Project ID: 21-0259

NPDES Diagnostic Evaluation Final Report

New Indy Containerboard LLC

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Catawba, SC 29704

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The activities depicted in this report are accredited under the US EPA Region 4 Laboratory Services & Applied Science Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.

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New Indy Containerboard LLC (Permit No. SC0001015)

1. Introduction

During the week of May 25, 2021, representatives of the U.S. Environmental Protection Agency (USEPA) Region 4 Laboratory Services and Applied Science Division (LSASD) and Enforcement and Compliance Assurance Division (ECAD) conducted a National Pollutant Discharge Elimination System (NPDES) Diagnostic Evaluation at New Indy Containerboard LCC in Catawba, SC. The evaluation was requested by the ECAD Water Enforcement Branch to assist with an ongoing investigation conducted by the South Carolina Department of Health and Environmental Control (SCDHEC) into foul odor complaints submitted by citizens in the surrounding counties of the facility. This diagnostic evaluation was conducted to provide additional analytical data to ECAD.

The LSASD wastewater sampling team collected 24-hr composite samples at the effluent discharge location consistent with the facility's NPDES permit and at the influent location where the process wastewater enters the wastewater treatment plant (WWTP). Effluent samples were analyzed for the parameters listed on the issued NPDES permit as well as some other parameters not listed. Influent samples were analyzed for the same parameters as the effluent samples. Samples were also collected at the Aeration/Stabilization Basin (ASB) inlet and outlet and analyzed for semi-volatiles, volatiles, and Sulfides. Additionally, sampling was conducted upstream and downstream of the effluent discharge on the Catawba River to determine if there were any changes in water quality downstream of the discharge point.

The inspection followed the procedures listed in the LSASD Project No. 21-00259 Sample and Analysis Plan (SAP). Table 1 lists the sampling participants.

Table 1 – EPA Personnel at the Sampling Event

Inspector	Organization	Date on site
Chris McHugh	USEPA Region 4 LSASD	5/25-26/21
Bill Simpson	USEPA Region 4 LSASD	5/25-26/21
Derek Little	USEPA Region 4 LSASD	5/25/21
Mel Parsons	USEPA Region 4 LSASD	5/25/21

Dennis Sayre	USEPA Region 4 ECAD	5/25-26/21
Tristan Odekirk	USEPA Region 4 ECAD	5/25-26/21

2. Summary

Sample analyses show that the facility is compliant with its NPDES permit effluent limitations for the EFF001 discharge. Analytical results for the semi-volatile and volatile samples collected at the EFF001 and ASB inlet and outlet locations are consistent with the facility's statement that it no longer uses the bleach process line. Samples were analyzed for sulfide in the ASB inlet (7.7 mg/L) and outlet (4.0 mg/L) and EFF001 (5.5 mg/L).

The WWTP removal efficiency was calculated for biochemical oxygen demand (BOD_5) (92.2%), total suspended solids (TSS) (96.2%), ammonia nitrogen (-32.4%), and total phosphorus (28.5%) (See Table 4 below). Note that the foul condensate discharge point is submerged in the ASB and not accounted for in the influent pollutant concentrations used for the removal efficiency calculation. The foul condensate discharge is approximately 0.9 MGD into the ASB and could account for the increase (negative efficiency value) in ammonia nitrogen calculated.

Catawba River sampling upstream and downstream of the effluent discharge location (EFF001) showed little to no change in concentration for BOD_5, TSS, ammonia, and total phosphorus (See Table 5 below).

3. Sample Analysis Results

Table 2 below contains the analytical results from the sampling conducted during the diagnostic evaluation. Samples analyzed for adsorbable organic halides (AOX) were analyzed by GEL Laboratory in Charleston, SC. Samples analyzed for sulfide and color were analyzed by Pace Analytical in Columbia, SC.

Sample analyses for AOX, semi-volatiles (trichlorophenols, tetrachlorophenol, and pentachlorophenol), and volatiles (chloroform) were conducted since the facility previously used these chemicals when the bleach process line was in operation. Chloroform (3.4 µg/L) and phenol (130 µg/L) were detected at the ASB inlet sampling location. Overall, the sampling for volatiles and semi-volatiles indicated that the facility is no longer using the permitted chemicals, as stated by the plant environmental manager during the inspection.

The facility is required to monitor and report color and is limited to no more than a 32 color unit (CU) increase daily. The increase of 10 CU was calculated based on the upstream and downstream river sampling from the effluent discharge.

As shown in Tables 4 and 5, the WWTP at the facility was effectively removing primary pollutants from the waste stream at the time of the sampling event, and the Catawba River showed little to no change in concentration for the primary pollutants discharged.

Table 2 – Sample Analytical Results

Analyte	Analytical Results	Permitted Limit	Sample Location
BOD_5	55 mg/L *A, J	Monitor and Report	Effluent (EFF001)
TSS	34 mg/L	Monitor and Report	Effluent (EFF001)
Nitrogen, Ammonia total (as N)	4.9 mg/L	10 mg/L	Effluent (EFF001)
Phosphorus, Total	1.0 mg/L	Monitor and Report	Effluent (EFF001)
Copper	20.0 µg/L *U	Monitor and Report	Effluent (EFF001)
AOX	10 µg/L *U	Monitor and Report	Effluent (EFF001)
Chloroform	1.0 µg/L *U, J, C-6	None	Effluent (EFF001)
Sulfide	5.5 mg/L	None	Effluent (EFF001)
pH	7.88 su	6.0 su < and < 8.5 su	Effluent (EFF001)
BOD_5	710 mg/L *L	None	Influent (INF001)
TSS	900 mg/L	None	Influent (INF001)
Nitrogen, Ammonia total (as N)	3.7 mg/L	None	Influent (INF001)
Phosphorus, Total	1.4 mg/L	None	Influent (INF001)
Copper	20.0 µg/L *U	None	Influent (INF001)
2,4,5-Trichlorophenol	50 µg/L *U	None	ASB Inlet
2,4,6-Trichlorophenol	50 µg/L *U	None	ASB Inlet
2,3,4,6-Tetrachlorophenol	50 µg/L *U	None	ASB Inlet
Pentachlorophenol	50 µg/L *U	None	ASB Inlet
Phenol	130 µg/L	None	ASB Inlet
Chloroform	3.4 µg/L *J, C-6	None	ASB Inlet
Sulfide	7.7 mg/L *S	None	ASB Inlet
2,4,5-Trichlorophenol	50 µg/L *U	None	ASB Outlet

2,4,6-Trichlorophenol	**50 µg/L *U**	**None**	**ASB Outlet**
2,3,4,6-Tetrachlorophenol	**50 µg/L *U**	**None**	**ASB Outlet**
Pentachlorophenol	**50 µg/L *U**	**None**	**ASB Outlet**
Chloroform	**1.0 µg/L *J, C-6**	**None**	**ASB Outlet**
Sulfide	**4.0 mg/L**	**None**	**ASB Outlet**
BOD_5	**4.0 mg/L *K**	**None**	**Downstream Catawba**
TSS	**5.0 mg/L *U**	**None**	**Downstream Catawba**
Phosphorus, Total	**0.056 mg/L**	**None**	**Downstream Catawba**
Nitrogen, Ammonia total (as N)	**0.10 mg/L**	**None**	**Downstream Catawba**
Copper	**10.0 µg/L *U**	**None**	**Downstream Catawba**
AOX	**10 µg/L *U**	**None**	**Downstream Catawba**
Color (Platinum Cobalt)	**15 CU**	**Monitor and Report**	**Downstream Catawba**
pH	**7.43 su**	**None**	**Downstream Catawba**
RDO	**7.62 mg/L**	**None**	**Downstream Catawba**
BOD_5	**4.0 mg/L *K**	**None**	**Upstream Catawba**
TSS	**5.0 mg/L *U**	**None**	**Upstream Catawba**
Phosphorus, Total	**0.072 mg/L**	**None**	**Upstream Catawba**
Nitrogen, Ammonia total (as N)	**0.10 mg/L * U**	**None**	**Upstream Catawba**
Copper	**10.0 µg/L *U**	**None**	**Upstream Catawba**
AOX	**10 µg/L *U**	**None**	**Upstream Catawba**
Color (Platinum Cobalt)	**5.0 CU**	**Monitor and Report**	**Upstream Catawba**
pH	**7.37 su**	**None**	**Upstream Catawba**
RDO	**6.72 mg/L**	**None**	**Upstream Catawba**
Color Increase	**10 CU**	**32 CU**	**Calculation**
Copper (Equipment Rinse Blank)	**10 µg/L *U**	**None**	**ERB001**

Table 3 – Data Qualifier Definitions

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
A	The analyte was analyzed in replicate. Reported value is an average value of the replicates.
K	The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
L	The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
C-6	Sample aliquot taken from VOA vial with headspace (air bubble greater than 5-6 mm diameter).
S	MS/MSD failure.

Table 4 – WWTP Removal Efficiency for Primary Pollutants and Nutrients

Analyte	Sample Location		Removal Efficiency
	Influent (IFF001)	Effluent (EFF001)	
BOD_5	**710 mg/L *L**	**55 mg/L *A, J**	**92.2%**
TSS	**900 mg/L**	**34 mg/L**	**96.2%**
Nitrogen, Ammonia total (as N)	**3.7 mg/L**	**4.9 mg/L**	**-32.4%**
Phosphorus, Total	**1.4 mg/L**	**1.0 mg/L**	**28.5%**

- The foul condensate (approximately 0.9 MGD) was not included in the Influent concentration due to submerged inflow in the ASB.

Table 5 – Upstream vs. Downstream Catawba River Sampling

Analyte	Sample Location		Concentration Change
	Upstream	Downstream	
BOD_5	**4.0 mg/L *K**	**4.0 mg/L *K**	**NA**
TSS	**5.0 mg/L *U**	**5.0 mg/L *U**	**NA**
Nitrogen, Ammonia total (as N)	**0.10 mg/L *U**	**0.10 mg/L**	**NA**
Phosphorus, Total	**0.072 mg/L**	**0.056 mg/L**	**- 0.016 mg/L**

4. Calculations

Color increase: Downstream – Upstream

- 15 CU – 5 CU = 10 CU increase.

Removal Efficiency = $\frac{Influent - Effluent}{Influent} * 100\%$

- (710 – 55) / 710 * 100% = 92.2% BOD_5 Removal
- (900 – 34) / 900 * 100% = 96.2% TSS Removal
- (3.7 – 4.9) / 3.7 * 100% = -32.4% Ammonia Nitrogen Removal
- (1.4 – 1.0) / 1.4 * 100% = 28.5% Total Phosphorus Removal

Concentration Change = Downstream – Upstream

- 0.056 mg/L – 0.072 mg/L = -0.016 mg/L Total Phosphorus Change in Concentration.

5. GPS Sampling Locations Aerial View

Below are the sampling locations for each sampling location in Table 2 and an aerial view with pinpoints.

Table 6 – Sample Location Descriptions

Sample Location	Description
Upstream Catawba River	34.85385N, -80.86711W
Downstream Catawba River	34.83110N, -80.88947W
EFF001	Effluent Discharge Building
INF001	Influent mixing point before primary clarifier
ASB Inlet	Sampling bridge on channel leading into ASB
ASB Outlet	Sampling bridge on channel leading out of ASB

Figure 1 – Sample Locations

Appendix A

The following table lists the total number of pages for each of the Analytical Datasheets for this report. Each document is contained in the PDF portfolio.

R4LIMS ID	ASB Lab ID	Analysis	Total Pages
21-0259	E212205	BOD_5, Ammonia	12
		Total Phosphorus	10
		TSS	10
		Copper	11
		SVOA	22
		VOA	10
GEL Lab Contract Service		AOX	42
Pace Analytical Lab Contract Service		Sulfide, Color	18

End of Report