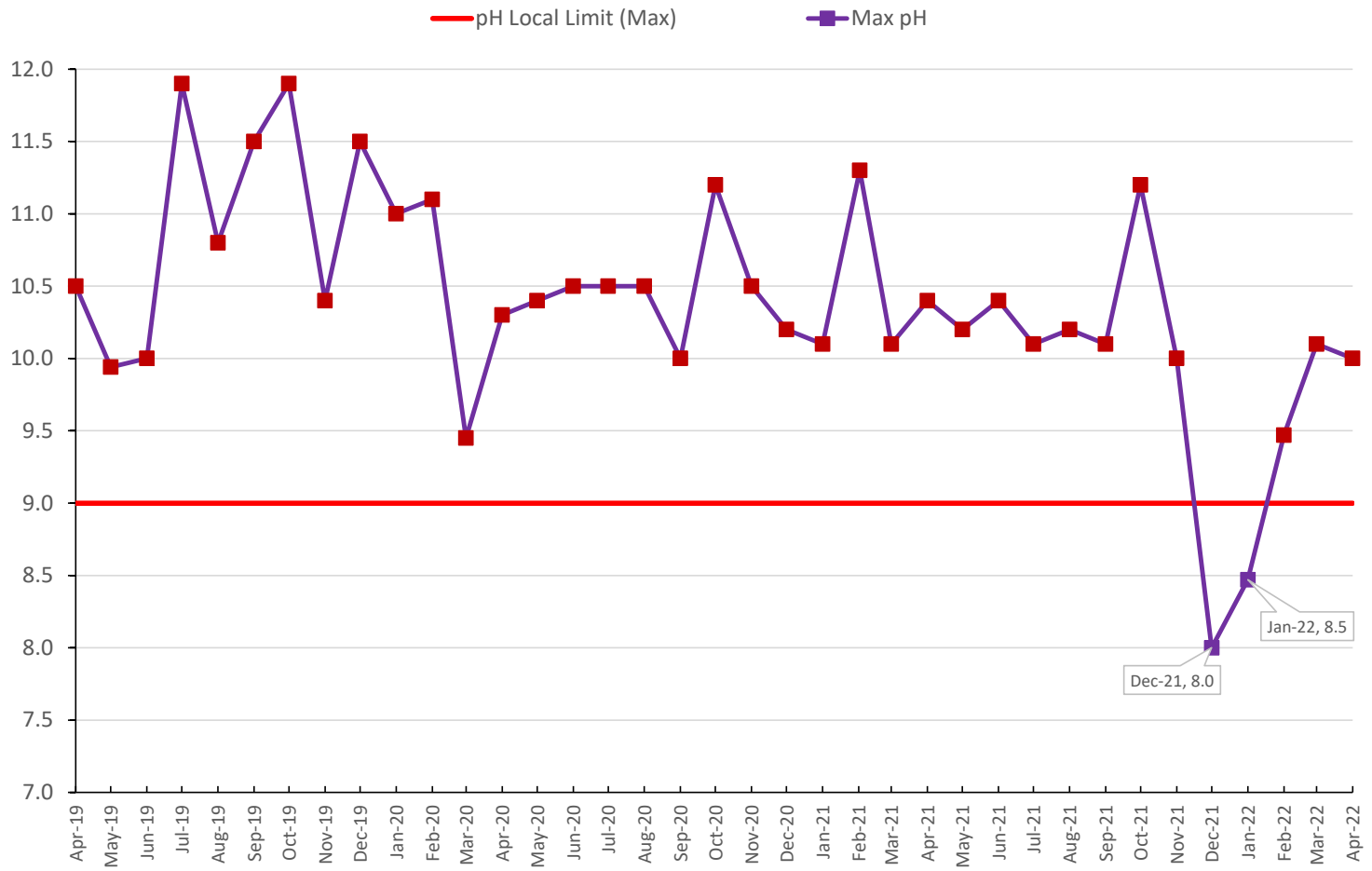


Figure 3. Southern Impressions Discharge to POTW - Maximum Reported pH vs. Local Limit (2019-2022)



**Figure 4. Southern Impressions Discharge to POTW -
Daily Maximum BOD (mg/L) (2019-2022)**

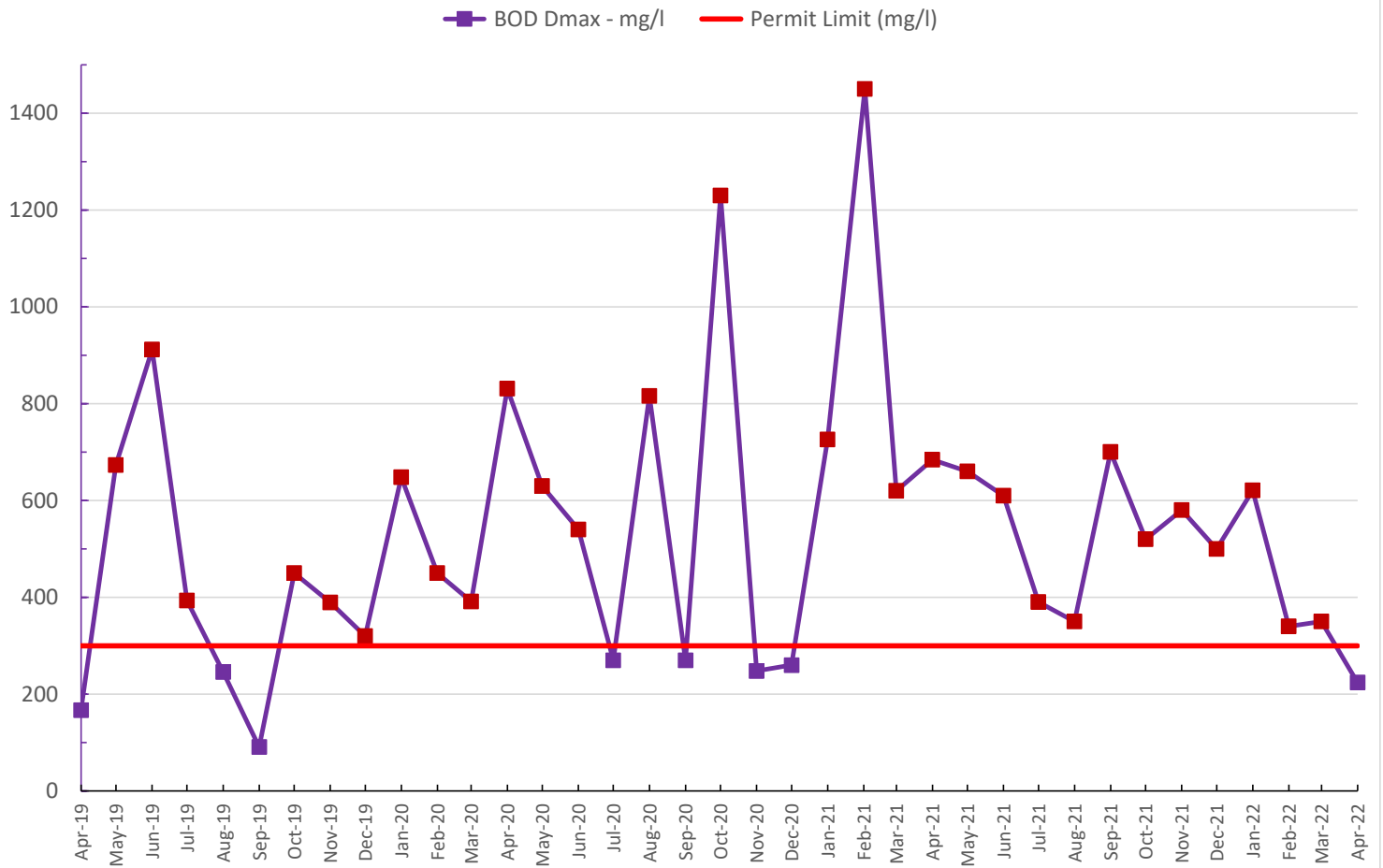
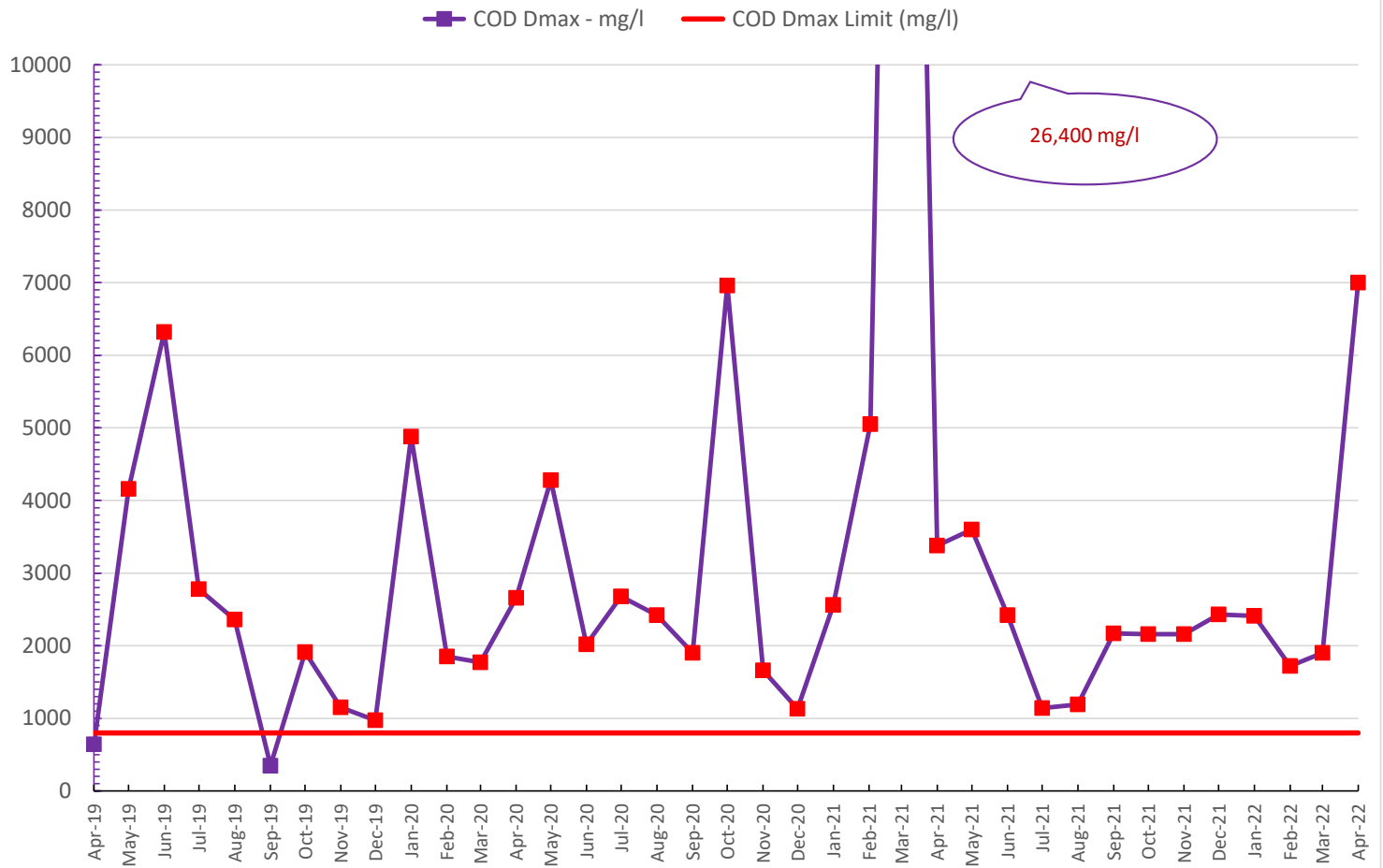


Figure 5. Southern Impressions Discharge to POTW -
Daily Maximum COD (mg/L) (2019-2022)



III. Facility Site Review

Mr. Poplin joined the EPA and SCDHEC inspectors for a walk-through of the production areas.

a. Operational Area. Southern Impressions' facility in Kingstree washes, dyes, and treats textiles used in flag and banner production. Prepared fabric that is not dyed at the Kingstree facility is sent to their nearby facility in Olanta for printing/dyeing, which may then be returned to the Kingstree facility for finishing. The facility collects process and fugitive wastewaters using a series of connected underdrain trenches in the concrete floor, which deliver the comingled wastewater to the effluent point without any pretreatment.

Mr. Poplin noted that the dyes used in some operations could contain metals such as copper, but that type of pigment dyeing is not yet used at the Kingstree facility, although he has voiced aspirations to the POTW of moving the pigment dyeing operations from their Olanta facility to Kingstree. The inspectors advised Mr. Poplin that change in operation would likely require additional pretreatment to be installed before discharging. A rotary printing machine, which uses pigment dyes, was observed onsite during the walk-through (Figure 6). Mr. Poplin advised that it was not yet in regular use.

Several printing systems onsite were observed operating: a digital printing system (Figure 7); two high-temperature "slinky" dye jig systems, which are used to acid-dye nylon fabric (Figure 8); and a high-temperature jet dye system, which is used to dye polyester fabric (Figure 9). The jig dye systems discharge to the trench drain. The jet dye system operates in a closed-loop when in production. Drums of powdered dyes in use, and their spillage, were observed in the vicinity (Figure 10).

A high-temperature (180 °F) fabric preparation line that scours, rinses, neutralizes, and adds finishing chemicals to the fabrics (Figure 11) also discharges to the trench system. During the walkthrough, a drum of finishing chemical (product UN3082, which Mr. Poplin described it as a dye fixative) was observed with oily fluid underneath its base that was draining to the trench system (Figure 12). Additional drums observed in use near the fabric preparation line also did not have secondary containment (Figure 13).

b. Storage Areas. A parts storage and equipment maintenance room containing oils and lubricants is located adjacent to the main production space. This room included a shallow-bermed area with a floor drain at its center (Figure 14), and floor drains in a larger area outside of that berm. Most of the containers were stored outside of the bermed area and some of these containers had concrete stains emanating from them (Figure 15). All of the floor drains observed in the room had concrete staining surrounding them, suggesting they had received drainage at some point in the past. Mr. Poplin was unsure if these floor drains connected to the effluent line or if they were isolated. The inspectors advised that a plumbing dye test is one means of confirming connectivity.

A bulk chemical storage area is adjacent to the end of the fabric preparation line and its associated trenches. This area contained totes and drums of bulk chemicals that are used in the operations. One of the drums was labeled as Sodium Hydrosulfite, which included flammable hazard and acute toxicity hazard warnings (Figure 16). In general, this area lacked secondary containment that would prevent a large volume of stored chemicals from reaching the trench system if released, and lacked common safety guards intended to prevent accidental impacts mobile lifts or to prevent close storage of incompatible chemicals. Some spillage from the totes was observed underneath a storage rack (Figure 17).

Figure 6. Rotary Printer in Production Area



Figure 7. Digital Printing System in Production Area



Figure 8. Pair of “Slinky” Jig Dye Systems in Production Area



Figure 9. Jet Dye System in Production Area



Figure 10. Drums of Powdered Dyes Stored in Production Area and Residuals



Figure 11. Fabric Preparation Line



Figure 12. Bulk Chemical Drum With Oily Fluid Draining to the Trench System



Figure 13. Additional Chemicals In Use Lacking Secondary Containment



Figure 14. Parts Storage and Equipment Maintenance Room – Drain Inside Berm



Figure 15. Parts Storage and Equipment Maintenance Room – Drains Outside Berm



Figure 16. Un-bermed Bulk Chemical Storage Area – Drums Containing Warnings



Figure 17. Un-bermed Bulk Chemical Storage Area – Spillage Under Rack



c. Effluent Monitoring Point. The current SIU Permit specifies the effluent monitoring point location to be the “final manhole on the property.” There were several manholes identified behind the facility on the adjacent property with the unused treatment system. It was not immediately clear which of those manholes was the “final manhole.” Southern Impressions has been self-monitoring at one of these manholes, which was equipped with a flow meter connected to an enclosed ISCO-branded digital recorder and a sample line connected to an ISCO-branded automatic sampler.

The inspectors and Mr. Poplin observed water vapor continually rising from the opened sampling manhole (Figure 18). The fabric preparation line was operating at the time of the inspection, which Mr. Poplin stated discharges wastewater at a temperature of 180 °F. On its SMRs, the facility has consistently reported a maximum discharge temperature between 70-80 °F (in February, it has ranged 72-77 °F), which is well below the temperature limit of 140 °F in the SIU Permit. The ambient temperature and humidity at the time of inspection were 76 °F and 52 percent respectively. The inspectors were not equipped to independently test the temperature of the wastewater in the manhole.

With the fabric preparation line operating, the instantaneous readout on the ISCO digital flow recorder was 43 gallons per minute at 1:43 PM. A decal from the meter servicer, Clearwater Inc., indicated the meter’s calibration was current until August 2022.

Figure 18. Monitoring Point Manhole – Vapor



d. Unused Treatment System. Additional time was taken to investigate the unused treatment system that is adjacent to the production facility.

(1) Ownership. Williamsburg County Development Corporation (WCDC) owns the property at 119 Milliken Drive that includes the production facility and the adjacent unused treatment system. On 12/1/2013, WCDC leased use of the property and all of its facilities to Valley Forge Flag Company, Inc. for 10 years (a lease ending in 2023 with eight five-year extensions or a purchase optioned through 2063). Southern Impressions is a division of the Valley Forge Flag Company, Inc (Valley Forge).

Southern Impressions operates at the leased facility jointly with Valley Forge to produce a variety of finished flags and banners. In addition to operating at this facility, Southern Impressions operates a larger wet dying/printing facility in nearby Olanta (FRS: 110007185642). SCDHEC identified the Olanta location discharges to Lake City (SC0046311).

The preceding owner of the property, Milliken & Company, operated a large wastewater treatment system that directly discharged to the adjacent Black River. Upon Milliken's departure, SCDHEC elected not to require its closure under S.C. Regulation 61-67, allowing the treatment system and its discharge structure to be abandoned in place.

Although the unused treatment assets were leased to Valley Forge by WCDC, the POTW treatment facility operator confirmed that WCDC has also leased the assets to the POTW. This suggests that both the POTW and the industrial user may be separate lessees of the same facility until at least December 2023. The unused treatment system is now known to the POTW as the South Kingstree Industrial Wastewater Treatment Facility (SKI WWTF).

(2) Upgrades. A several years ago, the POTW sought to modify the SKI WWTF in two phases of construction. On 1/16/2015, the POTW obtained a construction permit from SCDHEC to reconfigure the SKI WWTF with the intention of allowing Southern Impressions to discharge up to 260,000 gpd into it, presumably without any pretreatment. Under that plan, the effluent from the SKI WWTF portion of the POTW was going to be sent directly to the Black River.

The "Phase 1" construction permit (19850-IW) specified the following changes: (1) a new aeration basin liner, (2) new surface aerators and a mixer, (3) a new influent and effluent line for the aeration basin, (4) the addition of a polymer feed system and rapid mixing/flocculation after the aeration basin, and (5) the addition of a flow diversion line after the aeration basin into a new gravity sewer line to the POTW sewer.

On 2/3/2015, SCDHEC issued a second NPDES permit to the POTW authorizing discharge from the SKI WWTF to the Black River once the second phase of construction was completed and approved to operate. The permit became effective on 3/1/2015.

On 10/30/2015, the POTW obtained a Phase 2 construction permit (39175-WW) from SCDHEC that specified the following changes: (1) conversion of the existing emergency holding basin into an equalization basin, adding surface aeration moored to concrete padding and a basin lining and valve changes, and (2) converting the anaerobic sludge digester into an aerated sludge basin with three floating aerators moored to concrete pads, and pond lining and valve changes.

On 4/25/2016, SCDHEC provided final approval to the POTW to begin operating the assets of the completed Phase 1 upgrade. This approval came with several contingencies. The Phase 1 operating permit required the POTW to supply a certified operator and to develop and implement an operations and maintenance manual for the updated system. Southern Impressions, among other stipulations, was to develop, implement, and maintain an up-to-date best management practices (BMP) plan on-site “to identify and control the discharge of significant amounts of oils and toxic substances listed in 40 CFR Part 117, and Tables II and III of Appendix D to 40 CFR Part 122.” Records suggest the toxics concern stemmed from Southern Impressions’ use of bulk acetic acid, ammonia, and sodium hydroxide in reportable quantities.

As-built drawings supplied by SCDHEC indicate the Phase 2 upgrades were completed on 7/7/2016. The conversion of the pre-existing emergency holding basin into an equalization basin (first item in the Phase 2 construction permit) had been removed by the POTW from the construction plan. However, the large basin previously used as an anaerobic sludge digester was successfully converted into an aerated sludge basin to manage the solids generated by operation of the Phase 1 pretreatment system.

The as-built drawings show that an existing discharge line from the aerated sludge basin to the Black River outfall was disconnected during Phase 2, but connectivity between the smaller Phase 1 aeration/flocculation basin and the outfall line remained in place. Although the direct-discharge permit to the Black River (SC0049255) expired on 2/28/2020, SCDHEC confirmed that the permit remains under an administrative continuance.

Based on the permitted construction design, authorization to operate the Phase 2 equipment would be necessary to fully operate the Phase 1 equipment. Although the Phase 2 construction was completed in mid-2016, the POTW has not received an operating permit for it from SCDHEC. The POTW has been contacted several times by SCDHEC concerning its questions about equipping the Black River outfall for a discharge, which it deems necessary for approval of an operating permit, but the POTW hasn’t provided them with a satisfactory response.

(3) Present Status. The POTW’s lack of a Phase 2 operating permit, and lack of a Phase 1 operator, has so far disallowed Southern Impressions from discharging without pretreatment into the SKI WWTP portion of the POTW. The POTW continues to accept the untreated process discharge from Southern Impressions at its main treatment facility.

Mr. Poplin noted that earlier in the week, on 2/22/2022, POTW representatives met with him to discuss the process discharge from Southern Impressions. He relayed that the POTW believes there isn’t a need for treatment of the process discharge beyond an equalization of the flow, and intends to use one of the SKI WWTP basins as equalization only, without using the other upgraded treatment and solids handling assets. The POTW representatives sought commitment from Southern Impressions to operate the SKI WWTP portion of the POTW in lieu of the POTW. Ms. Stevens (SCDHEC) advised Mr. Poplin that obtaining approval for a new construction and/or operating permit would be necessary since that use is not what was permitted for Phase 1.

As observed, the Phase 1 assets (lined smaller aeration basin, five aerators, floc tank, polymer feed system, clarifier, and post-aeration basin) were intact and unused. Rainwater had collected in the aeration basin to a level just below the concrete pads for the aerator motors. Damage to the crown of the liner was observed on the west side of the basin; a hole had been torn completely through the liner.

The large Phase 2 aerated sludge basin was lined, nearly full of rainwater, and its aerators were running. The sheltered weir box on the far west end of the property, used previously by Milliken for effluent monitoring and flow measurement, was not in use. The opening of the outfall line did not appear to be sealed off, suggesting a potential risk may remain for an unpermitted and unmonitored discharge to the Black River.

IV. Findings & Recommendations

1. Finding: As detailed in Section D.II, the absence of pretreatment has caused Southern Impressions to be in chronic Significant Non-Compliance (SNC) with applicable pretreatment standards for at least four consecutive years. Southern Impressions has self-reported exceeding pretreatment standards 186 times in the 36-month period between 4/2019 and 4/2022, with severities ranging between 1 and 3,200 percent of the standards.

The severities of the exceedances have routinely surpassed the 40 CFR § 403.8(f)(2)(viii) technical review criteria, qualifying Southern Impressions for Significant Non-Compliance (SNC) designations in 2019, 2020, 2021, and 2022. The frequency of exceedances for many limitations has also qualified Southern Impressions for Chronic SNC designations in 2019, 2020, 2021, and currently in 2022.

This ongoing SNC continues despite the POTW making the following modifications to the SIU Permit before reissuing it in 2021: increasing allowances for TSS and COD, removing the monthly average COD concentration limit that was being chronically violated at SNC levels, and removing the maximum pH limit.

Applicable Requirements: SIU Permit Sections I, II.17; IV.1, IV.2.b, IV.2.d, IV.4, IV.7, IV.20, and IV.22; 40 CFR §§ 403.5(c)(1), 403.5(d), 403.8(f)(1)(vi), 403.8(f)(2)(iv), 403.8(f)(2)(v)(B), 403.8(f)(2)(vii), 403.8(f)(2)(viii), and 403.8(f)(5).

Concerns/Recommendations: Southern Impressions' discharge to the POTW must return to compliance with all pretreatment standards and requirements.

2. Finding: As detailed in Section D.II., the pollutant loading that Southern Impressions has been contributing to the POTW is incompatible with the biological treatment offered. This would be true even if Southern Impressions had been meeting the BOD and COD limitations that the POTW established in its SIU Permits.

The conditions in the SIU Permit that the POTW has been issuing to Southern Impressions rightly anticipate the installation and use of pretreatment prior to commencing a discharge. Prior inspections by the EPA on 4/18/2019 and by SCDHEC on 7/9/2020 identified that Southern Impressions was discharging without pretreatment. The facility continues to discharge to the POTW without pretreatment.

As detailed in Section D.III., Southern Impressions has learned that Kingstree is considering the SKI WWTF portion of its POTW to equalize Southern Impressions' process flow before either discharging it directly to the Black River or to the POTW's main treatment facility. The POTW has also petitioned Southern Impressions to operate the SKI WWTF portion of its POTW.

Applicable Requirements: SIU Permit Sections I, II.17, IV.2.b, IV.2.d, IV.4, IV.7, IV.12, IV.20, and IV.22; 40 CFR §§ 403.5(b)(4), 403.5(c)(1), 403.5(d), 403.8(f)(1)(iv), 403.8(f)(2)(vii), and 403.8(f)(5).

Concerns/Recommendations: The Clean Water Act and its supporting EPA regulations place the burden of pollutant reduction on the industrial user of a POTW, and not its municipal ratepayers. Because the SKI WWTF is part of a POTW, industrial users intending to discharge into it must first meet all applicable pretreatment standards and requirements. As the regulated industrial user discharging into a POTW, Southern Impressions cannot also simultaneously act as the operator of the POTW that receives and regulates its discharge.

For Southern Impressions to use the SKI WWTF as the pretreatment system it needs, the SKI WWTF must no longer be a publicly owned treatment works. Southern Impressions might choose to acquire it as a privately-owned pretreatment works and assume the liability of operating it for that purpose. Otherwise, Southern Impressions would need to construct a separate pretreatment system that it owns and operates, enabling a compliant discharge into a POTW asset, whether into the SKI WWTF or the Kingstree main WWTF. Both options would necessitate that Southern Impressions obtain requisite permits from SCDHEC for ownership and operation of a pretreatment system.

Supplying equalization to the process discharge will not be sufficient pretreatment to fully resolve the ongoing SNC issues with the applicable pretreatment standards for BOD₅, COD, TSS, maximum pH, or oil and grease. The pretreatment of textile process wastewater ahead of discharging into a POTW is commonly necessary to reduce the high pollutant loadings to levels that are compatible with municipal systems designed for handling sewage. The POTW, for its part, needs to establish BOD and COD limitations for the SIU Permit that will assure a compatible BOD/COD ratio.

3. Finding: Southern Impressions aspires to add metals-bearing dye processes to its discharge to the POTW, and a rotary dye machine that employs metals-bearing dyes was observed onsite. The SIU Permit does not contain limitations for metals, but it does require copper, antimony, chromium, and zinc to be monitored once semi-annually.

Applicable Requirements: SIU Permit Sections I, II.17, IV.17, IV.20, IV.21, IV.23, and IV.24; 40 CFR §§ 403.5(c)(1), 403.5(d), 403.8(f)(1)(i), 403.8(f)(1)(iv), 403.8(f)(2)(iv), and 403.12(j).

Concerns/Recommendations: The additional use of metals-bearing dyes may necessitate additional pretreatment to extract the metals and to manage the resulting solids, which could potentially qualify as hazardous waste. To assure compliance, Southern Impressions should maintain and document close communication with the POTW in advance of any potential changes to its production processes. In the event an addition is allowed and controlled by the POTW through the SIU Permit, Southern Impressions should assure its pretreatment design is capable of meeting the applicable pretreatment standards before adding that process wastestream to a discharge into a POTW.

4. Finding: Southern Impressions discharged a slug load into the POTW in 3/2021, exceeding all COD and TSS daily maximum and monthly average pretreatment standards (both concentration and mass) by orders of magnitude above historically reported values. Pretreatment standards for maximum pH and BOD were also exceeded that month. The monthly average color of the discharge reported for 3/2021 was 11,000 ADMI units, and the daily maximum color reported was 50,000 ADMI units. The daily maximum total dissolved solids of the discharge for 3/2021 was also 12,010 ppd. Such values are well above those seen in a typical POTW influent.

A record of Southern Impressions providing immediate notice to the POTW at the time of the slug discharge was not identified during the records review. The POTW did not identify the slug discharge from the eventual self-monitoring report, nor did it respond by implementing its Enforcement Response Plan and requiring a Slug Discharge Control Plan to prevent a reoccurrence.

Applicable Requirements: SIU Permit Sections II.13, IV.6, IV.8.b., IV.9, IV.21, and IV.22; 40 CFR §§ 403.5(b)(4), 403.5(d), 403.8(f)(2)(vi), 403.8(f)(5), 403.12(f), and 403.12(j).

Concerns/Recommendations: Southern Impressions needs to identify the conditions that led to the slug discharge and the steps it will take to prevent a reoccurrence. Reporting requirements in the SIU Permit need to be followed and documentation of such events and their notifications need to be retained in the facility's compliance records.

5. Finding: The parts storage and equipment maintenance room, which is located adjacent to the main production space, contains oils and lubricants stored near floor drains. Some of the containers had concrete stains emanating from them. All of the floor drains observed in the room were surrounded by staining, suggesting they had received drainage at some point in the past. The facility manager was unsure if these floor drains connected to the effluent line or if they were isolated.

Additionally, the bulk chemical storage space, which is located adjacent to the fabric preparation and jig dye lines and their associated floor trenches, contained totes on a rack that had spillage underneath, and contained chemicals in totes and drums that are labeled as having flammable and toxicity hazards. This space was not equipped with any berms or guards to prevent accidental spills or impacts from mobile equipment operating in the area.

Additionally, none of the chemical drums in use within the production area were equipped with secondary containment. One drum sitting on top of a floor trench was observed to have oily contents underneath that were draining into the adjacent floor trench.

Applicable Requirements: SIU Permit Sections IV.6, IV.9, and IV.24; 40 CFR § 403.8(f)(2)(vi)

Concerns/Recommendations: Southern Impressions has been in chronic SNC with applicable oil and grease pretreatment standards for two years without a compliance order from the POTW, and uses other bulk chemicals that may pose a risk to the POTW assets if accidentally discharged. The absence of a requirement in the SIU Permit to implement a Slug Discharge Control Plan (SDCP) suggests the POTW has still not required one. Based on the inspection findings, Southern Impressions needs to develop and implement an SDCP. Southern Impressions should also obtain a verified map of the current floor drainage plumbing at the facility, and begin using physical protections such as secondary containment and berms or impact barriers for bulk containers and their storage areas.

The purpose of an SDCP is to organize and apply actions to prevent slugs of process wastewater or spilled chemicals from being discharged from the facility to the POTW. An SDCP also ensures training and instructions are in place that will ensure personnel can identify a slug discharge risk and take the necessary actions to maintain compliance. The POTW may also desire to approve the plan before conditioning its use in the SIU Permit as a best management practice standard. Section 2.3.4 of the following EPA guidance may be helpful in preparing one: <https://www3.epa.gov/npdes/pubs/owm021.pdf>

6. Finding: The current SIU Permit and self-monitoring form supplied by the POTW omit the maximum pH local limit of 9.0, which is a discharge prohibition in §54.010(B)(2) of Title V, Kingstree Code of Ordinances. Such prohibitions are pretreatment standards, and they are applicable to all industrial users of the POTW whether or not they hold an individual SIU Permit that requires self-monitoring. The preceding SIU Permits issued by the POTW had included this maximum pH standard. The POTW reported its decision to exclude the standard from the 2021 permit reissuance after identifying Southern Impressions exceeded the standard near the end of 2020.

Applicable Requirements: SIU Permit Section IV.17; 40 CFR §§ 403.5(c)(1) and 403.5(d).

Concerns/Recommendations: The EPA recommends that Southern Impressions petition the POTW to add this standard back into the SIU Permit and onto the associated self-monitoring form. Southern Impressions has been in ongoing chronic SNC with this pretreatment standard that applies to the discharge whether or not it is included in the user permit. The EPA recommends that compliance with the maximum pH standard be achieved and reported to the POTW.

7. Finding: The fabric preparation line operates at 180 °F, and this line can operate and discharge intermittently. The maximum temperature allowed by §54.010(B)(5) of Title V, Kingstree Code of Ordinances and the current SIU Permit is 140 °F.

Southern Impressions has routinely reported a maximum discharge temperature ranging between 70-80 °F based on samples obtained pursuant to its SIU Permit condition, which requires that the maximum temperature be analyzed from one grab sample collected each month. This low monitoring frequency and the intermittent nature of the heated discharge from the fabric preparation line may be resulting in reported values that do not accurately assess the maximum temperature of the discharge during the month. Similarly, the minimum pH values that are being reported are based on grab samples collected once weekly.

Applicable Requirements: SIU Permit Section IV.20; 40 CFR § 403.12(g)(3)

Concerns/Recommendations: The POTW must require a monitoring frequency that will successfully assess and assure compliance with standards. Instead of collecting a single grab sample to represent an entire month or week of intermittent discharges, the EPA recommends that Southern Impressions request the POTW to modify its SIU Permit to employ continuous monitoring of the temperature and pH in the sampling manhole.

Evaluating a complete record during all periods of flow will assure a more complete assessment of Southern Impressions' compliance with applicable maximum pH, minimum pH, and maximum temperature pretreatment standards. Continuous temperature and pH data would be logged from an industrial wastewater probe placed in the sampling manhole flow, preferably upstream of the automatic sampling port to avoid potential impacts from the purge cycle of the automatic sampler. Most probes can also continuously measure conductivity, which is another parameter reported once per month in the current SIU Permit.

8. Finding: Section II.17 of the SIU Permit issued by the POTW includes a requirement to comply with 40 CFR Part 439, Subpart A, which is not applicable to Southern Impressions based on the operations observed on-site. Southern Impressions is required to report compliance with standards under 40 CFR Parts 403 and 410.

The SIU Permit also has a duration of six years, with an effective date of 1/1/2021 and an expiration of 12/31/2026. SIU permits may not have total durations greater than five years.

Applicable Requirements: 40 CFR §§ 403.8(f)(1)(iii)(B)(I), 403.8(f)(2)(iii), 403.12(b), 403.12(c), 403.12(d), and 403.12(e)

Concerns/Recommendations: Southern Impressions needs to request the POTW to correct the permit requirements.

9. Finding: While onsite, the self-monitoring records that Southern Impressions presented for inspection were incomplete. Valid self-monitoring reports were missing for 2/2019, 3/2019, 5/2019, and 6/2019, and supporting lab results were missing for 2/2019, 3/2019, 4/2019, 5/2019, and 6/2019. Southern Impressions was able to provide copies of the 4/2019, 5/2019 and 6/2019 self-monitoring reports when those were specifically requested after the on-site inspection.

Applicable Requirements: SIU Permit Section IV.15; 40 CFR § 403.12(o)

Concerns/Recommendations: Southern Impressions is required to maintain all information resulting from self-monitoring activities for at least five years, and to have those available for inspection by the POTW, SCDHEC, or the EPA. Southern Impressions also needs to improve the organization of its compliance records.

- END OF REPORT -



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW
ATLANTA, GEORGIA 30303-3104

ELECTRONIC MAIL
CONFIRMATION OF EMAIL RECEIPT REQUESTED

Mr. Randy Poplin
Plant Manager
Southern Impressions
119 Milliken Drive
Kingstree, South Carolina 29556
rpoplin@southernimpressions.net

Re: Industrial User Inspection Report

Dear Mr. Poplin:

Thank you for the time and cooperation extended to the representative of the United States Environmental Protection Agency, Region 4 during the February 24, 2022, inspection of the Southern Impressions facility in Kingstree, South Carolina. Enclosed is a copy of the report for this inspection. Please email us a written response to the findings in Section D.IV. within sixty (60) calendar days. If you have any questions about the report, please contact Mr. David Phillips at (404) 562-9773 or via email at phillips.david@epa.gov.

Sincerely,

Jairo Castillo, P.E., Chief
Wastewater Enforcement Section
Water Enforcement Branch
Enforcement & Compliance Assurance Division

Enclosure

cc: Mr. Brian Wisnewski
South Carolina DHEC