U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 1 – NEW ENGLAND
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BOSTON, MASSACHUSETTS 02109-3912

CAA 112 (r), Risk Management Plan (RMP), CAA § 112(r)(1) General Duty Clause (GDC), CERCLA § 103, and EPCRA §§ 302-313 Compliance Evaluation Inspection of:

Bridgeport Fuel Cell Park
1366 Railroad Avenue
Bridgeport, CT 06605

4/4/2023
Date of Inspection

Len Wallace
Waste and Chemical Compliance Section

9/27/2023
Date Inspection Report Approved

MARY ODONNELL
Digitally signed by MARY ODONNELL
Date: 2023.09.27 12:45:07 -04'00'
Mary Jane O'Donnell, Manager
Waste and Chemical Compliance Section

9/27/2023
Date Inspection Report Finalized

9/27/2023
Date Inspection Report Transmitted to Facility

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

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region 1

EPCRA and CAA § 112(r) Inspection Report

Date: September 27, 2023

From: Len Wallace, Drew Meyer, Inspectors
Waste and Chemical Compliance Section

Through: Mary Jane O'Donnell, Chief
Waste and Chemical Compliance Section

To: File

Subject: Chemical Accident Investigation and Inspection, under Clean Air Act (CAA) Risk Management Plan (RMP) Section 112(r) and General Duty Clause (GDC) Section 112(r)(1) and Emergency Planning and Community Right-To-Know Act (EPCRA) Sections 302-312, and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 103 of Bridgeport Fuel Cell Park, Bridgeport, CT

I. GENERAL INFORMATION

Facility Name: Bridgeport Fuel Cell Park

Dun and Bradstreet Number: 050627884

RMP Number: 100000223411

Address: 1366 Railroad Avenue
Bridgeport, Connecticut, 06605

Inspector Names: Tyler Diercks, U.S. Environmental Protection Agency (EPA) Region 1
Andrew Meyer, U.S. EPA Region 1
Leonard Wallace, U.S. EPA Region 1
Brook McKeown, ERG
John Burton, Weston Solutions

Inspection Date: April 4, 2023

Type of Inspection: Risk Management Plan (RMP) CAA § 112(r), CERCLA § 103, and EPCRA §§ 302-313 Compliance Evaluation Inspection

Purpose of Inspection: This inspection was conducted as a routine EPA CAA § 112(r)/EPCRA compliance evaluation inspection.

Current Owner: Fuel Cell Energy, Inc. (FCE)

Current Operator: Bridgeport Fuel Cell, LLC

Primary NAICS codes: 221112 (Fossil Fuel Electric Power Generation)

Number of full-time employees: 25 (facility is typically unmanned)

Estimated Annual Sales: $4.52M

Relationship to other firms, parent corporation, subsidiaries, and location of off-site facilities: Fuel Cell Energy, Inc. manufactured and has operated the site since it was constructed in 2012, while Dominion Energy, Inc. served as the parent company. In 2018, Fuel Cell Energy bought the Bridgeport site from Dominion Energy. Operators and other employees are at an offsite location; 3 Great Pasture Road, Danbury, CT.

II. GENERAL FACILITY DESCRIPTION

The Bridgeport Fuel Cell Park is located at 1366 Railroad Avenue in Bridgeport, CT (BFCP or the Facility). The Facility generates electricity at five fuel cells and recovers waste heat energy in an Organic Rankine Cycle (ORC) generator. The property is fenced in, with multiple locked entrances on the eastern and western sides. The property is bordered by mixed use commercial and residential properties to the north, east, and west and a rail line, commercial properties, and Interstate 95 to the south.

Natural gas is received on-site and goes through a desulfurizing process, which is then combusted in each of the five fuel cells to produce electricity. The Facility uses a Dowtherm transfer fluid to collect excess heat from the fuel cells exhaust gases. The heat from the Dowtherm fluid is then transferred to the pentane working fluid. The pentane is expanded across a turbine, generating torque, which in turn spins an electric generator. The working fluid is then cooled with air-cooled condensers and returned back to the process. The Facility maintains 11,818 pounds of pentane in the Ormat Energy Converter (OEC) system that flows through a vaporizer, preheater, recuperator, condenser, turbine, feed pump and associated piping. The OEC is located on the southern portion of the main processing equipment area.

The Facility's 2018-2022 EPCRA § 312 Tier II reports indicate that the OEC system contained a maximum quantity of 12,175 pounds of n-pentane in 2019.

At the time of the site visit, the Facility had approximately 25 full time employees. However, the Facility itself is unmanned. Attachment 1 is a Google Earth aerial photograph of the BFCP facility.

III. IN-BRIEF/OPENING CONFERENCE

The EPA inspection team, consisting of Tyler Diercks, Leonard Wallace and Andrew Meyer (USEPA Region 1), Brook McKeown (USEPA contract inspector), and John Burton (USEPA air monitoring contractor), entered the Facility at approximately 9:00 a.m. The inspection team presented identification to Daniel Preli, Director of EHS, Fuel Cell Energy, Inc. Inspector Wallace conducted the opening meeting and explained the reason and scope of the inspection. Inspector Wallace presented the EPCRA Notice of Inspection to Mr. Preli, who signed as the Recipient of the Notice. Mr. Preli did not attempt to deny Facility entry to the inspectors, nor did he invoke any claims of Confidential Business Information (CBI) for purposes of the inspection.

Facility Representatives:

Name	Title/Company	Phone Number	E-mail
Alan Barlow	FCE	203-648-5944	abarlow@fce.com
Nathaniel Grogan	FCE	203-516-1878	ngrogan@fce.com
Robert Fournier	FCE	860-748-2253	rfournier@fce.com
Daniel Preli	FCE	860-840-1557	dpreli@fce.com
Scott Butcher	FCE	203-628-6106	sbutcher@fce.com

Inspector Wallace shared the following guidance documents with Facility representatives:

1. Guide to the Emergency Planning and Community Right-to-Know Act (Fall 2020)
2. EPCRA Quick Reference Fact Sheet (Fall 2020)
3. List of Lists (EPA 550-B-20-001, August 2020)
4. Small Business Resource Information Sheet (February 2020, EPA-300-F-20-002)
5. *National Response Center Oil and Chemical Spill Reporting* flyer
6. *Chemicals in Your Community* brochure (EPA 550-K-99-001, December 1999)

Inspector Wallace stated that, after the opening meeting, the inspectors would do a walk-through of the Facility. He also stated that the inspection team would be taking photographs of items and areas of interest and a copy of all photographs would be provided to the Facility representative after the inspection.

IV. PHYSICAL INSPECTION

The EPA inspection team conducted a walk-through of the following areas at the Facility:

- Facility Entrances
- Natural gas desulfurizer
- Nitrogen storage and water treatment
- Fuel Cell/OEC Area
- Transformers

Inspector Wallace took 65 digital photographs during the inspection to document observed conditions. These photographs are referenced throughout the inspection report. The following sections discuss areas of concern identified in each area during the physical inspection.

Facility Entrances

The Facility is surrounded by a fence, with four entrance gates, two on the eastern property boundary and two on the western property boundary. There are also two personnel gates located on the eastern gate. The entrance gates and personnel gates are all normally padlocked. EPA inspectors identified the following area of concern based on a tour of the area:

- Egress points in facility fencing were not equipped with panic hardware (see photograph P1120147).
- A wind-sock or other wind direction indicator was not present at the facility (see photograph P1120148).

- Emergency contact signs on exterior fencing were not visible when facility gates were open (see photograph P1120147).
- National Fire Protection Association (NFPA) diamonds were not present on facility fencing (see photograph P1120147).
- Limited personnel egress in the fencing system around the facility.
- The "Bridgeport Fuel Cell Park Site Plan – Exit Routes" map on display at the Facility inside the Chemical Storage Shed designated a primary and backup rally area. However, the exit route map did not take into account designations for rally areas based on wind direction during a potential emergency event (see photograph P1120197).

Natural Gas Desulfurizers

The Facility receives natural gas on-site via pipeline. Natural gas immediately goes through desulfurization tanks, which contain a carbon-based media that removes hydrogen sulfide prior to delivery of natural gas to the fuel cells. EPA inspectors identified the following areas of concern based on a tour of the area:

- Labels were not present on confined spaces on desulfurization tanks (see photographs P1120148, P1120155).
- Labels on confined space entries were not large enough on certain fuel cell equipment (see photographs P1120168 and P1120169).
- Ultraviolet (UV) flame detectors were not monitoring incoming natural gas piping (see photographs P1120148 and P1120149). Facility personnel stated that since the gas was odorized, any leaks would be smelled. However, the facility is not continuously staffed with onsite personnel.
- The Facility did not have containment in place to capture firefighting water.
- Labeling of natural gas piping adjacent to changes in direction were not present in the desulfurization process area (see photographs P1120150, P1120153 and P1120155).
- Natural gas piping which had the ability to flow in either direction was not labeled with arrows to indicate flow direction (see photograph P1120150).
- NFPA diamonds were not present on desulfurization tanks (see photographs P1120148, P1120155 and P1120156).
- Corrosion protection paint was not applied to portions of natural gas piping at points of piping support (see photograph P1120152).
- Piping and valves were not provided with adequate bump protection in all directions from vehicle traffic or snow removal equipment (see photographs P1120149, P1120153, and P1120158).

Nitrogen Storage and Water Treatment

The Facility maintains a 3,000-gallon liquid nitrogen tank, which is used to support fuel cell operations. Two empty drums were observed on the concrete pad associated with the nitrogen tank. Two containers with water treatment equipment are located adjacent to the nitrogen tank. The water treatment system purifies incoming water from the local utility prior to use in the process. EPA inspectors identified the following areas of concern based on a tour of the area:

- Empty drums located adjacent to the nitrogen tank were not labeled (see photograph P1120158).
- Arc flash study labeling was not present on the electrical cabinet for the nitrogen tank and water treatment system (see photographs P1120159 and P1120160).
- Water heater was not labeled (see photographs P1120160 and P1120161).

- Piping associated with water treatment system between structures was not labeled (see photograph P1120162).
- A valve associated with water treatment system was not locked in place (see photograph P1120162 and P1120163).

Fuel Cell/OEC Area

The facility operates five separate fuel cells which generate heat from combustion of desulfurized natural gas. The heat generated from the natural gas combustion is used to heat a Dowtherm heat transfer fluid. In the OEC, the heat from the Dowtherm fluid is then transferred to the pentane working fluid. The pentane is expanded across a turbine, generating torque, which in turn spins an electric generator. The working fluid is then cooled with air-cooled condensers and returned back to the process. The Facility maintains 11,818 pounds of pentane in the OEC system that flows through a vaporizer, preheater, recuperator, condenser, turbine, feed pump and associated piping. A chemical storage shed in the OEC area contained 55-gallon drums of Dowtherm material, as well as 5-gallon pails of gear oil and other oil-based products. EPA inspectors identified the following areas of concern based on a tour of the area:

- Emergency stop buttons throughout the facility were not labeled as to their function. Facility personnel stated that some buttons shut down sections of the plant, while some initiate an entire facility shutdown. Inspectors observed that this distinction was also not included in any labeling (see photographs P1120174 andP1120182)
- Labeling of thermal oil and relief piping adjacent to changes in direction were not present in the MM-15 fuel cell area (see photograph P1120181).
- n-Pentane piping in the Ormat Energy Converter (OEC) area was not labeled as to its contents or direction of flow (see photograph P1120177, P1120189 and P1120200).
- Holding tanks and other equipment with n-pentane in the OEC were not labeled with NFPA diamonds or with labeling indicating their contents (see photograph P1120177, P1120189, P1120190 and P1120200).
- Two 55 Gallon drums next to the Chemical Storage Shed where not in secondary containment (see photograph P1120191, P1120192 and P1120199).
- The exit door to the Chemical Storage Shed was not equipped with panic hardware (see photograph P1120193).
- Oil rags, absorbent and other clean-up materials were stored in the same location as oil products (see photographs P1120193, P1120195, P1120196).
- Equipment and liquid materials were observed to be stored together in the Chemical Storage Shed (see photographs P1120193 and P1120195).
- Unused, ancillary equipment (e.g., piping and piping components) was observed to be stored within the Interfeed Pump structure (see photographs P1120203 and P1120204).
- A waste oil drum, which contains flammable material, was actively being stored on a wooden pallet (see photograph P1120205).
- Secondary containment was not in place below all elevated piping. In addition, secondary containment for elevated tanks containing petroleum products was not located directly beneath the equipment, and secondary containment associated with elevated tanks does not appear to account for horizontal movement outside of containment due to storage at height (see photographs P11201211).

- The n-pentane fill point was not labeled (see photograph P1120207). Additionally, the cap for the end of the fill line was not in place at the time of the inspection (see photograph P1120207, where the cap was subsequently applied).
- The name plate affixed to the nitrogen tank near OEM heat exchangers has been painted over multiple times and is difficult to read (see photographs P1120200 and P1120208).
- There was no valve tagging of n-pentane valves in the OEM area (see photograph P1120207)

Transformers and Electrical Equipment

Transformers and other electrical equipment are located along the southern fence line of the Facility. EPA inspectors identified the following area of concern based on a tour of the area:

- Transformers were not labeled as to their polychlorinated biphenyl (PCB) content (see photographs P1120183, P1120185 and P1120186 through P1120188).
- Arc Flash Study labeling on electrical cabinets within the Control Skid document that a 45-inch arc flash boundary is required. However, the Control Skid structure was located within that radius (see photographs P1120172 and P1120174).

V. OUT-BRIEF/CLOSING CONFERENCE

Due to COVID 19, an in-person out-brief/closing conference was not conducted at the conclusion of the on-site inspection. Inspector Wallace emailed a copy of the preliminary areas of concern identified during the April 4, 2023 inspection to Mr. Preli on May 18, 2023 and conducted a virtual closeout meeting on May 24th.

The following is a list of the preliminary areas of concern identified during the inspection at the Facility:

1. Egress points in facility fencing were not equipped with panic hardware (see photograph P1120147).
2. A windsock or other wind direction indicator was not present at the facility (see photograph P1120148).
3. The facility stores 64,981 pounds of Envirotemp FR3 transformer fluid, which exceeds the 10,000-pound Tier II threshold. However, the material was not included on the 2022 Tier II submission, filed on February 16, 2023.
4. Emergency contact signs on exterior fencing were not visible when facility gates were open (see photograph P1120147).
5. NFPA diamonds were not present on facility fencing (see photograph P1120147).
6. Limited personnel egress in the fencing system around the facility.
7. Labels were not present on confined spaces on desulfurization tanks (see photographs P1120148, P1120155).
8. Labels on confined space entries were not large enough on certain fuel cell equipment (see photographs P1120168 and P1120169).
9. UV flame detectors were not monitoring incoming natural gas piping (see photographs P1120148 and P1120149). Facility personnel stated that since the gas was odorized, any leaks would be smelled. However, the facility is not continuously staffed with onsite personnel.
10. The Facility did not have containment in place to capture firefighting water.
11. Labeling of natural gas piping adjacent to changes in direction were not present in the desulfurization process area (see photographs P1120150, P1120153 and P1120155).
12. Natural gas piping which had the ability to flow in either direction was not labeled with arrows to indicate flow direction (see photograph P1120150).

13. NFPA diamonds were not present on desulfurization tanks (see photographs P1120148, P1120155 and P1120156).
14. Corrosion protection paint was not applied to portions of natural gas piping at points of piping support (see photograph P1120152).
15. Piping and valves were not provided with adequate bump protection in all directions from vehicle traffic or snow removal equipment (see photographs P1120149, P1120153, and P1120158).
16. Empty drums located adjacent to the nitrogen tank were not labeled (see photograph P1120158).
17. Arc flash study labeling was not present on the electrical cabinet for the nitrogen tank and water treatment system (see photographs P1120159 and P1120160).
18. Water heater was not labeled (see photographs P1120160 and P1120161).
19. Piping associated with water treatment system between structures was not labeled (see photograph P1120162).
20. A valve associated with water treatment system was not locked in place (see photograph P1120162 and P1120163).
21. Arc Flash Study labeling on electrical cabinets within the Control Skid document that a 45-inch arc flash boundary is required. However, the Control Skid structure was located within that radius (see photographs P1120172 and P1120174).
22. Emergency stop buttons throughout the site were not labeled as to their function. Facility personnel stated that some buttons shut down sections of the plant, while some initiate an entire facility shutdown. Inspectors observed that this distinction was also not included in any labeling (see photographs P1120174 andP1120182).
23. The "Bridgeport Fuel Cell Park Site Plan – Exit Routes" map on display at the Facility inside the Chemical Storage Shed designated a primary and backup rally area. However, the exit route map did not take into account designations for rally areas based on wind direction during a potential emergency event (see photograph P1120197).
24. Labeling of thermal oil and relief piping adjacent to changes in direction were not present in the MM-15 fuel cell area (see photograph P1120181).
25. n-Pentane piping in the Ormat Energy Converter (OEC) area was not labeled as to its contents or direction of flow (see photograph P1120177, P1120189 and P1120200).
26. Holding tanks and other equipment with n-pentane in the OEC were not labeled with NFPA diamonds or with labeling indicating their contents (see photograph P1120177, P1120189, P1120190 and P1120200).
27. Transformers were not labeled as to their polychlorinated biphenyl (PCB) content (see photographs P1120183, P1120185 and P1120186 through P1120188).
28. The exit door to the Chemical Storage Shed was not equipped with panic hardware (see photograph P1120193).
29. Oil rags, absorbent and other clean-up materials were stored in the same location as oil products (see photographs P1120193, P1120195, P1120196).
30. Equipment and liquid materials were observed to be stored together in the Chemical Storage Shed (see photographs P1120193 and P1120195).
31. Unused, ancillary equipment (e.g., piping and piping components) was observed to be stored within the Interfeed Pump structure (see photographs P1120203 and P1120204).
32. Waste oil drum, which contains flammable material, was actively being stored on a wooden pallet (see photograph P1120205).
33. Secondary containment was not in place below all elevated piping. In addition, secondary containment for elevated tanks containing petroleum products was not located directly beneath the equipment, and secondary containment associated with elevated tanks does not appear to

account for horizontal movement outside of containment due to storage at height (see photographs P11201211).

34. The n-pentane fill point was not labeled (see photograph P1120207). Additionally, the cap for the end of the fill line was not in place at the time of the inspection (see photograph P1120207, where the cap was subsequently applied).
35. Name plate on nitrogen tank near OEM heat exchangers has been painted over multiple times and is difficult to read (see photographs P1120200 and P1120208).
36. There was no valve tagging of n-pentane valves in the OEM area (see photograph P1120207).

The Facility has provided monthly updates on the status of these items. As of the update provided on August 7th, 2023[1], items 7, 8, 13, 16, 26, 27, 29, 31, 32 have reportedly been corrected.

VI. FACILITY COMPLIANCE STATUS AND ELEMENTS OF PROOF - EPCRA

EPCRA § 302

(1**)** Does facility have on-site, at any one time, extremely hazardous substances (EHS) at or above the TPQ? No.

(2) List or obtain documentation: Inspectors' observations; RY 2022 Tier II report.

(3) How was maximum quantity on-site determined or calculated? Equipment capacity information and chemical inventory data for other onsite chemicals.

EPCRA § 303

(1) Facility Coordinator identified per Sec. 303 and date LEPC was notified? N/A

EPCRA § 311

(1) Is facility required to maintain SDSs under the OSHA Hazard Communication Standard 29 CFR 1910.1200.? Yes

(2) Has the facility conducted a comprehensive audit to identify SDS chemicals on-site and to determine if 500 lb./10,000 lb./TPQ thresholds were exceeded? Unknown

(3) List of OSHA chemicals manufactured, processed, used/stored, and obtained? Unknown

(4) How were the maximum amounts determined? Equipment capacity information and chemical inventory data for other onsite chemicals.

(5) Section 311 info supplied to the:

SERC (Y/N):	Unknown
LEPC (Y/N):	Unknown
Local Fire Department(Y/N):	Unknown
Date:	Unknown

Chemical List: Available

SDSs: Yes

(6) Have any new hazardous chemicals, mixtures, or substances been introduced into the facility in the last 5 years? Unknown

(7) If yes, has the facility submitted updated lists or SDSs? Unknown

EPCRA § 312 (due March 1 of year following reporting calendar year)

(1) Was Tier II form submitted for all required chemicals? No. The facility stores 64,981 pounds of Envirotemp FR3 transformer fluid, which exceeds the 10,000-pound Tier II threshold. However, the material was not included on the 2022 Tier II submission, filed on February 16, 2023.

(2) What procedures are used to update Section 312 information for annual submittal and to ensure additional or new chemical data is submitted within 90 days? Unknown.

(3) Was facility aware of annual reporting requirements under Section 312? Yes.

(4) Had the facility completed and signed a list of all reportable chemicals on site on date of the inspection? No. Chemical inventory data requested during inspection for review following inspection.

(5) Table of EPCRA 312 Reportable Substances:

CAS #	Chemical	Approx. Max. Wt. on Site (Lbs.)	TPQ (Lbs.)	Approx. Ratio (Actual/TPQ)
68608-82-2	Dowtherm Q Heat Transfer Fluid	39,360	10,000	3.93
109-66-0	N-Pentane	11,800	10,000	1.18
7727-37-9	Nitrogen, Refrigerated Liquid	18,981	10,000	1.89
7440-44-0	Norit RGM-3 (Activated Carbon)	18,522	10,000	1.85
	SulfaTrap R6 Sorbent (FCE 9696 Sulfur Adsorbent)	49,608	10,000	4.96

The facility does not currently store any extremely hazardous substances on-site at or above threshold levels.

VII. ENFORCEMENT HISTORY

A search of EPA's ECHO database found no enforcement actions and one Clean Water Act inspection related to pretreatment sampling on 4/5/2023 for the Bridgeport Fuel Cell Park located at 1366 Railroad Avenue in Bridgeport, CT.

VIII. ENVIRONMENTAL JUSTICE

The demographic information in the environmental justice report for the communities surrounding the Bridgeport Fuel Cell Park indicates that the Facility is located in an Supplemental Indexes area as 8 metrics were at or above the 90^{th} percentile.

Attachment 1

Google Earth Image of Bridgeport Fuel Cell