UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Clean Air Act Inspection Report

Drafted: 3-1-2023
Finalized: 3-6-2023

EPA Inspector: Tyler Kotsifas, Stack Test Observer, LSASD-LFB1 /TLK/
Jerome Keefe, Investigations Team Leader, LSASD-LFB2
Darren Fortescue, Senior Enforcement Coordinator, Air Compliance Section /DEF/

Through: Jerome Keefe, Investigations Team Leader, LSASD-LFB2 /JCK/

EPA Reviewer: Darren Fortescue, Senior Enforcement Coordinator, Air Compliance Section

Date of Inspection: 01-20-2023

Facility Name: Aspen Aerogels Rhode Island, LLC

ICISAir ID#: RI0000004400702021

Facility Location: 3 Dexter Road, East Providence RI

Mailing Address: Same as Above

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 Attendees:

Name	Title	Organization
Darren Fortescue	Senior Enforcement Coordinator	US EPA
Tyler Kotsifas	Stack Test Observer	US EPA
Jerry Keefe	Investigations Team Leader	US EPA
Gina Friedman	Principal Air Quality Specialist	RIDEM
Courtney Fix-Newman	Air Quality Specialist	RIDEM
Michael Feinblatt	Project Director	TRC
Harold Klei	Director of Plant Engineering	Aspen Aerogels
Rachael Weiskind	Environmental Director	Aspen Aerogels
Josh Vitollo	General Counsel	Aspen Aerogels
Matthew Benitsch	EHS Manager	Aspen Aerogels
Matthew Milliken	EHS Engineer	Aspen Aerogels
David Slavick	Facilities Engineer	Aspen Aerogels

Facility/Process Description:

Facility

The facility, located at 3 Dexter Road, East Providence, Rhode Island (the "Facility"), was acquired by Aspen Aerogels Rhode Island, LLC ("Aspen Aerogels") sometime during 2008-09. The Facility manufactures reinforced, flexible "aerogel" blanket insulation products for use in many industries including but not limited to space, sub-sea, oil and gas processing, car manufacturing, building and construction, and industrial applications.

Combined Heat and Power

Aspen Aerogels operates a Martin Energy Corporation ("Martin Energy") combined heat and power system ("CHP") at the Facility that provides heat and base-load electricity for the manufacturing plant. The CHP includes a lean burn natural gas-fired Dresser-Rand Guascor engine; Model Number HGM560; Serial Number 350.178; Capacity 1350 kilowatt ("KW"). The Dresser-Rand Guascor engine was manufactured on May 31, 2016. The Facility's General Permit No. GPDG-4 describes that the engine has an 1,810 brake-horsepower capacity.

The engine for the CHP is equipped with an air pollution control system consisting of a selective catalytic reduction ("SCR") utilizing urea injection and an oxidation catalyst.

The CHP is run approximately 8000 hours per year.

Other Emissions Sources

The Facility operates several scrubbers and regenerative thermal oxidizers to control emissions form the production process.

The Facility also operates several natural gas fired boilers and diesel emergency generators. The emergency generators are not used for peak shaving.

Number of Employees and Working Hours:

Aspen Aerogels employs between 200-350 people, and operates 24/7, 365 days per year.

Potentially Applicable Clean Air Act Requirements:

- 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines ("Subpart 4J")
- State of Rhode Island General Permit for a Distributed Generator No. GPDG-4 and Approval No. 2338

Previous Enforcement Actions:

The Facility was issued a Notice of Violation letter on February 4th, 2016, by the Rhode Island Department of Environmental Management ("RIDEM") for Clean Air Act violations.

Opening Conference:

EPA inspectors Tyler Kotsifas, Darren Fortescue, Jerry Keefe, and RIDEM inspectors Gina Friedman and Courtney Fix Newman arrived onsite at 9:30 am and met with Rachael Weiskind, Matthew Braitsch, Matthew Milliken, Harold Klei, David Slavick and Josh Vitollo from Aspen Aerogels, and Michael Feinblatt from TRC. Mr. Fortescue presented his credentials, and Mr. Kotsifas initiated an opening conference.

EPA inspectors asked for copies of the Facility's most recent air permits issued by RIDEM and Spill Prevention Control and Countermeasure ("SPCC") Plan, and Facility representatives said they would provide the documents to EPA after the inspection.

EPA inspectors said that the focus of the inspection would be the Facility's CHP.

Facility representatives said the CHP was installed between November and December 2019. Facility representatives said they did not know if the engine is certified to use natural gas under Subpart 4J's voluntary certification program.

EPA inspectors asked if the CHP engine is operated and maintained in accordance with the manufacturer's written emission-related instructions, and Facility representatives said Martin Energy is responsible for this.

Facility representatives said the engine has a non-resettable hour meter and a cumulative KW hour meter. Facility representatives said the natural gas usage is measured using revenue grade

gas meter. Facility representatives said Aspen Aerogels monitors the KW output from the generator.

EPA inspectors asked what the specific manufacturers recommendations for the operation of the SCR and oxidation catalyst are, and Facility representatives said they would ask Martin Energy and provide the recommendations to EPA after the inspection. Facility representatives said it is not possible to bypass the CHP engine emissions control system.

Facility representatives said Aspen Aerogels monitors the inlet temperature to the oxidation catalyst, the inlet and outlet temperature to the SCR, and the pressure drop across the SCR. Facility representatives said the urea injection system is fitted with no flow, low flow, and pressure alarms that Martin Energy monitors. Facility representatives said the CHP is fitted with a continuous parameter monitoring system ("CPMS") that monitors and records various operating parameters including, but not necessarily limited to the:

- Oxidation catalyst inlet temperature
- SCR inlet and outlet temperatures
- SCR pressure drop
- Engine power in KW
- Natural gas usage
- Heat recovery

EPA inspectors asked if Aspen Aerogels has a site-specific monitoring plan ("SSMP") for the CHP engine emissions monitoring system and the CPMS, and Facility representatives said they would ask Martin Energy and provide it to EPA after the inspection. EPA inspectors asked if performance evaluations ("PE"s) are routinely conducted on the CHP engine emissions control system monitors and Facility representatives said Martin Energy is responsible for them and they would provide documentation for the last PEs to EPA after the inspection.

Facility representatives said they would provide hourly data for the last two years for the oxidation catalyst inlet temperature, SCR inlet and outlet temperature, the SCR pressure drop and engine power to EPA after the inspection.

Facility representatives said Martin Energy conducts routine preventative maintenance ("PM") on the CHP. Facility representatives said that other than changing out the media, no other significant PM occurs on the oxidation catalyst. Facility representatives said they would provide documentation of a routine PM to EPA after the inspection.

Facility representatives said that the last two previous emissions tests for the CHP engine had occurred on November 8, 2022, and on September 23, 2021. Facility representatives said that CHP emissions testing is required either every 8760 hours of operation or every three years, which ever comes first. Facility representatives said the CHP system is generally run continuously, so the 8760-hour requirement is the trigger for emissions testing. Facility

representatives said that the 8760-hour requirement had not been breached during the last emissions test.

Mr. Feinblatt said that Aspen Aerogels had attempted to conduct emissions testing of the CHP engine on, or about, September 21, 2022. Mr. Feinblatt said that as Facility representatives prepared for the emissions testing, they observed that carbon monoxide ("CO") emissions were high, so the testing activities were paused to investigate the cause. Facility representatives said Martin Energy investigated the problem and determined that the oxidation catalyst was causing the issue. Facility representatives said that the oxidation catalyst was replaced between September 27 and 29, 2022. Facility representatives said that, prior to its replacement, the oxidation catalyst was the original one installed with the engine in 2019.

Facility representatives said the replaced oxidation catalyst was assembled by Aeronox and the catalyst media was made by DCR.

Facility Tour:

The group was lead on a Facility walk through that included inspecting the CHP trailer. The group did not tour the Facility's main building.

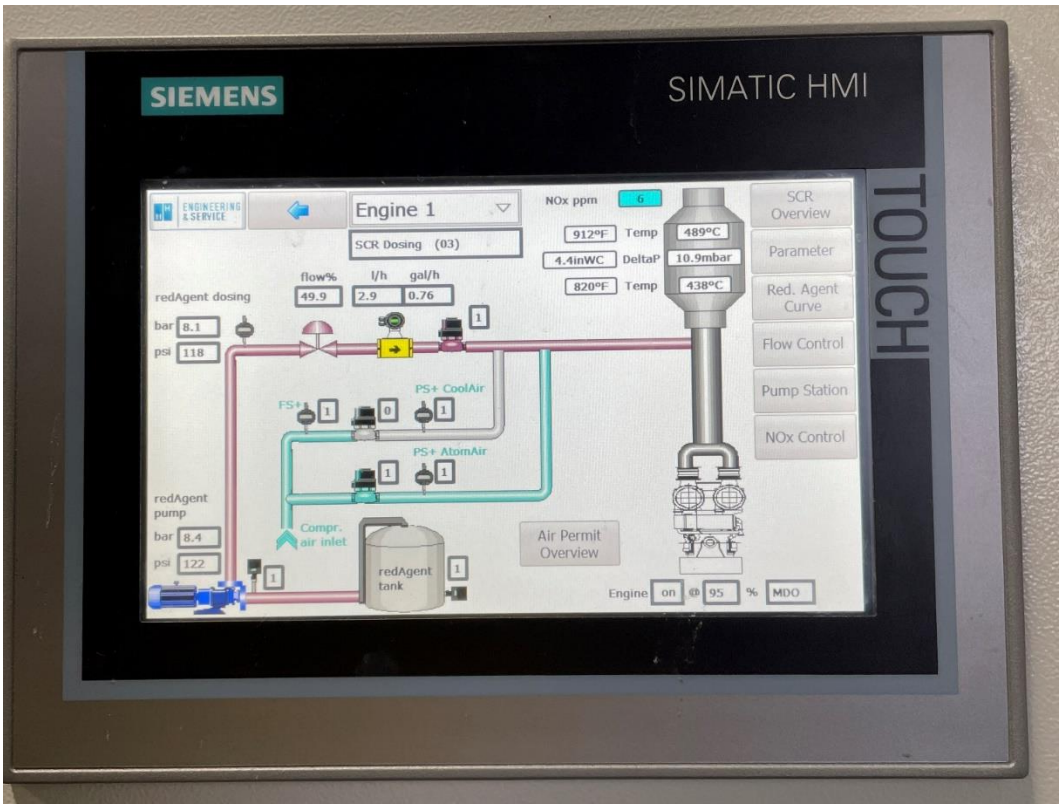
The group proceeded to a trailer adjacent to the main building (see Photograph 1). Facility representatives said the trailer contained the CHP. Facility representatives pointed out a storage tank adjacent to the trailer and said it is where the urea used in the SCR is stored. Facility representatives pointed out a device on the roof of the trailer that they said is the SCR for the CHP.

The group proceeded inside the trailer to a room that Facility representatives said housed the control systems for the CHP. Facility representatives showed the EPA inspectors several control systems screens that displayed various operating and emissions control parameters for the CHP (see Photographs 2 and 3). At 10:45 a.m. EPA inspectors documented the following values for operating parameters for the CHP:

- SCR outlet temperature was 913 °F
- SCR pressure drop was 4.4 inches water column
- SCR inlet temperature was 820 °F
- Oxidation catalyst outlet temperature was 932 °F
- Oxidation catalyst pressure drop was 2.4 inches water column
- Oxidation catalyst inlet temperature was -238 °F
- Power output was 1215 KW

Mr. Kotsifas and Mr. Fortescue entered a room adjacent to the control room, where they observed an engine that was operating. EPA inspectors took a photograph of the engine nameplate (see Photograph 4).

Photograph 1: Trailer housing the CHP.



Photograph 2: Control system screen displaying emissions control monitoring parameters.

Photograph 3: Control system screen displaying the CHP engine operating parameters.

Photograph 4: CHP engine name plate.

Closing Conference:

A closing conference was held at 11:00 a.m. Mr. Fortescue and Mr. Kotsifas thanked the facility representatives for their time.

Facility representatives said that handheld CO testing would be included in the new maintenance contract between Aspen Aerogels and Martin Energy.

Facility representatives said they would provide the following data and documentation, as requested by EPA, after the inspection:

- Copies of the Facility's air permits, issued by RIDEM, and SPCC plan;
- Confirmation of the CHP engine model, serial number, and horsepower;
- Documentation describing the manufacturers operating instructions and maintenance requirements for the CHP engine emissions control system;
- The CHP engine emissions control system SSMP;
- Documentation describing the most recent PEs performed on the CPMS monitors;
- Documentation describing a typical PM activity; and
- Hourly data for the last two years for the oxidation catalyst inlet temperature, SCR inlet and outlet temperature, the SCR pressure drop and engine power.

EPA inspectors said that EPA would setup a shared drive for the Facility to use to submit the requested information described above. EPA inspectors said the facility would receive a copy of an inspection report for this visit.

The group left the facility at approximately 11:30 a.m.

Post Inspection:

Mr. Kotsifas setup a share drive for Aspen Aerogels to submit requested information. Mr. Kotsifas informed Aspen Aerogels that the drive was active.