



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES

Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133
Phone 901-371-3000 Statewide 1-888-891-8332 Fax 901-371-3170

November 3, 2020

Mr. Robert Hudson
Archer Daniels Midland Company
2782 Chelsea Avenue
Memphis, TN 38108

Re: Compliance Evaluation Inspection
 Archer Daniels Midland (ADM) Company
 NPDES Number TN0000281
 Shelby County

Dear Mr. Hudson:

On Wednesday, October 28, 2020, Mr. Eddy Bouzeid with the Division of Water Resources, Memphis Environmental Field Office (DWR/MEFO), conducted a Compliance Evaluation Inspection (CEI) of the Archer Daniels Midland (ADM) Company located at 2782 Chelsea Avenue in Memphis, Tennessee. Mr. Bouzeid met with you and Mrs. Molly Fitting, the facility environmental coordinator, reviewed the facility's records and discussed the self-monitoring program, and conduct an inspection of the facility. Social distancing and proper protection (face mask) were exercised during the CEI due to the COVID-19 pandemic. Attached you will find the CEI report and corresponding photo documentation which summarize the findings of the CEI. The following are items to note regarding the inspection:

1. While no effluent limit violations were reported for Outfall 002 for the evaluation period from November 2016 through September 2020, ADM continues to experience benchmark concentration exceedances of Total Suspended Solids (TSS) and Biochemical Oxygen Demand, 5-day (BOD, 5-day) at several of the storm water outfalls (please refer to Table 1 of the CEI report). According to the NPDES permit, "The Division is not assigning limits for these parameters at this time since it is the intent of the division that the permittee institute a Storm Water Pollution Prevention Plan (**SWPPP**) in order to minimize the discharge of these pollutants from storm water outfalls. It is the opinion of the Division that the best method for dealing with potential pollution associated with storm water discharges from the ADM facility is through implementation of an aggressive SWPPP, coupled with discharge monitoring to verify SWPPP effectiveness."

Required Action:

- **On or before December 11, 2020**, submit a written response addressing the issue mentioned above.

Your prompt attention and cooperation in this matter is appreciated. The Division appreciates Mrs. Fitting and your assistance and cooperation during the inspection. If you have any questions or comments with regard to the inspection please contact me at (901) 371-3023 or eddy.bouzeid@tn.gov.

Sincerely,



Eddy Bouzeid
Environmental Protection Specialist
Division of Water Resources
Memphis Environmental Field Office

Enclosures: Compliance Inspection Report, Photographs

cc: TDEC/DWR/MEFO –file

ec: TDEC/DWR/NCO - Enforcement and Compliance Section
Molly Fitting – ADM Environmental Coordinator

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Water Resources

Memphis Environmental Field Office, 8383 Wolf Lake Drive, Bartlett, TN 38133

1-888-891-8332 (TDEC)

Compliance Inspection for Individual NPDES Permit

Facility Name: Archer Daniels Midland (ADM) Company	NPDES Tracking Number : TN0000281
Permit Effective Date: April 1, 2019	Permit Expiration Date: March 31, 2023
Date and Time of Inspection: 10/28/2020	Inspector Name: Eddy Bouzeid

Official Contact Person Name: Robert Hudson, Facility Manager	
Address: 2782 Chelsea Avenue, Memphis, Tennessee 38108	Phone Number: (901) 454-7357
	Email: Robert.Hudson@adm.com

Summary of Findings and Comments

On Wednesday, October 28, 2020, Mr. Eddy Bouzeid with the Division of Water Resources, Memphis Environmental Field Office (DWR/MEFO), conducted a Compliance Evaluation Inspection (CEI) of the Archer Daniels Midland (ADM) Company located at 2782 Chelsea Avenue in Memphis, Tennessee. Mr. Bouzeid met with Mr. Robert Hudson, the facility manager, and Mrs. Molly Fitting, the facility environmental coordinator, reviewed the facility's records and discussed the self-monitoring program, and conduct an inspection of the facility. Social distancing and proper protection (face mask) were exercised during the CEI due to the COVID-19 pandemic. The following is a summary of Mr. Bouzeid's findings and observations during and after the inspection:

I. Permit

The National Pollutant Discharge Elimination System (NPDES) permit, with the assigned permit number TN0000281 for the ADM Company site expires on March 31, 2023. The NPDES permit authorizes the facility to discharge non-contact cooling water via Outfall 002 into an unnamed tributary at mile 0.6. The NPDES permit also authorizes the facility to discharge storm water runoff from Outfalls SW1, SW2, SW3, SW4, SW5, SW6, SW7, SW8, SW9, and SW10 to an unnamed tributary at mile 0.5 (SW1) and mile 0.7 (SW3 & SW9) which flows to Workhouse Bayou at mile 4.5; and to a retention pond that receives storm water from Outfall SW4 which discharges into the Wolf River at mile 5.8. For the purpose of consolidating monitoring outfalls, where identical activities are presented in multiple areas, the following Outfalls (SW10, SW8, SW7, SW6, and SW5) shall be represented through Outfalls (SW9, SW1, SW2, SW3, SW4) respectively.

According to the NPDES permit, Outfalls 002 and SW2 is the same physical outfall. However, for monitoring and reporting purposes of this permit, Outfall 002 shall be

representative of the cooling tower blow down and non-contact cooling water discharge, and SW2 shall be representative of the storm water discharge.

Sample collection is required only for the following outfalls: 002, SW1, SW2 (identical to drainage areas from SW8), SW3 (identical to drainage areas from Outfalls SW6 & SW7), SW4 (identical to drainage areas from SW5), and SW9 (identical to drainage areas from SW10). The monitoring frequency for Outfall 002 is monthly and the monitoring frequency for storm water Outfalls SW1-SW4 and SW9 is on a semi-annual basis.

II. Records/Reports

At the time of the inspection, the following records were available for review :

- A copy of the NPDES permit #TN0000281;
- Monthly Discharge Monitoring Reports (DMRs) from November 2016 through September 2020 along with their corresponding chains of custody (COCs) and laboratory analytical reports. It should be noted that ADM Company is enrolled in NetDMR and the facility has been reporting through NetDMR successfully.
- Field pH readings and pH meter calibrations;
- Flow calculations;
- Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan;
- Quarterly visual inspection reports; and
- Annual Comprehensive Site Compliance Evaluations

III. Facility Site Review

The ADM Memphis facility processes cotton fiber received from cotton gins and produces cotton oil. The cotton oil is stored in above storage tanks at the facility.

A file review of the facility's results reported on the DMRs and NetDMRs from November 2016 to September 2020 revealed the following:

Outfall 002

1. No permit limit exceedances were reported during the November 2016 - September 2020 monitoring period.

Storm water Outfalls SW1, SW2, SW3, SW4, and SW9

Benchmark concentrations were exceeded for TSS and Biochemical Oxygen Demand, 5- day (BOD, 5-day) at several of the storm water outfalls (see Table 1). Explanation was provided

for the cause of the exceedances, and according to Mr. Hudson, corrective measures have been implemented onsite to bring the BOD and TSS concentrations within benchmark concentration limits. At the time of the inspection, the majority of the ground at the ADM facility was gravel which could be attributed to the TSS exceedances. To address that issue, drain filters (sucks) have been placed in several storm drains onsite and those filters are replaced as needed. Also, according to Mr. Hudson, the gravel roads on the facility made it difficult to conduct effective sweeping and removal of the loose cotton fiber on the ground, which could be attributed to the BOD exceedances. To address the BOD issue, Mr. Hudson informed Mr. Bouzeid that ADM Corporate was contemplating paving the gravel roads which will make the sweeping and removal of the cotton fiber on the ground more efficient.

Table 1

Parameter of Concern	Benchmark Concentration Limit (mg/L)
BOD (5-day)	30
TSS	150

Monitoring Periods			
Sampling Frequency (semi-annual)	Outfall	Results (mg/L) BOD (5-day)	Results (mg/L) TSS
July-December 2016	SW9	89	796
	SW3		424
January-June 2017	SW9	73	822
	SW3	37	210
	SW2	104	612
	SW1		302
July-December 2017	SW9	111	347
	SW2	39	
July-December 2018	SW9		
	SW1		
January-June 2018	SW3	119	213
	SW2	69	414
	SW1		206

Monitoring Periods			
Sampling Frequency (semi-annual)	Outfall	Results (mg/L) BOD (5-day)	Results (mg/L) TSS
July-December 2018	SW3	121	380
	SW2	57	505
	SW1		254
January-June 2019	SW3	72	187
	SW2		238
July-December 2019	SW9	67	314
	SW3	85	336
	SW2	142	
	SW1	67	
January-June 2020	SW9	87	

Due to the continued presence of BOD (5-day) and TSS in storm water runoff from the site, the Division recommends that aggressive BMPs be implemented onsite to prevent and/or eliminate elevated concentrations of permit parameters to at or below benchmark concentration limits.

IV. Effluent/Receiving Waters

According to Mr. Hudson, minimal discharge of non-contact cooling water occurs at Outfall 002 since the installation of a closed-loop cooling tower system. As a result, the "No Discharge" box has been marked on most of the DMRs/NetDMRs. Modifications have been made to the system to route cooling tower blowdown for the cooling towers to the City of Memphis Publicly Owned Treatment Works (POTW). Cooling tower discharges to Outfall 002 are limited to times when a power failure occurs or during unforeseen process upsets and the cooling tower basin from the cooling tower overflows because it cannot contain the volume of water in the process tank. When discharge occurs, sampling is conducted as required by the NPDES permit.

At the time of the inspection, no discharge was observed at Outfall 002, which is also the same physical discharge point as storm water Outfall SW2 (photo 1).

The sign designating Outfall 002/SW2 was in place as required by the NPDES permit (photo 1). The information on the sign was consistent with the requirements of the NPDES permit.

V. Flow Measurement

According to Mrs. Fitting, flow measurement for Outfall 002 and storm water outfalls are estimated based on the use of the following calculations:

Outfall 002

Francis Formula (expressed in imperial units):

$$q=3.33(b-0.2h)h^{3/2} \text{ where:}$$

q =flow rate (ft³/s)

h =head on the weir (ft)

b =width of the weir (ft) (1.33 for the cooling tower weir)

Storm water Outfalls SW1 , SW2, SW3, SW4, and SW9

$$q=r \times [(0.95 \times A + 0.7 \times B)] \times \left(\frac{7.48}{\text{Cubic feet}} \text{ gallons;} + 1,000,000 \right)$$

where

q =flow rate (Million Gallons per Day)

r =rainfall (ft)

0.95 is the impervious runoff coefficient

0.7 is the pervious runoff coefficient

A =impervious Surface Area (ft²)

B =pervious Surface Area (ft²)

VI. Self-Compliance Program

At the time of the inspection time, ADM was implementing BMPs onsite (drain filters) to prevent and/or eliminate elevated concentrations of BOD, 5-day and TSS in storm water runoff to at or below benchmark concentration limits. It is recommended that additional and more aggressive BMPs be implemented such as paving the gravel roads. Paving the gravel roads would potentially reduce the solids from entering the storm drains and make the sweeping and removal of the cotton fiber on the ground more efficient.

VII. Laboratory

The facility's sample is conducted by onsite personnel. Sample analyses are contracted to Waypoint Analytical located at 2790 Whitten Road in Memphis, Tennessee. According to Mrs. Fitting clean glass containers provided by the laboratory are used to obtain the samples at Outfalls 002, SW1, SW2, SW3, SW4, and SW9.

A review of the chains of custody (COCs) revealed that the temperature of the samples

upon receipt at the laboratory is recorded as being less than 6 degrees Celsius, which is in compliance with the methods prescribed in Title 40, CFR Part 136 referenced in the NPDES permit.

The facility utilizes a digital pH meter onsite to obtain pH sample readings for Outfalls 002, SW1, SW2, SW3, SW4, and SW9. Records of these readings show that they were obtained within fifteen minutes of sample collection. Three buffer solutions (4, 7, and 10) are used for calibrations. All buffers have valid expiration dates.

VIII. Operations and Maintenance

At the time of the inspection, the facility appeared to have adequate laboratory and process controls, and its quality assurance procedures have improved since the last inspection. The facility needs to implement more aggressive BMPs (discussed previously in the report) to reduce the TSS and BOD concentration to or below benchmark concentration limits.

IX. Pollution Prevention

At the time of the inspection, a Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Countermeasure (SPCC) Plan was available for review. The SWPPP was updated/signed by Mr. Hudson on October 27, 2020. According to Mr. Hudson, the plan is reviewed at least annually as required by the NPDES permit.

The SPCC was updated/certified by a PE on September 12, 2016.

X. Storm Water

Outfall SW1 is a culvert that receives sheet flow of storm water runoff from the north end of the seed storage houses, from the west side of the preparation plant, and from the tank 8 pad area. At the time of inspection, no discharge was observed at Outfall SW1 (photo 2). The sign designating Outfall SW1 was in place as required by the NPDES permit (photo 2). The information on the sign was consistent with the requirements of the permit.

As mentioned in this CEI report, Outfall SW2 is the same physical discharge point as Outfall 002. Outfall SW2 is a culvert that receives sheet flow of storm water runoff from the south side of the old seed storage tank farm area, from the old boiler shop area, and from the west side of the railcar loading area. At the time of the inspection, no discharge was observed at Outfall SW2 (photo 1). The sign designating Outfall 002/SW2 was in place as required by the NPDES permit (photo 1). The information on the sign was consistent with the requirements of the permit.

Outfall SW3 is a culvert that receives sheet flow of storm water runoff from the western and southern areas of seed house 4, northern areas of seed house 5 and 6, roof run off from the lint room area, roof run off from the cleaning room area, roof runoff from the bath house area, roof runoff from the lab area, and roof run off from the mill building. At the time of the inspection, no discharge was observed at Outfall SW3 (photo 3). The sign designating Outfall SW3 was in place as required by the NPDES permit (photo 3). The information on the sign was consistent with the requirements of the permit.

Outfall SW4 is a culvert that receives sheet flow of storm water runoff from the northern area of the extraction plant and preparation plant, from the solvent storage areas, rail unloading areas, tank farm areas, and from the north side of tank 8. According to Mr. Sarwat, storm water runoff at Outfall SW4 continues to flow approximately 500 feet north over a grassy terrain into an oil/water separator retention pond. At the time of the inspection, no discharge was observed at Outfall SW4; algae build-up was observed inside the culvert (photo 4). The sign designating Outfall SW4 was in place as required by the NPDES permit (photo 4). The information on the sign was consistent with the requirements of the permit.

Outfall SW9 is a culvert that receives sheet flow of storm water runoff from the south side of the seed storage houses. At the time of the inspection, no discharge was observed at Outfall SW9 (photo 5). The sign designating Outfall SW9 was in place as required by the NPDES permit (photo 5). The information on the sign was consistent with the requirements of the permit.

Photographic Log

Facility Name:		Site Location:	Tracking No.:
Archer Daniels Midland (ADM) Company		Memphis, Shelby County	TN0000281
Photo No.	Date		
1	10-28-2020		
Description At the time of the inspection, no discharge was observed at Outfall 002, which is also same physical discharge point as storm water Outfall SW2. The sign designating Outfall 002/SW2 was in place. The information on the sign was consistent with the requirements of the permit.			

Photo No.	Date	
2	10-28-2020	
Description View Outfall SW1. SW1 is a culvert that receives sheet flow of storm water runoff from the north end of the seed storage houses, from the west side of the preparation plant, and from the tank 8 pad area. At the time of the inspection, no discharge was observed. The information on the sign was consistent with the requirements of the permit.		

Photographic Log

Facility Name:		Site Location:	Tracking No.:
Archer Daniels Midland (ADM) Company		Memphis, Shelby County	TN0000281
Photo No.	Date		
3	10-28-2020		
Description View of Outfall SW3. SW3 is a culvert that receives flow of storm water runoff from the western and southern areas of seed house 5 and 6, roof runoff from the lent room area, roof runoff from the cleaning room area, roof runoff from the bath house area, roof runoff from the lab area, and roof runoff from the mill building. At the time of the inspection no discharge was observed. The information on the sign was consistent with the requirements of the permit.			

Photo No.	Date	
4	10-28-2020	
Description View of Outfall SW4. SW4 is a culvert that receives sheet flow of storm water runoff from the northern area of the extraction plant and preparation plant, from the solvent storage areas, rail farm areas, and from the north side of tank 8. At the time of the inspection, no discharge was observed. The information on the sign was consistent with the requirements of the permit.		

Photographic Log

Facility Name:		Site Location:	Tracking No.:
Archer Daniels Midland (ADM) Company		Memphis, Shelby County	TN0000281
Photo No.	Date		
5	10-28-2020		
Description View of Outfall SW9. SW9 is a culvert that receives sheet flow of storm water runoff from the south side of the seed storage houses. At the time of the inspection there was no discharge observed. The information on the sign was consistent with the requirements of the permit.			