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August 30, 2021

Danielle Harbin | Enforcement Coordinator
Division of Environmental Quality | Office of Water Quality
5301 Northshore Drive | North Little Rock, AR 72118

RE: NPDES Permit No. AR0001210; AFIN: 02-00013 - **GP Additional Information Request 2**

Dear Ms. Harbin:

To follow-up your August 9, 2021 letter, and our previous submittals on June 30, 2021, July 14, 2021 and August 4, 2021, we are providing:

1. An updated list of all sampling data with comments to address QA/AC issues flagged through a detailed internal review by month, outfall, parameter, and monitoring frequency for the last three (3) years in **Appendix A**. GP does not believe that these QA/QC issues invalidate the data or indicate any exceedances of the applicable BOD5 limits in the NPDES Permit AR0001210. According to the method, associated data should be identified, the potential cause for the QA/QC issue evaluated, and corrective actions taken, if appropriate. BOD is a biological method and QA/QC exceptions are common even in commercial laboratories. Also, according to the analytical method, there is no measurement for establishing bias of the BOD procedure. QA/QC data, such as the GGA laboratory control sample and dilution water blank are intended to be reference points for evaluation of the effectiveness of the overall quality of the system when observed effects become repetitive. GP does not believe the QA/QC exceptions here are of a chronic nature.
2. Copies of updated Standard Operating Procedures (SOPs) for BOD, TSS and Grab pH performed in-house as well as documentation that the lab personnel have received training on the correct procedures is provided in **Appendix B**.
3. A timeline for the Third-Party Audit of the in-house lab which is scheduled for Tuesday, August 31, 2021.

Please contact Rachel Johnson at Rachel.Johnson2@GAPAC.com or me at Sarah.Ross@gapac.com for additional information.

Sincerely,

Sarah Ross, Environmental & Compliance Leader
GP Crossett Paper Operations

APPENDIX A:

BOD QA/QC Issues
3-year Summary
August 1, 2018-July 31, 2021

APPENDIX A: BOD QA/QC Issues – 3-year Summary (August 1, 2018-July 31, 2021)

Issue 1 – The glucose/glutamic acid (GGA) laboratory control standard was not run daily with each set of samples. Instead, the standard was run one day per week from August 1, 2018 to June 3, 2021. The laboratory only set up one bottle of GGA standard.

Issue 2 – The BOD glucose/glutamic acid (GGA) laboratory control standard recovered outside the acceptable range of 198 mg/L +/- 30.5 for the samples associated with the following dates:

Table 1 – Summary of Out-of-Range GGA Checks¹

Date	mg/L	Date	mg/L	Date	mg/L	Date	mg/L
9/5/2018	164	6/5/2019	159	11/18/2020	230	6/2/2021	162
11/21/2018	163	6/12/2019	159	12/9/2020	236	6/9/2021	163
11/28/2018	164	7/3/2019	167	12/23/2020	233	6/15/2021	163
12/5/2018	147	10/9/2019	150	1/13/2021	150	6/22/2021	153
12/19/2018	167	11/13/2019	159	1/27/2021	166	6/23/2021	162
1/9/2019	164	11/20/2019	167	2/10/2021	151	6/29/2021	154
1/16/2019	109	12/25/2019	162	2/18/2021	164	6/30/2021	161
1/23/2019	149	1/1/2020	165	2/24/2021	166	7/1/2021	165
1/30/2019	152	1/8/2020	142	3/3/2021	148	7/13/2021	152
2/6/2019	161	1/15/2020	158	3/10/2021	166	7/14/2021	158
2/13/2019	157	2/5/2020	166	4/7/2021	159	7/15/2021	163
3/6/2019	157	2/12/2020	166	4/14/2021	160	7/20/2021	163
5/15/2019	166	2/26/2020	167	4/21/2021	167		
5/22/2019	158	3/18/2020	155	4/28/2021	166		
5/29/2019	162	5/20/2020	159	5/26/2021	153		

FOOTNOTE 1: The yellow highlighted cells indicate an above range recovery and the pink highlighted cells indicate a below range recovery. These values were adjusted slightly from the previous submittals based on a revision to the seed correction factor calculation. It was noted during further review of the data that the seed correction factor calculation was based on adding 2 mLs of seed to the GGA standards rather than 3 mLs.

Issue 3 – BOD is run 3 times per week at Outfall 001 and SMS 002. The analytical method specifies a minimum dissolved oxygen (DO) depletion criteria of 2 mg/L and a minimum residual DO criteria of at least 1.0 mg/L.

Outfall 001 - Between August 1, 2018 and July 31, 2021, there have been sixty-one (61) instances where all the dilutions under depleted for Outfall 001 samples. The dates of these events are as follows:

Table 2 – Under Depletions at Outfall 001 (August 1, 2018 - July 31, 2021)

8/8/2018	4/23/2020	8/20/2020	11/12/2020
9/25/2018	4/28/2020	8/26/2020	3/2/2021
9/26/2018	4/29/2020	8/27/2020	3/3/2021
9/27/2018	4/30/2020	9/3/2020	3/4/2021
10/2/2018	5/5/2020	9/17/2020	3/10/2021
10/3/2018	5/6/2020	9/22/2020	3/16/2021
10/4/2018	5/7/2020	9/23/2020	3/17/2021
10/9/2018	5/12/2020	9/24/2020	3/18/2021
5/15/2019	5/19/2020	10/1/2020	4/20/2021
5/16/2019	7/29/2020	10/8/2020	5/18/2021
11/5/2019	7/30/2020	10/22/2020	5/19/2021
12/17/2019	8/5/2020	10/28/2020	5/20/2021
12/18/2019	8/6/2020	10/29/2020	5/26/2021
4/21/2020	8/18/2020	11/4/2020	5/27/2021
4/22/2020	8/19/2020	11/11/2020	6/2/2021
			6/8/2021

Outfall 001 - There were four (4) days (sample collection dates of) where all dilutions over depleted for Outfall 001 Samples, not meeting the minimum residual DO of 1.0 mg/L. These sample dates were 3/26/2020, 12/7/2020, 12/8/2020 and 12/9/2020.

SMS 002 - In addition, there were three (3) instances where all the dilutions under depleted for SMS 002 samples. The dates of these events are 9/27/2018, 10/9/2018, and 11/5/2019.

Issue 4 – A dilution water blank was run daily with each set of samples, but the depletion criteria of less than or equal to 0.2 mg/L was not met on the following days.

Table 3 – Outfall 001 (August 1, 2018 - July 31, 2021)

8/9/2018	2/19/2019	7/4/2019	5/5/2020
8/15/2018	3/13/2019	7/9/2019	5/26/2020
9/11/2018	3/28/2019	7/16/2019	5/27/2020
10/23/2018	4/2/2019	8/6/2019	8/25/2020
10/24/2018	4/9/2019	8/21/2019	9/1/2020
10/30/2018	4/16/2019	8/22/2019	9/2/2020
10/31/2018	4/17/2019	9/17/2019	10/13/2020
11/1/2018	4/24/2019	9/25/2019	11/11/2020
11/15/2018	5/1/2019	9/26/2019	11/12/2020
11/28/2018	5/7/2019	12/4/2019	1/5/2021
12/18/2018	5/9/2019	1/1/2020	1/6/2021
12/26/2018	5/29/2019	1/15/2020	1/7/2021
1/1/2019	5/30/2019	1/28/2020	1/12/2021
1/29/2019	6/4/2019	3/31/2020	3/30/2021
2/5/2019	6/6/2019	4/1/2020	4/15/2021
2/6/2019	6/19/2019	4/16/2020	

In addition, the final DO of the dilution water blank was not documented on 8/7/2018, 10/3/2018, 10/9/2018, 11/8/2018, 12/19/2018, 8/27/2019, 10/15/2019, 10/16/2019 and 11/26/2019.

APPENDIX B:

Updated Standard Operating Procedures (SOPs)
for
BOD, TSS and Grab pH and
Lab Employees Acknowledgement

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of 5-Day BOD (Biochemical Oxygen Demand)	ISSUE DATE 1/31/2012	METHOD Standard Methods 5210 B-2016
APPROVED BY Rachel Johnson	REV. DATE 8/16/2021	PAGE 1 of 6
PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

SCOPE

The BOD test is performed to determine the presence of organic pollutants. The result of the test indicates the amount of dissolved oxygen used up in a sample, giving a measure of organic material present. The sample is collected and incubated in an air-tight bottle for five (5) days at 20° C. Dissolved oxygen is measured initially and after incubation. BOD is computed from the difference between initial and final DO. A BOD5 analysis is required by NPDES permit AR0001210 at Outfall 001 (E2) and at SMS 002 (E3) at a minimum of three (3) times per week.

APPARATUS

Clean BOD bottles with stoppers and plastic covers

Incubator controlled at 20° C +/- 1° C, with NIST traceable thermometer and excluding all light.

Pipettes and graduated cylinders

Dissolved Oxygen (DO) meter

pH meter

Carboy for dilution water

Thermometers

Stir plate with stir bars

Composite sampler and refrigerator

REAGENTS

Polyseed capsule

BOD Standard Solution

De-Ionized (DI) Water

BOD Dilution Water: Add 190 mL of Phosphate buffer, 190 mL of Magnesium Sulfate solution, 190 mL of Ferric Chloride solution and Calcium Chloride solution to 55 gallons of DI Water.

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
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PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

Saturate with oxygen by aerating with organic-free filtered air. Let the dilution water stand overnight. The water is deemed good as long as the nutrient water blanks show less than 0.2 mg/L do depletion in 5 days.

BOD Seed Water: Place entire contents of one Polyseed capsule into 500 mL of dilution water. Add a stirrer bar and saturate with oxygen by aerating for one hour. Let settle for 10-15 minutes.

Check Solution Standard – This is a commercially prepared solution used for internal proficiency testing. Follow manufacturer’s instructions for use as they are subject to change.

Glucose-Glutamic Acid solution (GGA) – This is a commercially prepared solution. Follow manufacturer’s instructions for use as they are subject to change.

PROCEDURE

Sample Collection

Composite Samples – Keep samples at or below 6°C during compositing and transportation to the lab. Rinse the sample container with a portion of the collected sample. Transfer the needed volume from the composite sampler into a clean sample container. Cap and return the sample container to the lab. Samples should be collected and analyzed on the following frequency:

Sample	Frequency
Outfall 001	3 times per week
E3SMS 002	3 times per week
Internal proficiency testing	1 test per month
DMRQA	1 test per year

Dilution water blanks and GGA check standards are analyzed each time compliance samples are run.

Sample Storage and Holding Time

Cold storage is not necessary if BOD analysis is begun within two (2) hours of sample collection. If analysis is not started within two (2) hours, the sample should be kept at or below 6°C. Hold time for the sample is 48 hours from collection time.

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of 5-Day BOD (Biochemical Oxygen Demand)	ISSUE DATE 1/31/2012	METHOD Standard Methods 5210 B-2016
APPROVED BY Rachel Johnson	REV. DATE 8/16/2021	PAGE 3 of 6
PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

Pre-Treatment of Samples

If sample contains caustic alkalinity (pH>8.5) or acidity (pH<6.0) bring sample to 20° C +/- 1°C, and neutralize to 6.5 – 7.5 pH using 1N sodium hydroxide and/or 1N sulfuric acid, while stirring.

Confirmation of Incubator Temperature

Read the thermometer in the incubator and record. Reset the incubator temperature if it is outside the range of 20° C +/- 1°C.

Calibration of DO Meter

The DO Meter should be turned on at least 15 minutes prior to use in order for the probe to stabilize. Prior to use each day, zero the instrument and perform an air calibration by following the procedures in the operations manual for the meter used.

Setup and Incubation of BOD Samples

1. Dilution Water Blank:
 - a. Fill a BOD bottle with dilution water. Fill bottle with an amount of dilution water sufficient to prevent an air bubble from forming in the bottle when the stopper is inserted.
 - b. Place bottle in incubator until temperature is at 20° C +/- 1°C.
 - c. Use the membrane electrode to determine initial DO in the bottle.
 - d. Record bottle number and initial DO value.
 - e. Replace any bottle contents displaced by electrode measurement with dilution water.
 - f. Stopper the bottle tightly. Water-seal cap and place in incubator.
2. Seed Controls:
 - a. Setup BOD bottles 1, 2, and 3.
 - b. Fill BOD bottles half full with dilution water.
 - c. Pipette 10mL, 15mL, and 20mL of seed water into bottles 1, 2, and 3. (Portions may vary in order to meet DO residual and uptake criteria.*)
 - d. Finish filling BOD bottles with dilution water.
 - e. Determine the initial DO and record results.
 - f. Stopper bottles tightly. Water-seal cap and place in the incubator.

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of 5-Day BOD (Biochemical Oxygen Demand)	ISSUE DATE 1/31/2012	METHOD Standard Methods 5210 B-2016
APPROVED BY Rachel Johnson	REV. DATE 8/16/2021	PAGE 4 of 6
PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

Note: Only GGA samples and various non-regulatory samples are seeded.

3. BOD of Check Solution Standard:
 - a. Fill three BOD bottles half full with dilution water and 3mL of seed water.
 - b. Shake three vials of the GGA check solution and snip off top.
 - c. Pour one vial of check solution into each bottle and finish filling with dilution water.
 - d. Record lot number and stock number.
 - e. Determine the initial DO and record results.
 - f. Stopper bottles tightly. Water-seal cap and place in the incubator.
4. BOD of E2 & E3 Samples:
 - a. Bring samples to 20° C +/- 1°C before making dilution.
 - b. Shake the sample container.
 - c. Set up (3) BOD bottles for each sample.
 - d. Pour 150mL, 110mL and 80mL portions of the E2 sample, into 1000mL flasks A, B, and C. For E3 use 450mL, 250mL, and 150mL portions. (Portions may vary in order to meet DO residual and uptake criteria.*)
 - e. Finish filling the flasks up with dilution water and pour them in 1000mL beakers.
 - f. Siphon into BOD bottles 8, 9, and 10 for E2 samples and BOD bottles 11, 12, and 13 for E3 samples.
 - g. Determine initial DO, and record results.
 - h. Stopper bottles tightly. Water-seal cap and place in the incubator.
5. BOD of Non-Regulatory Samples:
 - a. Fill BOD bottles half full with dilution water.
 - b. Transfer 6mL, 4mL, and 3mL of E1 sample into BOD bottles 5, 6, and 7.
 - c. Transfer 2mL of seed water into the bottles.
 - d. Finish filling the BOD bottles with dilution water. Determine initial DO, and record results.
 - e. Stopper bottles tightly. Water-seal cap and place in the incubator.
6. Incubator Take Out:
 - a. After five (5) days of incubation (+/- 4 hours), remove BOD bottles from incubator.
 - b. Measure and Record final DO.
 - c. Calculate and Record BOD.

*Dilution Technique for samples: Dilutions that result in a residual DO of at least 1.0 mg/L and a DO uptake of a least 2.0 mg/L after five days of incubation produce the most reliable results and

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of 5-Day BOD (Biochemical Oxygen Demand)	ISSUE DATE 1/31/2012	METHOD Standard Methods 5210 B-2016
APPROVED BY Rachel Johnson	REV. DATE 8/16/2021	PAGE 5 of 6
PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

are a requirement for an acceptable test. Use previous data, along with TSS, BOD₁, TOC or COD data to determine necessary dilutions. If unsure, more than three dilutions per sample may be used.

CALCULATIONS FOR SAMPLES

Where D₁ = Initial DO of diluted sample, mg/L

D₂ = DO of diluted sample after incubation, mg/L

DF = Dilution Factor, mL of sample used / 1000 mL total

S = Oxygen uptake of seed per milliliter, ΔDO/mL seed suspension added per bottle

S = 0 if samples are not seeded

S = (D₁-D₂)/mLs seed in seeded control

V_s = Volume of seed in the respective test bottles, mL

Unseeded Dilution Water Blanks:

DO depletion (mg/L) = D₁ – D₂

Unseeded dilution water blanks should be less than or equal to 0.2 mg/L depletion.

Seeded Controls:

If variable volumes were used for seed controls, then

Seed Correction Factor, SCF (mg/L) = (S) V_s

Average all seeded control depletions per milliliter of seed (S) and multiply this average by the number of milliliters of seed that was used in the samples (V_s).

Samples and GGA:

BOD₅, mg/L = [(D₁ – D₂) – SCF] * DF

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
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PURPOSE To measure the biochemical oxygen demand or BOD in a given water sample.		

Or for unseeded samples

$$\text{BOD}_5, \text{ mg/L} = (D1 - D2) * DF$$

DATA REPORTING AND QUALITY ASSURANCE

1. Report seed correction factor to the nearest tenth.
2. Report BOD results to the nearest tenth.
3. If more than one sample dilution meets the criteria of a residual DO of 1 mg/L and a DO depletion of a least 2 mg/L average results in the acceptable range for reporting. If only one dilution meets the criteria of a residual DO of 1 mg/L and a DO depletion of 2 mg/L and other dilution do not meet these criteria, use the one dilution that meets the criteria.
4. Test replicates should not exceed 30% difference between the maximum and minimum values.
5. GGA should be run each time compliance samples are run. The results should be 198.0 +/- 30.5 mg/L.
6. A dilution water blank should be run each time compliance samples are run. The depletion of the dilution water blank should be 0.2 mg/L or less.

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of Total Suspended Solids (TSS)	ISSUE DATE 1/31/2012	METHOD Standard Methods 2540D-2015
APPROVED BY Rachel Johnson	REV. DATE 8/27/2021	PAGE 1 of 3
PURPOSE To provide guidance for identifying Total Suspended Solids		

SCOPE

TSS is a common analysis to be performed to determine the volume of particulate matter being carried in fluids. The principle is to take a well-mixed sample and filter it through a standardized filter. The suspended solids in the liquid may then be determined by the weight of the solids left on the filter.

SAFETY CONSIDERATIONS FOR TESTING

Those performing this procedure should read and become familiar with the SDS (Safety Data Sheet) associated with this procedure, if applicable. SDS's are available through the Crossett Intranet Website and at the control rooms.

Reagents

- ▶ Reagent grade Water
- ▶ Wastewater Samples
- ▶ Laboratory Fortified Blank sample, 100 mg/L TSS

First aid measures:

- ▶ Eye Contact: Flush with water for 15 minutes.
- ▶ Skin Contact: If on skin or hair remove any contaminated clothing and wash with soap and water, launder or dry-clean clothing before reuse.
- ▶ Ingestion: Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees.

After first aid, immediately get appropriate Mill support by calling (567-8448 for emergency or 415-6257 for support).

Personal Protective Equipment that may be required to perform this procedure:

- ▶ Safety glasses with top and side shields
- ▶ Disposable latex gloves
- ▶ Steel toe shoes

APPARATUS

- ▶ Fiber filter discs
- ▶ Vacuum filter holder
- ▶ Weighing pan

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of total Suspended Solids (TSS)	ISSUE DATE 1/31/2012	METHOD Standard Methods 2540D-2015
APPROVED BY Rachel Johnson	REV. DATE 8/27/2021	PAGE 2 of 3
PURPOSE To provide guidance for identifying Total Suspended Solids		

- ▶ Graduated cylinder
- ▶ Suction Flask
- ▶ Drying oven for operations at 103-105°C
- ▶ Desiccator containing dry-indicating Drierite (blue when dry, pink when moist)
- ▶ Analytical balance capable of weighing to 0.1 mg
- ▶ Magnetic stirrer with TFE stirring bar
- ▶ Wide-bore pipets
- ▶ Filter funnel
- ▶ Beakers

PROCEDURE

Sample Collection

Samples should be collected from the composite sampler on the following frequency. All samples must be analyzed within 7 days. Samples are to be kept cooled and brought to room temperature before being analyzed.

Sample	Frequency
Outfall 001	3 times per week
SMS 002*	3 times per week
Internal proficiency testing	1 test per month
DMRQA	1 test per year

*When Mossy Lake is not flooded.

Preparation of Filters

1. Read the thermometer in the drying oven and record the temperature daily. Reset the oven temperature if it is outside the range of 103°-105°C.
2. Place a glass fiber filter disc (wrinkled side up, patterned side down) in the filter holder mounted on the suction flask.
3. Apply a vacuum and wash filter with three (3) 20mL portions of reagent grade water. Continue suction to remove all traces of water. Discard washings.
4. Carefully remove the filter disc from the filter holder. Place in pan and dry in the oven for at least one (1) hour.
5. Store the filter in the desiccator until it is needed.

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE Determination of total Suspended Solids (TSS)	ISSUE DATE 1/31/2012	METHOD Standard Methods 2540D-2015
APPROVED BY Rachel Johnson	REV. DATE 8/27/2021	PAGE 3 of 3
PURPOSE To provide guidance for identifying Total Suspended Solids		

Sample Analysis

6. Remove a filter from the desiccator and place in the filter holder on the suction flask. Begin suction and wet the filter with a small volume of reagent grade water to seal it.
7. Mix the sample thoroughly using the magnetic stirrer.
8. Pipet 100 mL of SMS 002 and 100 mL on Outfall 001 from the approximate midpoint of the container through the filter.
Note: If filtration time exceeds 10 minutes begin the test again with a new filter and use a smaller volume of sample. (Selected sample volume should yield between 2.5 and 200 mg dried residue.)
9. Wash filter with three successive 10 mL volumes of reagent grade water, allowing complete drainage between washings. Continue suction after filtration is complete until all water is removed.
10. Carefully remove the filter disc from the holder and transfer to an aluminum dish to dry in the oven for at least one (1) hour.
11. Remove the filter from the oven. Cool in the desiccator for at least 20 to 30 minutes.
12. Weigh the filter and record the weight. Return the filter to the oven.
13. Repeat steps 14-16 until a constant weight is obtained or until the weight change is less than +/- 0.5 mg of the previous weighing, whichever is less. Record all weights.
14. Perform Outfall Sample Analysis.
15. Analyze a Method Blank, a Lab Fortified Blank and at least 1 Duplicate with each batch of 20 or fewer samples.
16. Acceptance criteria for the Lab Fortified Blank is 90 – 110% of the true value
Acceptance criteria for duplicate samples is ≤10% RPD.
17. Calculate TSS and record results on worksheet. Sign the worksheet.

Calculation

$$\text{TSS, mg/L} = (A-B) \times 1000 / \text{Sample Volume, mL}$$

Where A = weight of the filter and dried residue, mg

B = weight of filter, mg

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE PH Determination of Grab Samples	ISSUE DATE 1/31/2012	METHOD Standard Methods 4500 – H+ B - 2011
APPROVED BY Rachel Johnson	REV. DATE 7/28/2021	PAGE 1 of 2
PURPOSE To provide guidance in the determination of pH using the ORION portable pH meter available to the laboratory technicians.		

SCOPE

The pH of a sample is determined electrometrically using either a glass electrode in combination with a reference potential or a combination electrode.

SAFETY CONSIDERATIONS FOR TESTING

Those performing this procedure should read and become familiar with the SDS (Safety Data Sheet) associated with this procedure, if applicable. SDS's are available through the Crossett Intranet Website and at the control rooms.

Reagents

- ▶ Standard buffers: pH 7, pH 10 and pH 4 (Expiration dates should be on the buffers and must be discarded on the expiration dates)
- ▶ De-Ionized (DI) Water

First Aid Measures:

- ▶ Eye Contact: Immediately flush eyes with water for 15 minutes.
- ▶ Skin Contact: Wash skin with soap and plenty of water. Remove contaminated clothing. Cover the irritated skin with an emollient.
- ▶ Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person.
- ▶ Inhalation: Remove to fresh air. Give artificial respiration if necessary. Loosen tight clothing such as a collar, tie, belt or waistband.
- ▶ After first aid, immediately get appropriate Mill support by calling (567-8448 for emergency).

Additional Personal Protective Equipment that may be required to perform this procedure:

- ▶ Safety glasses
- ▶ Rubber gloves
- ▶ Steel toe shoes

APPARATUS

- ▶ pH meter, ORION portable
- ▶ Combination electrode or glass electrode and reference electrode
- ▶ Beakers and Stirrer

STANDARD OPERATING PROCEDURES

Georgia Pacific Consumer Operations LLC – Crossett Paper Operations		
TITLE PH Determination of Grab Samples	ISSUE DATE 1/31/2012	METHOD Standard Methods 4500 – H+ B - 2011
APPROVED BY Rachel Johnson	REV. DATE 7/28/2021	PAGE 2 of 2
PURPOSE To provide guidance in the determination of pH using the ORION portable pH meter available to the laboratory technicians.		

PROCEDURE

Calibration

1. Turn on the ORION pH meter.
2. Place 4.00, 7.00 and 10.00 buffer solutions into three small beakers.
3. Place electrode into the 4.00 buffer. First press **Clear**, then **pH**, and then **STD** (standard).
4. After the meter reaches 4, rinse probe off in DI water.
5. Place probe into the 7.00 buffer. Press **STD**.
6. After the meter reaches 7, rinse the probe off in DI water
7. Place probe in the 10.00 buffer. Press **STD**.
8. After the meter reaches 10, rinse and leave probe in 4 pH buffer until ready to use.

Measurement of Sample pH

1. Place approximately 100mL of sample in a beaker.
2. Rinse electrode with DI water and blot dry with a lint free tissue.
3. Stir sample to insure homogeneity.
4. Immerse electrode into sample. Read and record sample pH.
5. Rinse probe off in DI water in between each sample.

SAMPLE COLLECTION AND HOLDING TIME

The pH is performed on a grab sample of the permitted sample point and it must be performed within 15 minutes of sample collection. If sample holding time is exceeded another sample should be obtained.

DATA REPORTING AND QUALITY ASSURANCE

1. Report results in Standard Units (SU) to the nearest tenth.
2. Grab samples are analyzed at a minimum of three (3) times per week at Outfall 001 (E2) and SMS 002 (E3).
3. A duplicate sample is collected and analyzed once per week at Outfall 001 at a minimum. (This should be representative of at least 10% of compliance samples collected for the week). Duplicate results should not be more than 0.1 units apart.

Georgia-Pacific Consumer Operations LLC
Crossett Paper Operations

Lab Technician - SOP Signoff Page

By signing the following you acknowledge reviewing and understanding of the specified procedures.

Signature	Date	SOP with Rev. Date
<i>Karen Phillips</i>	<i>8-30-21</i>	BOD (Rev. 8/16/21), TSS (Rev. 8/27/21), pH (Rev. 7/28/21)
<i>Cheryl Lewis</i>	<i>8-30-21</i>	BOD (Rev. 8/16/21), TSS (Rev. 8/27/21), pH (Rev. 7/28/21)