



## REGION 1

NEW ENGLAND REGIONAL LABORATORY  
NORTH CHELMSFORD, MA 01863

### Report Memorandum

**Date:** 6-20-2024

**Subject:** American Greenfuels Temporary Thermal Oxidizer Test 4-24-2024

**From:** Tyler Kotsifas, Physical Scientist/TLK/  
Laboratory Services and Applied Sciences Division (LSASD)  
Field Services Branch (FSB)

**Through:** Jerry Keefe, Team Leader/JCK/  
LSASD Field Services Branch

**To:** Darren Fortescue, Air Technical Chief  
Enforcement and Compliance Assurance Division

### Facility Information

- A. Facility Name: American Greenfuels
- B. Facility Location: 30 Waterfront Street, New Haven CT, 06512
- C. Facility Contact: Peter Baiardi, EHS Manager
- D. ICIS-Air #: CT0000000900900925

### Background Information

- A. Date of test: 4-24-2024
- B. US EPA Representative: Tyler Kotsifas

### Disclaimer

Unless otherwise noted, this report describes conditions at the facility/property as observed by EPA inspector(s), and/or through records provided to and/or information reported to EPA inspector(s) by facility representatives and as understood by the inspector(s). This report may not capture all operations or activities ongoing at the time of the inspection. This report does not make final determinations on potential areas of concern. Nothing in this report affects EPA's authorities under federal statutes and regulations to pursue further investigation or action.

**Inspection Participants:**

| Name             | Company                                                                | Role                  |
|------------------|------------------------------------------------------------------------|-----------------------|
| Tyler Kotsifas   | US EPA                                                                 | Stack Test Observer   |
| Ray Potter       | Connecticut Department of Energy and Environmental Protection (CTDEEP) | Stack Test Observer   |
| Peter Baiardi    | American Greenfuels                                                    | EHS Manager           |
| Ming Chai        | American Greenfuels                                                    | Plant Manager         |
| Gilbert Williams | American Greenfuels                                                    | Control Room Operator |
| Michael Kelley   | Alliance Technical Group                                               | Stack Tester          |
| Lucas Chisser    | Alliance Technical Group                                               | Stack Tester          |
| Bob Ciriello     | Alliance Technical Group                                               | Stack Tester          |
| Manuel Hernandez | Alliance Technical Group                                               | Stack Tester          |
| Colin Thoener    | Alliance Technical Group                                               | Stack Tester          |

**Background:**

American GreenFuels (AGF) is a biodiesel production plant located at 30 Waterfront Street, New Haven, Connecticut. AGF was operating a temporary thermal oxidizer (“TO”) unit at their facility late in 2023. The last performance test on the temporary TO was conducted on 6-29-2023. The results of the test were inconclusive, and the facility requested to schedule another test date.

On April 24, 2024, AGF conducted a performance test of their temporary TO to determine compliance with 40 CFR Part 60, Subpart NNN: Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Manufacturing Industry (SOCMI) Distillation Operations (“Subpart NNN”) and 40 CFR Part 60, Subpart RRR: Standards of Performance for VOC Emissions from SOCMI Reactor Processes (“Subpart RRR”) and to test its efficiency. In summary, the regulations state that the TO must meet either 98% total VOC reduction or 20 ppmvd @ 3% O<sub>2</sub>.

**Process Parameters Monitored:**

Feedstock Flow Rate <85 gpm

N<sub>2</sub> Pressure 60 psi

Reflux >20 gpm

Column Vacuum >5 psia

Column Temperature at Top <125 °F

Column Temperature at Bottom >170 °F

Vent stream flow rate to TO: Approx. 350 scfm

Combustion Temperature >1600 °F

### **Set Up Day (4-23-2024)**

US EPA representative Tyler Kotsifas arrived at the AGF facility at 1:30 pm on April 23, 2024. Mr. Kotsifas met with Peter Baiardi, EHS manager for AGF in a conference room. The purpose of the visit was to observe the set up for the performance test being conducted the following day. Mr. Baiardi informed Mr. Kotsifas that the Alliance testing team arrived onsite at 12:45 pm and they were in the middle of setting up equipment.

Mr. Kotsifas and Mr. Baiardi went to check out the facility's control room operations first. Mr. Kotsifas recorded a full set of operating parameters at around 1:38 pm. Next, Mr. Kotsifas and Mr. Baiardi went to check on Alliance's set up operations. Onsite from Alliance was Bob Ciriello, Lucas Chisser, and Manny Hernandez. Mr. Ciriello informed Mr. Kotsifas that Michael Kelley would be at the facility tomorrow to lead things during the performance test. Mr. Kotsifas asked Mr. Ciriello what methods would be used for the test. Mr. Ciriello said that collocated Method 18 sample trains will be running at the inlet and outlet of the temporary thermal oxidizer. Mr. Ciriello said that a Method 25A analyzer would also be running to gather non regulatory data about inlet and outlet VOC concentrations. Mr. Kotsifas asked Mr. Ciriello if he knew the spike concentrations that would be used for the Method 18 samples. Mr. Ciriello said Michael Kelley will have the concentration amounts tomorrow.

Mr. Kotsifas and Mr. Baiardi proceeded back to the conference room to have a close out meeting. Mr. Kotsifas asked what time the test was planned to start. Mr. Baiardi said they were planning on a 9:00 am start tomorrow. Mr. Baiardi said the control room operator for the test would be Gilbert Williams. Mr. Kotsifas asked if Mr. Baiardi had any additional questions about testing. Mr. Baiardi said he had no additional questions at this time.

Mr. Kotsifas left the facility at 2:00 pm.

### **Performance Test Day (4-24-2024)**

Mr. Kotsifas arrived at the facility at 8:00 am and met with Peter Baiardi. Mr. Baiardi said that Alliance arrived earlier, and they were hoping to start the first run between 8:30 and 9:00 am. Mr. Kotsifas went to see how Alliance was doing with preparations. Mr. Ciriello told Mr. Kotsifas that calibrations were done on the Method 3A and 25A analyzers. Mr. Kotsifas asked Mr. Ciriello what the calibration ranges were for the 25A analyzer. Mr. Ciriello said he used a propane calibration gas and calibrated from 0-3500 ppm at the inlet and 0-50 ppm at the outlet. Mr. Kelley told Mr. Kotsifas that Alliance had prepared three methanol spikes for the Method 18 sample trains. Mr. Kelley said the inlet low spike was 20,100 ug methanol, inlet high spike was 60,246 ug methanol, and the outlet spike was 72 ug methanol.

Ray Potter, an observer from the CTDEEP arrived onsite at approximately 8:45 am. Throughout the day, Mr. Kotsifas and Mr. Potter recorded facility operating parameters, and Method 25A and Method 3A analyzer data. (See Tables 1 and 2 in Appendix A.)

The first test run started at 9:12 am and ended at 10:12 am. Mr. Kotsifas observed the post leak checks after each run for the day on the Method 4 sample train (See Table 3 in Appendix A).

After the first run ended Mr. Kelley informed Mr. Kotsifas that the line to one of their outlet sample trains was found disconnected and the cause was undetermined. This invalidated the first test run of the day. The Alliance team began preparing for another repeated test run.

The second test run started at 11:12 am and ended at 12:12 pm. The third test run started at 1:03 pm and ended at 2:03 pm. The fourth test run started at 2:43 pm and ended at 3:43 pm. Mr. Kotsifas and Mr. Potter observed the post run leak checks after each test run.

## Closing Conference

A closing conference was held with Mr. Kotsifas and Mr. Baiardi in attendance. Mr. Kotsifas asked Mr. Baiardi to keep EPA posted on the final test report submittal for this test. Mr. Kotsifas told Mr. Baiardi that he would receive an observation report from the week's events within 70 days. Mr. Baiardi said he understood and would keep EPA posted on the results from this performance test.

Mr. Kotsifas thanked Mr. Baiardi for his time and left the facility at 4:00 pm.

## Appendix A- Operating Parameters, Testing Trailer Data, Leak Checks

Table 1- Control Room Operating Parameters

| Time     | Feedstock Flow (GPM) | Nitrogen Pressure (PSI) | Column Reflux (GPM) | Column Vacuum (PSI) | Column Bottom Temp (°F) | Column Top Temp (°F) | Vent Stream to TO (SCFM) | TO Combustion Temp (°F) |
|----------|----------------------|-------------------------|---------------------|---------------------|-------------------------|----------------------|--------------------------|-------------------------|
| 8:38 am  | 80                   | 78.8                    | 36                  | 8.5                 | 162                     | 123                  | 360                      | 1600                    |
| 9:49 am  | 80                   | 71.8                    | 35.5                | 8.5                 | 161.2                   | 125.9                | 364                      | 1590                    |
| 11:25 am | 80                   | 73.3                    | 35.5                | 8.5                 | 163.7                   | 125.3                | 357                      | 1625                    |
| 1:06 pm  | 80                   | 66.6                    | 35.5                | 8.5                 | 164.4                   | 125.6                | 363                      | 1591                    |
| 2:46 pm  | 80                   | 69.9                    | 35.5                | 8.5                 | 162.7                   | 125.7                | 366                      | 1608                    |

Table 2- Testing Trailer Analyzer Data (Method 3A and 25A)

| Time     | Inlet Total Hydrocarbons (PPM) | Outlet Total Hydrocarbons (PPM) | % O2 |
|----------|--------------------------------|---------------------------------|------|
| 9:19 am  | 2700                           | 3.7                             | N/A  |
| 10:08 am | 2350                           | 4.2                             | N/A  |
| 10:35 am | N/A                            | N/A                             | 16.3 |
| 11:26 am | 2490                           | 2.6                             | 16.0 |
| 1:58 pm  | 2430                           | 2.3                             | 16.1 |
| 3:01 pm  | 2770                           | 3.5                             | 16.1 |

Table 3- Leak Check Information (Method 4 Sample Trains)

| <b>Time</b>              | <b>Inlet/Outlet<br/>Sample Train</b> | <b>Vacuum (inch<br/>Hg)</b> | <b>Dry Gas Meter<br/>Start (Cubic Feet)</b> | <b>Dry Gas<br/>Meter End<br/>(Cubic Feet)</b> |
|--------------------------|--------------------------------------|-----------------------------|---------------------------------------------|-----------------------------------------------|
| 10:12 am<br>(Post Run 1) | Inlet                                | 6.2                         | 32.530                                      | 32.533                                        |
| 10:12 am<br>(Post Run 1) | Outlet                               | 7.7                         | 32.114                                      | 32.114                                        |
| 12:12 pm<br>(Post Run 2) | Inlet                                | 6.3                         | 33.086                                      | 33.089                                        |
| 12:12 pm<br>(Post Run 2) | Outlet                               | 6.0                         | 33.221                                      | 33.221                                        |
| 2:03 pm<br>(Post Run 3)  | Inlet                                | 7.0                         | 33.419                                      | 33.422                                        |
| 2:03 pm<br>(Post Run 3)  | Outlet                               | 7.1                         | 33.291                                      | 33.291                                        |
| 3:43 pm<br>(Post Run 4)  | Inlet                                | 5.8                         | 33.382                                      | 33.387                                        |
| 3:43 pm<br>(Post Run 4)  | Outlet                               | 7.1                         | 32.963                                      | 32.963                                        |

## Appendix B- Photograph Log



**Photograph 1:** Temporary Thermal Oxidizer Stack



**Photograph 2: Meter Box Testing Setup**



**Photograph 3: Testing Trailer Analyzer Setup**