

STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

IN RE: :  
 :  
 PETITION OF GROTON FUEL CELL 1, LLC : PETITION NO. \_\_\_\_\_  
 FOR A DECLARATORY RULING THAT A :  
 CERTIFICATE OF ENVIRONMENTAL :  
 COMPATIBILITY AND PUBLIC NEED IS :  
 NOT REQUIRED FOR THE INSTALLATION :  
 OF A FUEL CELL AT THE PFIZER GROTON :  
 CAMPUS :  
 : JANUARY 25, 2016

**PETITION FOR DECLARATORY RULING:  
INSTALLATION HAVING NO SUBSTANTIAL ENVIRONMENTAL EFFECT**

**I. INTRODUCTION**

Pursuant to Connecticut General Statutes (“Conn. Gen. Stat.”) § 16-50k, Groton Fuel Cell 1, LLC, (“GFC”), a wholly owned subsidiary of FuelCell Energy, Inc. (“FCE”), hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Petition”) that a Certificate of Environmental Compatibility and Public Need (“Certificate”) is not required for the installation of two, 2.8 megawatt (“MW”) fuel cell combined heat and power generating units, including all associated equipment and related site improvements at the Pfizer Groton campus, as described herein (collectively, the “Project”).

Conn. Gen. Stat. § 16-50k(a) provides, in pertinent part:

Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdictions over the siting of generating facilities, approve by declaratory ruling . . . the construction or location of any fuel cell unless the council finds a substantial adverse environmental effect . . . .

GFC respectfully submits that the construction and operation of the proposed Project satisfies the criteria of Conn. Gen. Stat. § 16-50k(a) and, as described in more detail below, will not have a substantial adverse environmental effect.

## **II. THE PETITIONER**

GFC is an indirect, wholly-owned subsidiary of FCE created for financing purposes. FCE is a Delaware corporation with a principal place of business at 3 Great Pasture Road, Danbury, Connecticut. Pfizer, Inc. is a Delaware corporation (“Pfizer”) with a facility located at 445 Eastern Point Road, Groton, Connecticut (the “Facility”). Pfizer and GFC have entered into a power purchase agreement (the “PPA”) whereby GFC will design, install, own and operate two of FCE’s DFC3000 fuel cell power plants nominally rated at 2.8 MW each, for a total Project nameplate of 5.6 MW installed at the Facility. FCE will be responsible for the construction and long term service under contract to GFC for the term of the PPA, which is twenty (20) years.

Correspondence and/or communications regarding this Petition should be addressed to:

Dmitriy Kamenetskiy  
Project Manager  
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3 Great Pasture Road  
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[dkamenetskiy@fce.com](mailto:dkamenetskiy@fce.com)

A copy of all such correspondence or communications should also be sent to the

Petitioner’s attorney:

Jennifer D. Arasimowicz, Esq.  
Vice President, Managing Counsel  
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### **III. FACTUAL BACKGROUND**

#### **A. Public Benefit**

A public benefit exists if a project “is necessary for the reliability of the electric power supply of the state or for a competitive market for electricity.” Conn. Gen. Stat. § 16-50p(c)(1). The State of Connecticut has further articulated its energy goals in the Comprehensive Energy Strategy as encouraging the provision of cheap, clean, reliable electricity, fostering the development of microgrids and promoting economic development and job growth. The Project is located at the Pfizer Facility in Groton, Connecticut and will be used to satisfy a substantial portion of the electrical and thermal needs of the Facility. As a result, the electric load that Pfizer will need to obtain from the electric grid will be reduced, including the summertime peak demand; thereby, reducing the stress on the system and reducing load on overloaded transmission lines. The Project will provide Pfizer with savings as compared to grid purchased electricity and thermal energy. The fuel cells will be manufactured in Connecticut, and installed and operated by FCE. Thus, the Project satisfies all of the articulated goals of the Comprehensive Energy Strategy.

#### **B. Project**

FCE will build and operate the Project to be located at the Pfizer Facility in Groton, Connecticut. The Project will be installed on a 190 foot x 74 foot area surrounded by a six (6) foot high fence and gate within the secure Pfizer campus compound (the “Site”). *See* Site Plan attached as Exhibit A.

The Project will include two natural gas-fired DFC3000 Direct Fuel Cell (“DFC”) power plants manufactured by FCE. The Project will cogenerate a nominal 5.6 MW of Connecticut Class I renewable energy for use at the Facility. Thermal energy produced by the Project will be provided for use in Pfizer’s existing thermal distribution system.

The Project consists of multiple skids classified into three major subsystems. The mechanical balance of plant (MBOP) is comprised of three separate components; the desulfurization system, the main process skid, and the water treatment system (WTS) skid. The MBOP supplies fresh air, cleans and heats fuel and water, and includes the power plant control system. The electrical balance of plant (EBOP) is comprised of five sections; two inverters, two transformers and one switchgear for grid connection. The EBOP converts the fuel cell DC power into utility grade AC power. Each DFC3000 power plant includes two DFC modules. The DFC module performs the electrochemical conversion of the continuous fuel supply into DC electric power. Each DFC module contains four fuel cell stacks.

Each stack contains the assembly of electrochemical cells that produce DC power. Resembling a large battery, each of the four stacks is constructed of approximately 400 individual fuel cells clamped together with manifolds inside an insulated container.

Each DFC3000 will have one Cain Industries heat recovery steam generator (HRSG), model ESG1. Each HRSG will be housed in a separate building next to the fuel cell and provide the Facility with 3,400-4,000 lbs/hour of 45 psig saturated steam. The building will also house a deaerator and feed water pumps to process pressurized condensate into boiler feed water.

Each DFC3000 will include FCE's standard load leveler product option. This option allows the unit to provide load following duty during stand-alone, islanded operation. It includes a computer controlled resistive load bank and dedicated customer critical bus (CCB) medium-voltage breaker to which Pfizer can connect up to 2.5 MWs per unit of critical building loads. This configuration provides uninterruptable power in the event the Pfizer electrical system loses power.

**C. Local Input**

On January 5, 2016, representatives from Pfizer presented an overview of the Project to members of the City of Groton Conservation Commission (Karen Valente, Richard Palmieri and George Finch) and the City of Groton Zoning and Building Official (Carlton Smith). The City of Groton has expressed no concerns regarding the Project.

**D. Notice of Petition**

A copy of this Petition has been sent to each person appearing of record as an owner of property that abuts the Facility and to relevant Connecticut state agencies, the Attorney General, regional planning agencies, legislators representing Groton and representatives of the City of Groton as set forth on Exhibit B attached hereto.

**IV. THE INSTALLATION WILL NOT HAVE A SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT**

The Project will provide 5.6 MW of clean electrical energy without the environmental impacts normally associated with the use of natural gas as a fuel.

**A. Natural Environment and Ecological Balance**

Approximately 48,700 standard cubic feet ("scf") of nitrogen will be stored on-Site to be used in the Project. Nitrogen is non-toxic; however, it is a Department of Transportation

Division 2.2 (non-flammable gas) hazardous material. There are no U.S. Environmental Protection Agency (“EPA”) reporting requirements for nitrogen.

### **B. Public Health and Safety**

The Project will be located adjacent to the existing Pfizer Building #260 located at the Facility as depicted in Figure 1 below. The roadways in the area are adequate for all deliveries to support the construction and operation of the Project. The limited number of truck trips necessary to support installation will not have any adverse impacts on local roadways or traffic conditions. Operational personnel trips will be insignificant, as the Site will be unmanned and only visited periodically by technicians.



The Project has been designed with significant attention to protecting the community sound environment. The core of the fuel cell technology (*i.e.*, the Direct Fuel Cell® modules) will produce no significant sound. Ancillary equipment associated with the Project includes a

blower that will pump fresh air through a silencer into the main process skid. An air conditioning unit, which is similar to many used in residential applications, will be located above the water treatment cabinet to support equipment inside the cabinet and will produce sound only when the fan is actively providing cooling for the system. Relatively small transformers and electrical buses and inverters, as well as fans providing ventilation to some of the equipment, will produce modest sound. Under normal conditions, these few acoustic sources would produce consistent sound throughout the day and night.

The acoustic levels associated with the Project were estimated at community receptors per the Regulations of Connecticut State Agencies (“R.C.S.A.”) § 22a-69-1 *et seq.* The Project Site is categorized as a Class C Noise Zone, where the sound level is limited to 70 dBA at Class C receptors, 66 dBA at Class B receptors, and 61 dBA at Class A receptors during the daytime and 51 dBA at Class A receptors during the nighttime.

The zoning and land uses for the Project Site and all surrounding properties to a distance of well over 500 feet are industrial. To the east and slightly north, approximately 900 feet away from the Project Site are homes on Shennecossett Road. To the south, approximately 650 feet from the Project Site are homes at the end of the Shennecossett Parkway cul-de-sac. All of these residential receptors are fully shielded from the Project Site by existing large industrial buildings, terrain and vegetation. No other Class A, Class B or Class C receptors were identified in the vicinity of the Project Site.

Using the results of noise modelling performed for previous DFC1500 and DFC3000 projects and extrapolating the results using the standard sound level attenuation with distance relationship, as well as accounting for the shielding effects of the site buildings and terrain, sound

level predictions were calculated for the neighboring residential properties. The results of the analytical predictions are provided in the table below.

Receptor	Direction & Distance from Pfizer source	Predicted Sound Level from Source	Noise Criterion
Homes on Shennecossett Road	Approximately 900' East-Northeast	<33 dBA	51 dBA
Homes on Shennecossett Parkway	Approximately 650' South	<36 dBA	51 dBA

The results of the sound evaluation clearly indicate that the Project can be operated at the Site within the applicable noise performance criteria.

Prior to operation, FCE will discuss the Project with the Groton Fire Department and the Pfizer campus fire department. In addition, in accordance with the Council’s Final Decision in Docket NT-2010, FCE is attaching an Emergency Response Plan (“ERP”) for the Council’s review. *See* ERP attached as Exhibit C. The ERP includes the following information:

- A description of any simulated emergency response activities with any state and/or local emergency response officials;
- Details of any facility Site access system; and
- Establishment of an emergency responder/local community notification system for on-Site emergencies and planned construction-related activities that could cause community alarm.

All other requirements of the NT-2010 Decision will be adhered to.

A preliminary site plan is attached as Exhibit A. Issued for construction drawings will be submitted to the Council upon completion of Project design.

**C. Scenic Values**

The proposed Project will have little impact on the visual character of the community. Generally, the potential visual impact is inherently small due to the low profile of the Project in

the context of the existing buildings at the Facility. Views to the south will be obstructed by wooded land. Views to the west will be obstructed by wooded land and Pfizer Building #274. Views to the north will be obstructed by Pfizer Building #260. Views to the east will be obstructed by wooded land.

**D. Historical Values**

On January 8, 2016, a request was made with the Connecticut State Historic Preservation Office (“SHPO”) regarding the Project’s effect on historic, architectural or archaeological resources listed on or eligible for the National Register of Historic Places. *See* Correspondence attached as Exhibit D. As of the date of filing of this Petition, the SHPO has not responded. However, given the location of the Project on currently unoccupied land inside the Pfizer Groton campus, the Petitioner is confident that there will be no impact to the State’s historic, architectural or archaeological resources.

**E. Air Quality**

Air emissions from the fuel cell associated with the Project, assuming continuous year-round operation, is expected to be:

<b>Pollutant</b>	<b>Total Potential Emissions (tpy)</b>
Oxides of Nitrogen (“NO <sub>x</sub> ”)	0.02
Oxides of Sulfur (“SO <sub>x</sub> ”)	0.002
Particulate Matter (“PM”)	0.0005
Carbon Monoxide (“CO”)	2
Volatile Organic Compounds (“VOC”)	0.5
Carbon Dioxide (“CO <sub>2</sub> ”)	24,000

In addition to the emissions from the fuel cells themselves, there will also be minor emissions associated with a 10 MMBtu/hr gas-fired startup burner for each fuel cell that will be included with each fuel cell power plant. The burner is used at start-up only to heat the plant to its required operating temperature. The criteria pollutant potential emissions (assuming 8,760 hours of operation) associated with the gas-fired burners along with the fuel cells are less than 15 tpy using conservative EPA AP-42 emission factors.

Total emissions from the proposed Project will be below levels that would render the Project a “major stationary source” as defined at R.C.S.A. § 22a-174-1(57). The Project’s maximum emissions will operate well below the serious non-attainment area thresholds for VOC and NO<sub>x</sub>. Thus, the Project will be a minor source and is not subject to Federal Non-Attainment New Source Review (“NSR”). Also, there is no requirement for emission offsets for this Project as it will be below the non-attainment NSR major source thresholds.

A Permit to Construct and Operate Stationary Sources is not required for the Project because the potential emissions of any individual criteria air pollutant are less than 15 tpy; the source is not a new major stationary source; and, the source is not a new major source of hazardous air pollutants. The Project is also not subject to DEEP’s “permit by rules” because the potential emissions from each fuel cell are less than 15 tpy. Thus, there are no registrations or applications required to be submitted to the DEEP; nor are there anticipated to be any approvals from the DEEP Air Bureau required prior to the construction and operation of the Project.

On May 13, 2010, EPA issued the final greenhouse gas (“GHG”) Tailoring Rule. This rule effectively raised the thresholds for GHG emissions that define when permits under the Prevention of Significant Deterioration and Title V Operating Permit programs are required for

new and existing industrial facilities. However, since the potential GHG emissions from the Project will be well below the 75,000 tpy trigger established by the Tailoring Rule, those emissions will not trigger the requirement for an air permit.

On average, the Project will offset power from the utility grid, which has an average CO<sub>2</sub> footprint of 1,107 lbs CO<sub>2</sub> per MWh (EPA EGRID 9<sup>th</sup> Edition (February 2014) NEWE New England subregion, non-baseload). Because the Project also generates steam from the useable waste heat from the fuel cell power plants, additional CO<sub>2</sub> GHG emissions are avoided in providing this utility. Thus, in total, operation of the Project will result in the following net reduction of CO<sub>2</sub> GHG:

- CO<sub>2</sub> produced from power generation: 980 lbs/MWh
- CO<sub>2</sub> avoided by not using grid power: 1,107 lbs/MWh

Net electric generation CO<sub>2</sub> impact: 127 lbs/MWh or 3115 tpy **reduction**

- Additional CO<sub>2</sub> avoided from the generation of steam using waste heat: 5,126 tpy

Total net CO<sub>2</sub> impact: 8,241 tpy **reduction**

#### **F. Water Quality**

The Project Site is not located within either 100- or 500-year floodplains or the coastal zone. There are also no surface water bodies, wetlands or hydric soils at or near the Project Site.

The Project Site occupies less than one acre and, as such, a DEEP general permit construction stormwater pollution prevention plan is not required. Groundwater in the Site vicinity will not be impacted by the installation and operation of the Project. Limited excavation of soils will be required for installation of the Project and no wastewaters will be discharged on-

Site. To the extent necessary, the small number of personnel periodically operating and/or maintaining the Project will use existing sanitary facilities at Pfizer.

The fuel cells to be installed as part of this Project (*i.e.*, DFC3000s) will require approximately 26,000 gallons per day (“gpd”) of raw water and will discharge approximately 13,000 gpd of wastewater. Most of the makeup water will be released as water vapor with the fuel cell exhaust gas. Water will be obtained from the existing Pfizer water system and the wastewater will be discharged to the existing Pfizer wastewater system. The Project will register under DEEP’s Miscellaneous Sewer Compatible Discharges general permit. Thus, adequate water supply and infrastructure are available to supply the Project. Therefore, no substantial adverse environmental effect will occur from the Project’s water use and wastewater disposal.

#### **G. Fish and Wildlife**

A request was made with the Connecticut DEEP for a review of the Natural Diversity Data Base Map. In response, the DEEP indicated that the Project will not impact any extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur in the vicinity of this property. *See* Correspondence attached as Exhibit E.

#### **H. Summary**

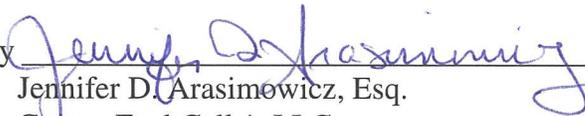
Overall, the proposed installation will have an incremental visual impact and will not cause any significant change or alteration in the physical or environmental characteristics of the Facility or the surrounding area. In fact, as discussed in Section IV.E above, the Project will actually provide an environmental benefit to the State of Connecticut by reducing CO<sub>2</sub> emissions by approximately 8,241 tpy.

**V. CONCLUSION**

For all the foregoing reasons, GFC respectfully requests that the Council issue a determination, in the form of a declaratory ruling, that the proposed installation as described above is not one that would have a substantial adverse environmental effect and, therefore, that a Certificate is not required.

Respectfully submitted,

GROTON FUEL CELL 1, LLC

By  \_\_\_\_\_

Jennifer D. Arasimowicz, Esq.

Groton Fuel Cell 1, LLC

c/o FuelCell Energy, Inc.

3 Great Pasture Road

Danbury, CT 06810

Phone: (203) 825-6070

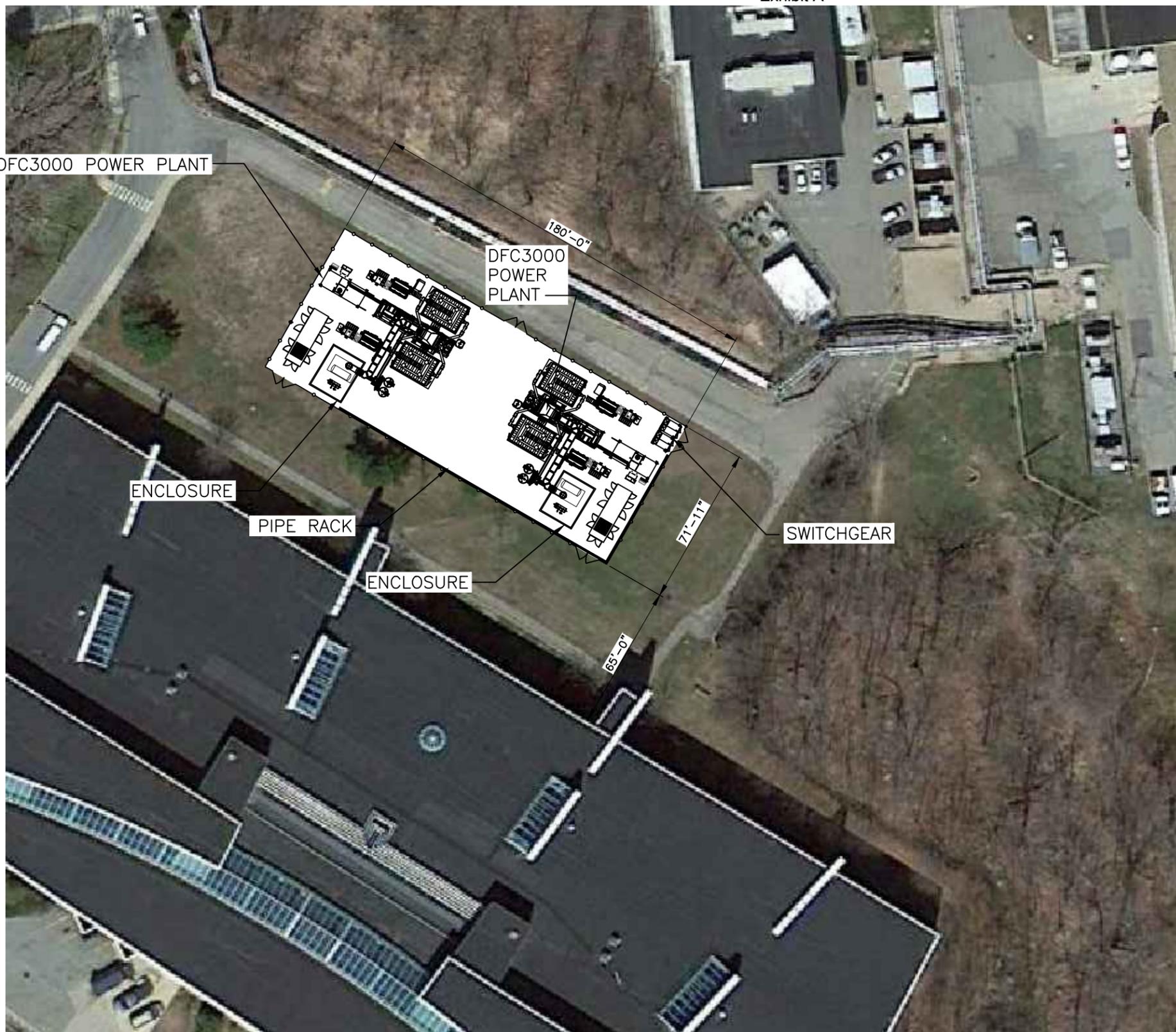
Fax: (203) 825-6069

E-mail: [jarasimowicz@fce.com](mailto:jarasimowicz@fce.com)

Its Attorney

Petition of Groton Fuel Cell 1, LLC  
 January 25, 2016  
 Exhibit A

REVISION HISTORY				
REV	DESCRIPTION	BY	APPROVED	DATE
A	PRELIMINARY FOR REVIEW	MB	I.COREA	05/19/15
B	REVISION PER INTERNAL REVIEW	KGG	I.COREA	07/22/15
C	ADDED OPTION #2	KGG	I.COREA	07/28/15
D	ADDED PIPE RACK / MOVED SWITCHGEAR	KGG	I.COREA	09/01/15



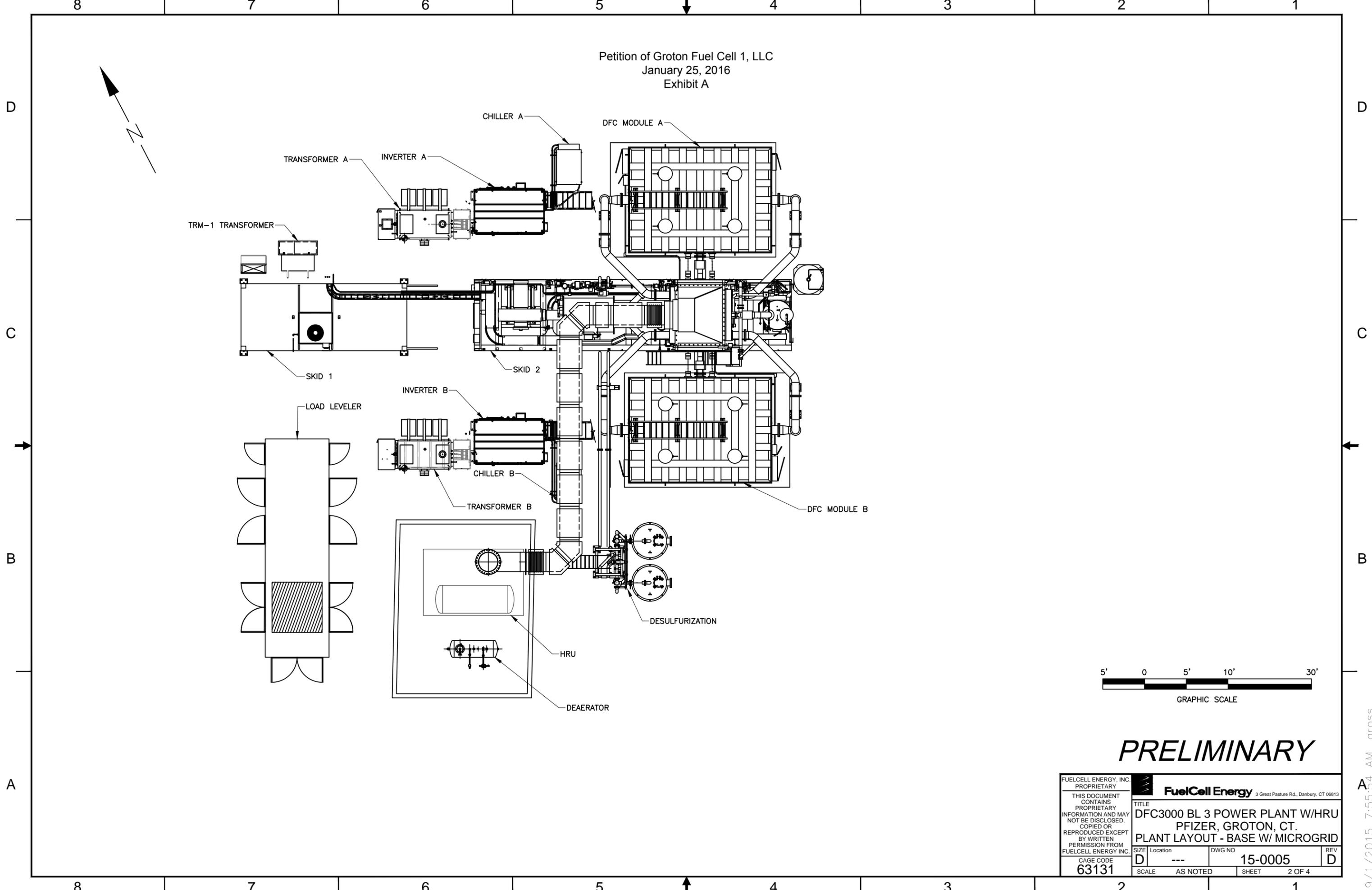
**PRELIMINARY**

FUELCELL ENERGY, INC. PROPRIETARY THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE DISCLOSED, COPIED OR REPRODUCED EXCEPT BY WRITTEN PERMISSION FROM FUELCELL ENERGY INC. CAGE CODE <b>63131</b>	SIGNATURES		FuelCell Energy 3 Great Pasture Rd., Danbury, CT 06813	TITLE		
	DRAWN: M.BRUESKI 05/19/15 ENGINEER: I.COREA 05/19/15	APPROVED: I.COREA 05/19/15		DFC3000 BL 3 POWER PLANT W/HRU PFIZER, GROTON, CT. PLOT PLAN - BASE W/ MICROGRID		
	UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE ±1/16"	REVISION INDICATOR 		SIZE Location D ---	DWG NO 15-0005	REV D
	FLAG NOTE 	SCALE AS NOTED		SHEET 1 OF 4		

9/1/2015 7:55:51 AM, gross



Petition of Groton Fuel Cell 1, LLC  
 January 25, 2016  
 Exhibit A



**PRELIMINARY**

FUELCELL ENERGY, INC. PROPRIETARY THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE DISCLOSED, COPIED OR REPRODUCED EXCEPT BY WRITTEN PERMISSION FROM FUELCELL ENERGY INC. CAGE CODE <b>63131</b>		FuelCell Energy 3 Great Pasture Rd., Danbury, CT 06813 TITLE <b>DFC3000 BL 3 POWER PLANT W/HRU          PFIZER, GROTON, CT.          PLANT LAYOUT - BASE W/ MICROGRID</b>	
SIZE <b>D</b>	Location ---	DWG NO <b>15-0005</b>	REV <b>D</b>
SCALE AS NOTED		SHEET 2 OF 4	

9/1/2015 7:55:54 AM, gross



Petition of Groton Fuel Cell 1, LLC  
January 25, 2016  
Exhibit B

**CERTIFICATION**

I hereby certify that a copy of the foregoing was e-mailed or mailed via first class mail, postage pre-paid, to the following on this 25th day of January, 2016.

<b>PIN #</b>	<b>PROPERTY OWNER</b>	<b>ADDRESS</b>
168815734516	Groton Estates, LLC	2319 Whitney Avenue, Suite 1A Hamden, CT 06518
168815742120	Brian A. Martin	317 Brandegee Ave. Groton, CT 06340
168815741142	Michael T. Wiemann	216 Shennecossett Rd. Groton, CT 06340
168815740282	William E. and Helen H. Sanford, Jr.	208 Shennecossett Rd. Groton, CT 06340
168815740205	Jacqueline M. Esquivo	202 Shennecossett Rd. Groton, CT 06340
168815645307 1E	State of Connecticut Marine Magnet School	130 Shennecossett Rd. Groton, CT 06340
16881564307 E	Town of Groton	Receiving Service as Noted Below

<b>MUNICIPAL OFFICIAL/AGENCY</b>	<b>NAME/ADDRESS</b>
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Town of Groton Zoning Commission	Susan K. Sutherland, Chair Town of Groton Zoning Commission 134 Groton Long Point Road Groton, CT 06340
Town of Groton Planning and Development	Jonathan J. Reiner, AICP, Director of Planning Town of Groton Planning and Development 134 Groton Long Point Road Groton, CT 06340 <a href="mailto:jreiner@groton-ct.gov">jreiner@groton-ct.gov</a>

Town of Groton Inland Wetlands Agency	David Scott, Chair Town of Groton Inland Wetland Agency 134 Groton Long Point Road Groton, CT 06340
Town of Groton Conservation Commission	Brae Rafferty, Chair Town of Groton Conservation Commission 134 Groton Long Point Road Groton, CT 06340
Town of Groton Attorney	Eileen C. Duggan, Esq. Suisman Shapiro 2 Union Place P. O. Box 1591 New London, CT 06320 <a href="mailto:eduggan@sswbgg.com">eduggan@sswbgg.com</a>
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State Representative – District 041	Representative André Bumgardner Legislative Office Building, Room 4200 Hartford, CT 06106 <a href="mailto:Audre.Bumgardner@housegop.ct.gov">Audre.Bumgardner@housegop.ct.gov</a>
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U. S. Senator	Senator Christopher Murphy One Constitution Plaza, 7th Fl. Hartford, CT 06103
U. S. Congressman, 2 <sup>nd</sup> District	Congressman Joe Courtney 55 Main Street, Suite 250 Norwich, CT 06360

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Office of Policy and Management	Benjamin Barnes, Secretary Office of Policy and Management 450 Capitol Avenue Hartford, CT 06106 <a href="mailto:Ben.Barnes@Ct.gov">Ben.Barnes@Ct.gov</a>
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State Department of Emergency Services and Public Protection	Dora B. Schriro, Commissioner Department of Emergency Services and Public Protection 1111 Country Club Road Middletown, CT 06457 <a href="mailto:dora.schriro@ct.gov">dora.schriro@ct.gov</a>
State Department of Consumer Protection	Jonathan A. Harris, Commissioner Department of Consumer Protection 165 Capitol Avenue Hartford, CT 06106 <a href="mailto:jonathan.harris@ct.gov">jonathan.harris@ct.gov</a>

State Department of Labor	Sharon M. Palmer, Commissioner Department of Labor 200 Folly Brook Boulevard Wethersfield, CT 06109
State Department of Emergency Management & Homeland Security	William P. Shea, Deputy Commissioner Department of Emergency Management & Homeland Security 25 Sigourney Street, 6 <sup>th</sup> Floor Hartford, CT 06106 <a href="mailto:william.shea@ct.gov">william.shea@ct.gov</a>
State Department of Administrative Services	Melody A. Currey, Commissioner Department of Administrative Services 165 Capitol Avenue Hartford, CT 06106

  
Jennifer D. Arasimowicz



FuelCell Energy

# EMERGENCY RESPONSE/SAFETY PLAN

*Prepared for:*

## **Pfizer Fuel Cell Facility Project**

*Located at:*

Pfizer, Inc.

Center for Discovery & Development Sciences  
445 Eastern Point Road  
Groton, CT 06340

*Owned by:*

Groton Fuel Cell 1, LLC

c/o Fuel Cell Energy, Inc.  
3 Great Pasture Road  
Danbury, CT 06810

*Prepared by:*

**FuelCell Energy, Inc.**

3 Great Pasture Road  
Danbury, CT 06813

*Submitted to:*

**Connecticut Siting Council**

10 Franklin Square  
New Britain, CT 06051

*January 2016*

***A current copy of this Plan is to remain in an accessible location on-site at all times***

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## Appendices

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Appendix B: Plant Hazardous Area Classification Drawings with ESD pushbutton & Emergency Sensor Locations

# 1 INTRODUCTION

The Pfizer Fuel Cell Facility Project consists of two fuel cell power plants whose equipment is wholly owned by Groton Fuel Cell 1, LLC. The fuel cell plants will be operated under a long term service agreement by Groton Fuel Cell 1, LLC, a wholly owned subsidiary of FuelCell Energy, Inc. The property is owned by Pfizer, Inc. and the generated power from the facility will be used by the property owner to offset power purchases from the utility supplier to operate Pfizer facilities at the same location. The net generating capacity of the two fuel cell power plants is 5.6 MW, nominal. This Emergency Response / Safety Plan has been prepared for submission to the Connecticut Siting Council in fulfillment of the requirements of the Decision and Order pursuant to Docket NT-2010. The NT-2010 order requirements for the preparation of an Emergency Response / Safety Plan are similar to the requirements imposed by other regulatory programs, namely, the Emergency Action Plan required by the Occupational Safety and Health Administration (OSHA) general industry standard, the Fire Prevention & Emergency Plan requirement of the National Fire Protection Agency Standard 853 and the development of safety programs required by OSHA. Accordingly, these plans, in addition to other information, are incorporated into this Plan in fulfillment of the NT-2010 requirements.

## ***General***

FCE Direct Fuel Cell (“DFC”) plants are designed and operated as unmanned power generation facilities. The control system for the plant is designed for the system to “fail safe” in the event of a process upset. For any event or upset condition that has a potential safety consequence, the plant control system initiates an emergency shutdown (“ESD”) sequence that isolates the external fuel source from the plant and trips the fuel cell inverters off the grid.

A DFC plant Emergency Shut Down event isolates the natural gas fuel supply from the plant through the use of dual fast-acting, spring-loaded block valves located at the fuel gas supply connection for each plant. An ESD event also triggers automatic isolation of the fuel desulfurizer vessels and initiates the purging of downstream fuel train components through the module using the onsite supply of inert nitrogen gas. Purging the residual fuel train contents out through the module results in the fuel being oxidized to innocuous end products. An ESD event also results in the fuel cell module(s) and inverter(s) being disconnected from the electric utility grid. Process upset or equipment operation malfunctions that can only cause equipment damage but no possible safety consequences can result in the fuel cell plant switching off the electric grid while remaining operational (islanding) so as to allow time for the electric grid or the fuel cell plant to stabilize, prior to resynchronizing with the grid. During any of these types of events, operators at FCE’s 24/7/365-manned Global Monitoring and Control Center (“GMCC”), will immediately assess the operational condition of the plant and take appropriate actions to stabilize or recover the plant to operational status, whichever is appropriate for the situation. If any on-site response is appropriate for the situation, the GMCC operator will contact appropriate personnel, be they an FCE field service technician, or in the very unlikely event of a developing emergency response situation, local emergency response personnel.

Following, in Table 1, is an outline description of the fuel cell plant and other site equipment included in this project.

***Table 1: Plant Descriptions***

**Plant Model: DFC3000B3 (2 plants)**

Each DFC3000B3 plant consists of two (2) DFC modules, a Mechanical Balance-of-Plant (MBOP – skids 1-3), and an Electrical Balance of Plant (EBOP – 2 power conditioning units (PCU)/inverters with cooling chillers and 2 transformers).

**Number of Fuel Cell Plants: 2**

**Fuel Cell Power Output: 5.6 MW, nominal, total for two plants**

**Installation Location: Outdoors, on concrete foundation pad**

**Fuel type: Pipeline Natural Gas**

Utility supply pressure: 20 psig to fuel cell plant

Plant reduced operating pressure: <15psig

**Plant Output Voltage: 13,800 VAC/3 Phase/60 Hz, at project interconnection points**

**EBOP Manufacturer: Rockwell**

**EBOP Transformer Type / Dielectric Fluid: Dry Type**

**Nitrogen Supply: Liquid microbulk tanks (~250 gal. liquid capacity, each plant)**

**Additional Appurtenant Equipment**

**Fuel Cleanup Equipment: None**

**Ancillary Equipment:**

**Interconnection Switchgear Lineup w/ Metering Cabinet: 13.8 kV, 60 Hz**

**13.8 kV Load Levelers: (2) @ 2.8 MW each**

**Grounding Reactors: (2)**

**Heat Recovery Steam Generators: (2), rated 3456 lb/h @ 45 psig each, each housed in separate utility building**

**Project Equipment not in FCE scope:**

Equipment not described above is not covered by this plan

## **2 EMERGENCY RESPONSE / SAFETY – PLANS**

Employers are required by the Occupational Safety and Health Administration (“OSHA”) Standard at 29 CFR 1910.38 to have a written Emergency Action Plan (“EAP”) for workplaces. The EAP can serve to fulfill the requirements of an Emergency Response Plan when the plan for emergency response activities is to evacuate the premises and to allow professional emergency responders to perform the required emergency response activities. Due to the nature of FCE DFC power plants being unmanned, remotely operated, and fail-safe in operational philosophy and control, it is the practice and policy of FCE to instruct workers, through a workplace EAP, to evacuate the premises in emergency situations and to summon professional emergency responders to perform required emergency response activities.

NFPA 853 is the national standard for the installation of Stationary Fuel Cell Power Systems and requires the preparation of a written Fire Prevention and Emergency Plan for fuel cell installations. The Fire Prevention and Emergency Plan is to be prepared in accordance with the requirements of Section 8.2 of NFPA 853 and is to include descriptions of fire prevention procedures, inspections, housekeeping practices, flammable material storage, control of ignition sources, procedures for fire protection equipment impairment, fire emergency plans and other information.

The OSHA standards for General Industry (Part 1910) and Construction (Part 1926) at Title 29 of the Code of Federal Regulations require that employers comply with a host of health and safety standards. Such requirements are outlined in employer safety programs and policies. Summary statements of corporate health and safety policies are often prepared for employee quick reference on an individual plant or project-specific basis.

Copies of the Emergency Action Plan, Fire Prevention & Emergency Plan and Plant/Project Safety Plan for the Pfizer Fuel Cell Facility Project follow.

### ***Emergency Action Plan***

Following is the Emergency Action Plan (EAP) for the subject plant. As the new plant is at the point of the start of construction, the installation of which will add 5.6 MW of on-site power generation capacity to the site, this EAP will serve as both a construction phase and an operation phase document. If required, it will be updated again as necessary to appropriately reflect specific site conditions and limitations, at final project completion.

## **Emergency Action Plan**

Site Name: **Pfizer Fuel Cell Facility Project**

Site Address: **445 Eastern Point Road  
Groton, CT 06340**

Plant Operator: FuelCell Energy, Inc.  
3 Great Pasture Road  
Danbury, CT 06810

Plant Owner: Groton Fuel Cell 1, LLC.  
3 Great Pasture Road  
Danbury, CT 06810

### **A. Emergency Plan Coordinator & Other Contacts**

#### **Emergency Plan Coordinator –**

Name: **Global Monitoring and Control Center (GMCC)**  
Company: FuelCell Energy, Inc. **(FCE)**  
Description: 24 hour / 365 day Plant Monitoring  
Telephone No: **(800) 326-3052**

#### **Additional Contact information –**

**Site Operator Contacts:** *(NOTE: private telephone numbers redacted from public report to protect privacy)*

Name: Valerie Hoffman  
Co./Dept./Title: FCE / Field Service / Eastern Region Manager  
Telephone No: (203) 825-6071 (FCE)  
(XXX) XXX-XXXX (work cell) *(redacted for public copy)*  
(XXX) XXX-XXXX (personal cell) *(redacted for public copy)*

Name: Steve Brown  
Co./Dept./Title: FCE / Field Service / Director of Field Operations  
Telephone No: (203) 205-2449 (FCE)  
(XXX) XXX-XXXX (Home) *(redacted for public copy)*  
(203) XXX-XXXX (Cell) *(redacted for public copy)*

Name: Mark Benedict  
Co./Dept./Title: FCE / Process Engineering /Principal Engineer, Product EHS  
Telephone No: (203) 830-7429 (FCE)  
(XXX) XXX-XXXX (Home & Cell) (*redacted for public copy*)

Name: Gordon Brookes  
Co./Dept. /Title: FCE / FuelCell Energy Corporate EHS Director  
Telephone No: (860) 496-2207 (FCE)  
(XXX) XXX-XXXX (Cell) (*redacted for public copy*)

**Additional Site Contacts:**

Name: Michael Lallier  
Co./Dept.: Pfizer, Inc. / Global Operations, Site Lead  
Telephone No: (860) 441-3714

Name: James Turner  
Co./Dept.: Pfizer, Inc. / Global Operations, Utilities Lead  
Telephone No: (860) 686-3087

**Site Utility Contacts:**

Company: **Pfizer Utilities (Electricity and Water)**  
Name/Dept./Title: Shift Facilitator  
Telephone No: (860) 441-3430 (24-hour)

Company: **Yankee Gas Services Company (Eversource)**  
Name/Dept./Title: Gas Leaks or Emergency 24-hr contact  
Telephone No: (800) 592-2000 (24-hour)

Company: **Groton Utilities (electricity, water)**  
Name/Dept./Title: Main number  
Telephone No: (860) 446-4000 (work hours only)

Company: **Town of Groton, Dept. of Public Works, WPCF (Sewer)**  
Name/Dept./Title: Stacey Ohlman Leitch / Public Works / Supervisor  
Telephone No: (860) 448-4083 (DPW); (860) 441-6736

Company: **Airgas (Nitrogen)**  
Name/Dept /Title: Mike Gieralt / Bulk Gas Manager/Southern New England  
Telephone No: (203) 258-2616 (cell)  
(800) 242-0105 (24/7 Technical Service and Bulk Deliveries)

**Government Official Contacts:**

***(Note: Government officials are only to be contacted by designated FCE personnel, per established FCE policy/procedure, described later in this Plan)***

***City of Groton / Town of Groton***

***(Pfizer is located within the City of Groton, which is a part of the Town of Groton)***

- Mayor (City of Groton) – Marian K. Galbraith – (860) 446-4103
- City Police Department (primary jurisdiction) – (860) 445-2451 (non-emergencies)
- City of Groton Fire Department – (860) 445-2456 (non-emergencies)
- Town Manager (Town of Groton) – Mark R. Oefinger – (860) 441-6630
- Town Police (2nd choice, secondary jurisdiction) – (860) 445-2451 (non-emergencies)
- City of Groton Fire Marshall's office (non-emergency) – (860) 446-4106

***State Legislators –***

- State House Rep. – André Bumgardner (District 41); (860) 240-8723 (aide); (800) 842-1423
- State Senator – Andrew Maynard (Senate District 18); (860) 240-0591 (aide); (800) 842-1420

**Private Residences/Establishments requesting notification of emergency response incidents (per formal request):**

<b>Neighboring Resident or Establishment Name</b>	<b>Neighbor Street Address</b>	<b>Contact Information – Phone and/or email</b>
<i>none</i>		

**B. Preferred Means of Reporting Emergencies**

***GMCC is to contact local Emergency Responders in accordance with this Plan, if required, or when requested to do so by on-site personnel.***

<b>Emergency</b>	<b>Make Initial Notification to:</b>
Fire / Explosion	<b>(860) 441-0777</b> <small>Pfizer Security Operations Center, Fire Dept. &amp; Site Security [Pfizer provided: 01/22/16]</small> <b>(for calls originating from other than Pfizer phone)</b> <b>7-7-7 (for calls originating from Pfizer Phone)</b>
Flammable/Hazardous Material Release	
Medical Emergency	
Threat / Violence	
Severe Weather	Coordinate with FCE GMCC (800) 326-3052

**GMCC is to then contact a FCE Field Service Management representative and then make any additional utility / owner / community resident contacts as directed to by FCE F.S. Management representative.**

### **C. Emergency Action Plan Elements**

- **Emergency Escape Procedures and Routes**

Emergency escape routes, exits and rally areas are depicted in the Plant Layout drawing provided in Appendix A.

Upon discovery of the need for an evacuation (either self-initiated or in response to an evacuation call), all personnel on site shall immediately proceed to the nearest safe site exit and then proceed immediately to the designated rally area. Non-FCE contractors and guests shall be escorted by their host FCE employee to the nearest safe exit. The FCE standard lock combination is known by operating /maintenance personnel for any exits that may be secured at times when the plant is occupied.

In the course of evacuation, ***a call shall immediately be placed to GMCC with a request/instruction for the second GMCC operator to immediately call local Emergency Responders*** (See *Emergency Action Plan, Section B*) to initiate action by the local emergency response organization(s). The caller is to stay on the line and provide all information requested, including name, location and nature of emergency and additional contact information, as may be requested.

With the exception of small 'incidental' spills (as defined by OSHA and per FCE employee training), FCE employees are not to perform chemical spill response activities. Emergency or private spill response contractors are to be retained for the cleanup of non-incidental spills.

**All releases of ANY material are to be reported** to the FCE Product EHS Principal Engineer and to the FCE EHS department as soon as practical, who will in turn advise/report to the site owner and governmental authorities, if required.

- **Procedures for Employees who Remain to Operate Critical Operations Before Escape**

All employees are expected to proceed immediately to the designated primary or backup rally location during any call for site evacuation.

- **Employee Accountability Procedures after Evacuation**

The Pfizer Fuel Cell Facility Project is a normally unmanned site; however, one or several FCE, owner or visiting personnel may be present on site at any time to perform operating, maintenance or other tasks. Per established site work/visitation procedure, all FCE and other personnel present on-site will be known by both the senior FCE Field Service employee present at the site as well as by the off-site GMCC operator.

Upon the implementation of an evacuation, cell phone contact is to be established immediately with GMCC to update or confirm the list of on-site personnel. Accounting of all on-site personnel is to then be made at the rally area, or backup rally area, wherever the situation dictates that assembly occur.

- **Rescue and Medical Duties**

FCE employees are not routinely provided with rescue or in-depth medical training, and as such are not required or expected to perform rescue or medical duties. FCE employees are NOT to reenter the site following an evacuation prior to an 'all-clear' call being made from the professional first responder person in charge.

- **Alarm System**

FuelCell Energy plants are normally unmanned sites, with only a small number of workers present on site at any given time. Typically one, sometimes two, and on rare occasions more than two workers are present on site when work is being performed. When multiple workers are on site, they will typically be working together.

***The employee alarm system** to be used at the Pfizer Fuel Cell Facility Project site is direct voice communication. The OSHA standard for employee alarm systems at 29 CFR 1910.165 allows the use of direct voice communication as an acceptable procedure for sounding an alarm system for workplaces of 10 or fewer employees, provided all employees can hear the alarm.*

Upon discovery of a situation requiring evacuation, the discovering employee shall directly communicate the evacuation requirement to his/her fellow employees. Any non-employee guests on-site will be escorted by their host employee to the nearest clear exit at that time. It is envisioned that all employees present on site at any time will be capable of hearing a call for evacuation under foreseeable circumstances.

- **Training**

All employees and contractors working at, and visitors to, FCE fuel cell power plants are to be trained in the elements, policies and procedures of this Emergency Action Plan prior to, or at the time of their first visit. All persons present at FCE plant sites are expected to comply with all elements of this plan in emergency situations.

#### **D. Emergency ShutDown (ESD) Procedures**

ESD Pushbuttons located throughout the site can be used to shut down the operation of site equipment.

- 1. Site Electrical Disconnect pushbutton:** The following ESD pushbutton will ***disconnect the DFC plants causing a de-energization of the plant controls and shut down of the plants and the opening of the plant utility grid Tie-Breakers*** (present on each plant):

- 1 Switchgear Lineup ESD Pushbutton (HS-300E)

Note that some Mechanical Balance of Plant electrical devices are also UPS (uninterruptable power supply) fed, so some low voltage equipment may temporarily remain energized even after engaging an ESD pushbutton. Note also that a hot DFC module may contain hazardous voltage, even when not operating.

- 2. DFC ESD pushbuttons:** The following ESD pushbuttons will stop the operation of the DFC equipment ***of the respective plant that the button is installed on*** (pushbuttons listed below are all present on each of the two DFC3000B3 plants included at Pfizer Fuel Cell Project):

- 1 pushbutton on the control panel on the plant west end of Skid 2 (HS-300A)
- 1 pushbutton on the plant southeast corner of Skid 2 (HS-300B)
- 1 pushbutton on the plant north side of the Leader PCU (HS-300F)
- 1 pushbutton on the plant north side of the Follower EBOP PCU (HS-300F)

***NOTE: Fuel Cell Plant Electrical Balance of Plant switchgear, PCU and transformer equipment will remain energized even after depressing one of these ESD pushbuttons.*** Note also that some Mechanical Balance of Plant electrical devices are also UPS (uninterruptable power supply) fed, so some low voltage equipment may temporarily remain energized even after engaging an ESD pushbutton. Note also that a hot DFC module may contain hazardous voltage, even when not operating.

The locations of the plant ESD pushbuttons are depicted in the drawings in Appendix B.

#### **E. Special Training**

FuelCell Energy personnel who work at fuel cell plants receive Hazcomm training in the chemical hazards that are present on site. Operating personnel also receive training in other occupational safety and health (OSHA) standards, as appropriate for the tasks to which they are assigned.

**F. Personnel Accounting Following Evacuation**

In order to be accounted for, all personnel present on site at the time of an evacuation are to proceed to the designated rally area, depicted on the drawing in Appendix A. Contact will be made with GTAC and the ranking supervisor on site will determine if all personnel are accounted for or if any personnel are missing. The results of the accounting determination will be reported to the professional first responder in charge of the emergency response.

**G. Rescue And Medical Duties**

All rescue and medical duties required at any FCE fuel cell plant will be performed by professional emergency response personnel.

## **2.2 Fire Prevention & Emergency Plan**

Following is the Fire Prevention & Emergency Plan for the subject plant. As the plant has not been constructed to date, this Fire Prevention & Emergency Plan will be updated as necessary to appropriately reflect specific site conditions and limitations, as FCE becomes aware and construction is completed.

## Fire Emergency Plan

### Purpose:

This document provides information specific to FuelCell Energy's Direct FuelCell (DFC) power plant, as described in the Plant Description section earlier in this Plan (Table 1). The document has been prepared in accordance with the requirements of Section 8.2 of NFPA 853-2015.

### **A. Response to Fire or Other Emergency Condition**

- **Overview of fire hazards present**

Natural gas (odorized) at a nominal pressure of 20 psig is supplied to the fuel cell power plant connection points from the fuel gas supply train located at the northwest corner of the fenced enclosure. The aboveground gas train is installed on a concrete pad and consists of a gas meter, pressure reducing regulator(s) and manual shutoff valves and is located inside the locked fence enclosure surrounding the fuel cell plants. Fuel piping runs underground from the shutoff valve/metering station to where it emerges above grade and connects to the plants. The fuel cell plants immediately reduce the fuel gas pressure to less than 15 psig and direct the gas flow to the plant desulfurization equipment.

***Natural gas is de-odorized*** by flowing through the two desulfurizer vessels of each fuel cell power plant. The desulfurizer vessels are each equipped with a pressure safety (relief) valve (PSV), sized for both a failed pressure reducing valve and a fire exposure condition. The PSVs discharge to a vent termination approximately 25' above grade over the desulfurizer vessels. Any flow through a PSV is immediately detected by an in-line flow sensor, which in turn immediately initiates a plant ESD. De-odorized fuel flows through the fuel cell power plant equipment, including the fuel humidifier and the preconverter and then into the fuel cell modules. The air heater also operates on an intermittent basis on de-odorized fuel. All fuel gas is confined within code complying process piping and vessels. All fuel sample valve taps are small bore and "double blocked" by virtue of tethered caps.

The fuel cell power plant operates at high internal temperatures. Temperatures inside the insulated fuel cell module are approximately 1200°F and the fuel fired air heater also operates at temperatures of up to 1200°F. The fuel humidifier and connecting pipes also operate at high temperature. Insulation or guards are provided to maintain external skin surfaces at safe temperatures.

Ancillary pieces of electrical equipment are provided with or are appurtenant to the fuel cell power plant. Some electrical equipment may operate at high current and/or medium voltage (>500V) and therefore generate appreciable heat. All electrical

equipment are designed to applicable codes, including provisions for adequate heat dissipation.

- **Notifications and coordination**

Upon discovery of a fire or other emergency condition, or acknowledgement of a fire alarm associated with the fuel cell power plant, the discovering or acknowledging person shall make notifications to the appropriate persons as outlined in the site Emergency Action Plan.

An on-site discovering person who is trained in the operation and maintenance of the fuel cell power plant and who has evacuated the site for an emergency situation shall remain stationed in proximity to the site and accessible to emergency responders through the emergency response time frame in order to assist and support responders with technical expertise as they may request or require.

An on-site discovering person who is a representative of the plant/facility owner shall remain on-site through the emergency response time frame to assist and support responders with plant/facility owner information and resources, including access to required resources and traffic control as emergency responders may request or require.

- **Plant security**

Public access to the fuel cell equipment is first restricted by their location on the campus of a private, round-the-clock secured facility. Additional security is maintained by a locked, eight foot high twist selvage chain link fence enclosure surrounding each plant. The enclosure is equipped with personnel and equipment doors or gates for necessary access. All doors/gates are kept locked when facility or operating personnel are not present. Emergency Fire Department access to the site in the absence of attending personnel would be obtained by cutting the lock chain with a bolt cutter.

- **Evacuation and restriction of non-response personnel**

Upon discovery of a fire or other emergency condition associated with the fuel cell power plant, the plant area shall be immediately evacuated of all non-response personnel to a minimum distance of 100 feet. Plant host facility representatives and qualified plant operating personnel shall identify themselves to Emergency Response personnel and remain nearby and available to assist in response activity support, as necessary. Notifications of nearby residents as required by the Emergency Responses Person in Charge, shall be undertaken as directed, per the EAP.

- **Operator activities**

On-site personnel:

- Upon discovery of a fire or other plant emergency condition with the plant still running, while immediately evacuating the area of self and others, depress any Emergency ShutDown (ESD) pushbutton, if it is safe to do so. ESD buttons are situated at several locations around the plant as indicated in Appendix A and Appendix B, and as can be identified by their red mushroom caps and labeling, as depicted in photos later in this plan.
- Upon discovery of a fire or other emergency condition with a plant that has experienced an Emergency ShutDown (ESD), immediately evacuate others and self.
- Contact GMCC and instruct GMCC to in turn contact local Emergency Responders. As an emergency situation, advise GMCC to make other required notifications to management personnel, owner, and others, per Emergency Action Plan.
- Remain on-site at a safe distance to assist and support responding personnel, including providing plant access, restricting access of non-responding personnel, or controlling traffic.

Remote GMCC (Global Monitoring and Control Center) operators:

- Upon advisement or acknowledgement of a *fire-related* Emergency Shutdown or knowledge of other emergency condition, make Emergency Responder and all other required notifications as described in Emergency Action Plan.
- If not already present, dispatch field service personnel to the site to assist and support response personnel with fuel cell technical expertise.

**B. Fire Extinguishment / Emergency Plant Shutdown**

- **Fire water application concerns**

**FIRE WATER SHALL NOT BE APPLIED TO COMPONENTS OF THE FUEL CELL POWER PLANT AT ANY TIME.** Certain fuel cell components may remain electrically energized with either alternating current or direct current voltage even after a system shutdown via one of the Emergency ShutDown (ESD) pushbutton switches.

- **Appropriate extinguishing media**

Only fire extinguishing medias appropriate for live electrical equipment shall be applied to fuel cell power plant components. Only listed fire extinguishers for Class A:B:C type fires are provided inside the plant enclosed area.

Upon Emergency ShutDown (ESD) of the fuel cell power plant, all fuel supplies to the plant are automatically shut off via two in-line fast-acting spring-loaded isolation valves.

Following an ESD, **ELECTRICAL ISOLATION IS NOT ASSURED**. Substantial AC and/or DC voltages may still remain for significant durations following an Emergency ShutDown event.

**FOLLOWING AN ESD SOME NATURAL GAS WILL REMAIN ISOLATED WITHIN THE FUEL DESULFURIZER VESSELS**, however, these vessels are protected from overpressurization by pressure safety valves sized for fire exposure conditions. Following an ESD, nitrogen gas supplied from an on-site liquid source will flow through the fuel cell plant equipment. As with the desulfurizers, the nitrogen source supply is protected against overpressurization by a safety relief valve provided by the gas supplier.

A Plant Layout drawing is provided in Appendix A. The locations of key utility shutoffs (fuel gas, electricity) are indicated on the layout drawing.

- **Other Emergencies**

Hazardous material spills – Hazardous materials that may be temporarily present on-site other than natural gas are typically solids, and usually only in small quantities. Trained hazardous material operations and response personnel are on-site for any operations or maintenance activities that involve the handling of bulk or containerized hazardous materials. Small quantities of water treatment chemicals are contained in the water treatment (Skid 1) enclosure.

Personnel injuries – For injuries requiring medical attention, the injured party or his/her companion shall seek appropriate medical attention for the injured. For serious injuries, call GMCC to summon local Emergency Responders per the Emergency Action Plan. For less serious injuries that require medical attention the injured shall obtain medical treatment at the nearest emergency medical care facility. All accidents and injuries (and near misses) shall be reported to FCE EHS.

### **C. Plan Validation**

The executable elements of this Fire Emergency Plan consist of the manual activation of an Emergency ShutDown, evacuation of the power plant area, and notifications. ESD buttons are all hard-wired in a fail-safe circuit. All fuel cell operating personnel are trained and regularly re-trained in a complete suite of safety programs.

## Fire Prevention Plan

### A. Egress

A Plant Layout drawing depicting emergency egress paths is provided in Appendix A.

### B. Emergency alarms and ShutDowns

The fuel cell power plant is provided with Emergency ShutDown (ESD) pushbuttons. ESD pushbuttons have red mushroom caps and are clearly labeled. ESD pushbutton locations are indicated on the drawings in Appendix A and Appendix B. Photos of typical ESD pushbuttons are shown in Figure 1. Depressing an ESD pushbutton will immediately shut down fuel flow to the respective power plant as well as shut down the respective mechanical balance of plant equipment. **HOWEVER, THE ESD DOES NOT OPEN THE ELECTRICAL GRID TIE BREAKER, SO ELECTRICAL BALANCE OF PLANT COMPONENTS WILL REMAIN ENERGIZED. ADDITIONALLY, UNINTERRUPTABLE POWER SUPPLIES (UPS) WILL PROVIDE POWER TO A NUMBER OF MECHANICAL BALANCE OF PLANT COMPONENTS AND THE FUEL CELL MODULE WILL RETAIN SIGNIFICANT DC VOLTAGE POTENTIAL ENERGY IF OPERATING OR HOT PRIOR TO THE ESD.** (exception – the switchgear lineup ESD button does open the electric grid tie-breaker; however, hazardous voltage may still remain.)

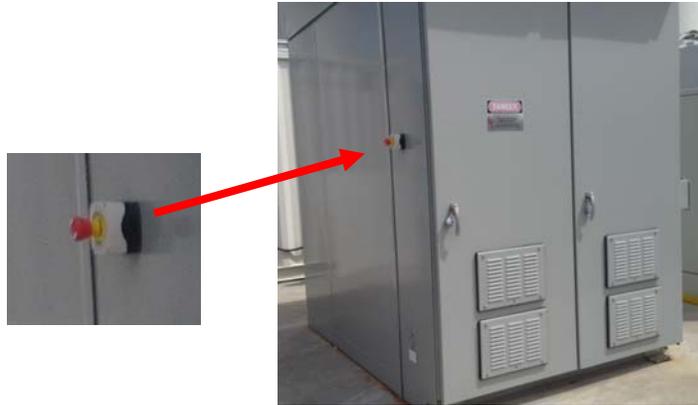
The following types of automatic acting emergency sensors are provided with the fuel cell power plant:

- Combustible gas detectors
- UV/IR Flame detectors
- Smoke detectors

In addition process flows, temperatures, pressures and voltages are continuously monitored for deviations from expected values. Process sensors are used to verify proper operation of the process and will quickly sense and shutdown the process upon severe deviations, such as would occur in the case of excessive seismic activity. Emergency sensors have either supervisory signals or are wired to alarm on sensor failure such that the plant will ESD on the loss of any one of these devices. Emergency sensors are calibrated in accordance with an established schedule as described in the maintenance manual. Sensor locations, as well as Classified hazardous areas, are depicted in the drawings provided in Appendix B.

Sensor detection of flame, MBOP smoke, or presence of excessive combustible gas concentration (45% of Lower Explosive Limit [LEL]) will result in an Emergency

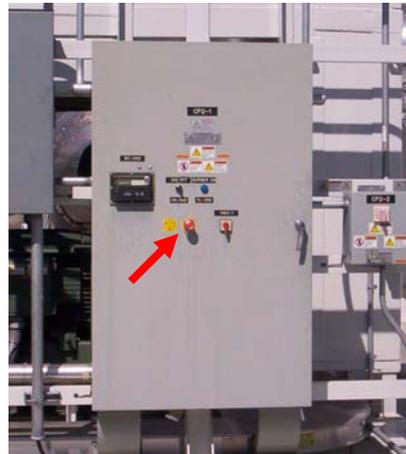
ShutDown (ESD) of the fuel cell plant. In the case of combustible gases, detection of a concentration of approximately 25% LEL will result in a high LEL warning alarm. EBOP smoke detectors provide an alarm function only as other performance shutdowns protect the equipment in case of actual fire.



Tie Breaker Switchgear  
*(Typical, Site Electrical Disconnect)*



Electrical Balance of Plant



Skid 2, Main Process Skid Control Panel

**Figure 1: Typical Emergency ShutDown (ESD) Pushbuttons**

Fuel cell plant operating personnel are provided with portable gas detectors for use in operating and maintenance tasks including surveillance for gas leaks should such be necessary.

**C. Fire prevention**

The fire prevention strategy for the fuel cell power plant consists of the following Plan elements:

- **Housekeeping**

The area around the fuel cell power plant shall be kept orderly and free of combustible and flammable materials, including combustible and flammable liquids, flammable gases and combustible and flammable solid materials. Trash shall not be allowed to accumulate. The water treatment system container shall not be used for general material storage.

- **Storage and Handling of flammables/combustibles**

**STORAGE OF FLAMMABLE AND COMBUSTIBLE MATERIALS IS PROHIBITED WITHIN THE PLANT ENCLOSURE WITHOUT PRIOR WRITTEN PERMISSION FROM THE LOCAL AUTHORITY HAVING JURISDICTION.** Transient flammables and combustibles may include gases, small containers of flammable liquids such as solvents, trash and virgin and spent consumables used in the fuel cell process. These materials are to always be stored in packaging appropriate for their material properties and retained on site for as short of a duration as feasible. Flammable and combustible materials are to be kept separated from sources of ignition, fuel piping and processing equipment and electrical equipment and shall be protected from weather. Appropriate packaging materials for consumable materials are as follows:

- Catalysts, virgin or spent – closed/sealed steel drums
- Desulfurizer media, virgin – manufacturer's original packaging
- Desulfurizer media, spent – closed/sealed steel drums

- **Flammable/combustible materials and potential ignition sources**

The following are flammable/combustible materials *potentially* present at the fuel cell power plant:

- Natural gas (present in piping and desulfurizer vessels only - no on-site storage)
- Electrical equipment
- Plastics
- Insulation jacketing
- Desulfurizer media (activated carbon)
- 50% aqueous solution Propylene Glycol EBOP chiller coolant and heat transfer medium
- Misc. new and used filter elements, PPE, packaging, etc.
- Granular nickel based catalyst (DOT Div. 4.2, PG II/III; transient storage only, never long-term)

Natural gas piping within the plant security fencing is identified with yellow "Natural Gas" pipe markers, complying with ANSI A13.1 requirements.

The following are potential ignition sources present at the fuel cell power plant:

- Heat from process
- Electrical equipment
- Catalysts
- Hot work
- Unauthorized Smoking or open flame
- Internal combustion equipment/vehicles

The fuel cell power plant design and procedures established to operate and maintain the plant have been formalized to minimize any potential for fire.

- The entire plant has been designed to and complies with the provisions of the ANSI/CSA safety code FC-1 (2004).
- The plant is equipped with automatic safety sensors to safely shut down the process in cases of leaking fuel or fire (Section B.)
- All fuel is pipeline supplied with minimal fuel holdup within the process.
- Desulfurizer vessels have been provided with pressure safety relief valves sized for fire emergencies.
- All of the plant piping has been designed in accordance with ASME B31.3 standard for process piping code. Piping is marked in accordance with ANSI A13.1.
- Areas of potential hazardous (classified) atmospheres have been identified and sources of potential ignition have been removed and any electrical equipment within complies with the area classification designation.
- Electrical equipment is designed to and complies with the provisions of UL1741.
- Smoking is NOT allowed within the fuel cell plant area.
- Hot Work within the fuel cell plant area is by Permit only, with potential sources of flammable materials removed from the area of potential ignition when hot work is conducted. Hot Work Permits are to be issued by the plant owner/operator. Additionally, any hot work conducted under the supervision of FuelCell Energy will also be permitted under the FCE Hot Work Permit program.

- **Portable Fire Extinguisher**

Sufficient type A:B:C portable fire extinguishers (20 lb. minimum), depicted in the drawing in Appendix A, are installed at the plant such that the travel distance to nearest extinguisher does not exceed 50 feet. Portable fire extinguishers required for specific maintenance procedures are brought to site by service personnel as special equipment for that procedure.

- **Inspections of plant area and fire prevention equipment**

All inspections and maintenance of fuel cell components and systems are to be performed in accordance with the latest revision of the plant maintenance manual. Operating personnel also conduct an informal “walk around” inspection every time they visit the plant site. As the plant operates remotely without the presence of operators, the walk around inspection is simply to check for any out of the ordinary situations or accumulated materials. FuelCell Energy operators log any negative findings into a Computerized Maintenance Management System (CMMS) database. Sensors are calibrated or replaced in accordance with an established maintenance schedule based on equipment manufacturer’s instructions; with work orders scheduled and records maintained by the database.

If, during an operator site visit or walkaround inspection a fuel leak is discovered, an immediate evaluation and disposition shall be undertaken. For sizeable leaks, an immediate plant shutdown may be necessary, while leaks of a very minor nature may be able to be addressed by such remedies as flange bolt retorquing or other measures. FCE operators are equipped with portable fuel gas (LEL) meters to assist in the evaluation of leak severity. Any discovered leak and its corrective measures shall be recorded in the CMMS database.

UV/IR flame detectors, combustible gas (LEL) sensors and smoke detector automatic sensors shall be tested, calibrated, maintained and/or replaced at the frequency provided in the DFC1500B/B5 plant maintenance manual. A summary of these requirements is provided below:

<b>Automatic Sensor</b>	<b>Frequency</b>	<b>Maintenance Action</b>
Skid 1 Smoke Detectors	18 mos.	Test & replace if required
EBOP Smoke Detectors	18 mos.	Test & replace if required
Combustible Gas Detectors	6 mos.	Clean, test & calibrate, if req'd.
UV/IR Flame Detectors	18 mos.	Clean & Test

- **Fire protection system/equipment impairment**

Unintended impairment of any fire protection sensor system will automatically ESD the plant. Manual short-term sensor impairment for the purpose of on-site maintenance occurs only at times when maintenance personnel are on-site and vigilant for signs of fire or potential fire. As a policy, extended system impairment is not permitted with rare exceptions and only when alternative monitoring methods can be implemented by remote monitoring and for as short of a duration as possible.

- **Incident investigation and reporting**

Any fire-related incident shall be immediately reported to the Local Fire Department as “lead investigator.” Plant owner representatives as well as FuelCell Energy qualified personnel will be called upon to assist the Department in the site and technical aspects of the investigation. Such incidents will also be investigated by the fuel cell operator/manufacturer (FCE) as required by the manufacturer’s Certifying Agency. Results/conclusions of the investigation will be reported to the plant owner. External reporting to other agencies will be as directed by the responding Department commanders and as required by regulation, as established at the time of incident.

## **2.3 Plant/Project Safety Plan**

Following is the Safety Plan for the subject plant. This Safety Plan will be updated as necessary to appropriately reflect specific site conditions and limitations, as FCE becomes aware and as construction progresses.

### **Safety Plan**

FCE will address site security and personnel safety as the highest priority to ensure a safe and healthy work environment. Minimum safety requirements and policies have been identified and will be provided and enforced on all levels and for all organizations performing work at the facility during both the construction and operation phases of the project.

In addition, all contractors and subcontractors will be required to provide, adhere to, enforce, and report on their own safety policies and practices. Such policies, procedures and/or handbook will be provided to FCE prior to contract execution for FCE's review and consideration.

#### **A. Site Supervision**

FCE, or their prime construction subcontractor, will provide a construction/safety manager to be present while any work is being performed on site at any time. FCE Project Management representatives and EHS professionals will perform additional on-site review and inspections to further enforce all safety policies and practices.

Further, contractors and subcontractors will be required to have their own safety supervisor on site at all times when work is being performed. The safety supervisor is responsible for their personnel's adherence to all required and prudent safety policies and practices. The supervisor is to be responsible for:

- Enforcing safety policies and practices,
- Providing safety orientation for any new personnel onsite,
- Daily safety “toolbox” meetings covering daily activities and associated risks, by trade,
- Recording the daily safety meetings,
- Weekly safety status meetings and discussion topics,
- Performing and reporting on weekly safety audits,
- Maintaining a daily personnel attendance log (for personnel accounting),
- Site walks with FCE’s safety and construction managers on request, and
- Monthly formal reports including labor hours worked, incidents (including near misses, recordable events, and reportable events) along with a detailed description of corrective actions, audit results, and a summary of any site walks that occurred during that period.

At any time, FCE or subcontractor’s safety or construction management personnel can enforce a stop work directive to correct any safety infractions.

#### **B. FCE Safety Program Policies**

Construction contractor and plant operator shall plan and conduct all work to safeguard persons and property from injury and will direct performance of work in compliance with reasonable safety and work practices and with applicable federal, state and local laws, rules, and regulations including but not limited to "Occupational Safety and Health Standards" promulgated by the U.S. Department of Labor. Work in areas adjacent to electrically energized equipment and/or operating natural gas equipment shall be performed in accordance with said practices, laws, rules, and regulations.

As part of FCE’s continuing efforts to provide a safe and healthy workplace, it is required that all work activities be performed in accordance with all applicable regulatory requirements. While impossible to foresee all potential circumstances, the below list of Environmental, Health and Safety requirements constitutes the minimum basic elements to be followed during both the construction and operation phases of the fuel cell power plant project.

- SIGN IN: All individuals must sign in/out at the office each day that they are on site.
- ACCIDENT, ILLNESS & INJURY: All accidents and injuries occurring on the premises shall be reported immediately to the Construction Manager in charge of the work being performed, or during operation phase of plant, to the FCE EHS department as soon as possible.
- CHEMICAL RELEASE OR SPILL: Any release of chemicals on site, regardless of volume, must be immediately reported to the Construction Manager, or during operation phase of plant, to the FCE EHS department as soon as possible.
- COMPRESSED GAS MANAGEMENT: The management and use of compressed gas is to be performed in accordance with OSHA standard 29 CFR 1910.101 "Compressed Gasses, General Requirements."
- CONFINED SPACES: All work in "confined spaces" is to be managed in accordance with OSHA standard 29 CFR 1910.146.
- CRANE HOIST & SLING SAFETY: The operation of cranes and hoists is to be performed in accordance with OSHA standard 29 CFR 1910.179; and the use of slings is to be in accordance with OSHA standard 29 CFR 1910.184.
- ELECTRICAL SAFETY: All work involving electricity is to be performed in accordance with OSHA standards 29 CFR 1910 Subpart S, "Electrical Safety"; 1910.269 "Electric Power Generation, Transmission & Distribution; and NFPA 70E-2004 "Electrical Safety In The Workplace" as applicable.
- EYE PROTECTION: During all times that ANY work is being performed anywhere on the facility, all personnel at the facility must be wearing eye protection.
- FALL PROTECTION: All work performed at heights of six feet or greater must be provided with at least one form of fall protection that will either prevent a fall from occurring, or properly arrest a person's fall once the event has occurred. However, platforms, or other surfaces designed primarily for walking, shall be provided with an approved guardrail system when they are either; >4' above the adjacent floor or ground level, or, above dangerous equipment (conveyor belts, chemical baths, exposed rebar, etc...) regardless of height. In all cases, work at height must be performed in accordance with OSHA standards 29 CFR 1910.23, 132, and 503.
- HAND & PORTABLE POWER TOOL SAFETY: Hand and portable power tools are to be used in accordance with OSHA standard 29 CFR 1910 Subpart P.
- HAZARD COMMUNICATION; RIGHT to KNOW: 29 CFR OSHA standard 29 CFR 1910.1200: Employees shall not be exposed to Hazardous Chemicals without first receiving training on the associated physical and health hazards and the measures needed to protect the employee from these hazards.
  - FCE utilizes green on white Target Organ Labels identifying the Name and the Physical & Health hazards of a material; these labels shall be

used for all containers not otherwise adequately labeled by the manufacturer.

- Hazardous materials brought on site shall be labeled and a Material Safety Data Sheet (MSDS) supplied to the Environmental Health and Safety (EHS) Department prior to working with the chemical.
- An MSDS station detailing all chemicals currently onsite is available for review.
- HAZARDOUS MATERIALS: FCE EHS is to be notified in advance of all hazardous materials to be brought on site. Storage, use and off-site transportation of these materials shall be performed in accordance with applicable requirements of the Connecticut General Statutes, the Regulations of Connecticut State Agencies and Titles 29 (OSHA), 40 (EPA), 49 (DOT) of the Code of Federal Regulations.
- HOT WORK PERMIT SYSTEM: A formal "Hot Work Permit" program is used as part of FCE's overall Fire Prevention Program. Hot work is any operation that introduces a potential ignition source, which in the presence of combustible or flammable materials can result in a fire. HOT WORK includes, but is not limited to, operations such as brazing, cutting, grinding, soldering, torching, and welding. The use of a Hot Work Permit is required for all hot work operations outside of designated hot work areas. Hot work can be performed without a permit only in areas specifically designated and posted as a "Hot Work" area.
- LADDER SAFETY: The use of ladders is to be done in compliance with the following OSHA standards:
  - 29 CFR 1910.25 - PORTABLE WOOD LADDERS
  - 29 CFR 1910.26 - PORTABLE METAL LADDERS
  - 29 CFR 1910.27 - FIXED LADDERS
  - 29 CFR 1910.29 - MANUALLY PROPELLED MOBILE LADDER STANDS & SCAFFOLDS

- **LOCKOUT TAGOUT PROGRAM:** All servicing and maintenance of equipment is to be performed in accordance with the requirements of OSHA standard 29 CFR 1910.147 or 269 as applicable. These standards require locking out all potential energy sources prior to the performance of work.
- **PERSONAL PROTECTIVE EQUIPMENT:** In accordance with OSHA standard 29 CFR 1910.132-138 and Subpart I, work is to be performed using all necessary PPE. Hazard Assessments and Training in the use of required PPE are to be performed and documented prior to performance of work. PPE shall be removed before leaving the work area and disposed of according to waste management procedures to ensure that contaminants are not spread to personnel, through the facility(s), and/or to the environment.
- **POWERED INDUSTRIAL TRUCKS:** Forklifts and other industrial lift trucks are to be operated only by personnel trained in accordance with OSHA standard 29 CFR 1910.178.
- **POWERED PERSONAL LIFT TRUCKS:** Powered personal lift trucks are to be operated only by personnel trained in accordance with OSHA standard 29 CFR 1910.67 and 29 CFR 1926.453.
- **SAFETY DEVICES:** Equipment safety devices are not to be removed, bypassed or otherwise modified without review and approval by FCE EHS Dept.
- **SCAFFOLDING:** All use of scaffolding shall be in accordance with the following OSHA standards:
  - 29 CFR 1910.28 – "Safety Requirements for Scaffolding"
  - 29 CFR 1910.29 – "Manually Propelled Mobile Ladder Stands & Scaffolds"
- **STORMWATER POLLUTION PREVENTION:** In accordance with the Connecticut Department of Environmental Protection (CTDEP) "General Permit for the Discharge of Stormwater Associated with Industrial Activity"; activities which will directly or indirectly release hazardous or non-hazardous materials into the storm water system are not permitted. All site practices will be to prevent or minimize pollution of stormwater. Operation of the fuel cell plant in and of itself does not invoke stormwater permitting requirements, however, the fuel cells are installed at and owned by a larger manufacturing facility - pharmaceuticals. Stormwater permitting and compliance for this site is the responsibility of the site owner, Pfizer, Inc.
- **WASTE MANAGEMENT:** FCE is to be notified in advance of all waste to be generated. Under state and federal rules, FCE, as the site operator, is the "Generator" of all waste generated/created on site(s). As such, FCE is responsible for the proper Management, Storage, Transportation and Disposal of all wastes

generated at site. This is to be done in accordance with all applicable requirements of the Connecticut General Statutes, the Regulations of Connecticut State Agencies and Titles 29 (OSHA), 40 (EPA) and 49 (DOT) of the Code of Federal Regulations.

- **WORKING ALONE:** Working alone can introduce additional hazards not necessarily present during the course of performing work with other personnel. The biggest risk in working alone is during the occurrence of an incapacitating injury to the lone employee; a lack of timely medical attention could exacerbate the injury leading to greater harm. To prevent this, tasks must be assessed for hazards before assigning the employee(s) to perform them alone. If hazards do exist, either periodic monitoring, assignment of additional personnel, or re-scheduling of the work must be done. Further, it is important that task limitations be clear in order that new hazards are not introduced during any work performed alone. Employees performing work alone shall always contact GTAC by cell phone upon entering the facility site and upon leaving.
- **GENERAL DUTY CLAUSE:** The General Duty Clause of the Occupational Safety and Health Act requires that employers provide a place of employment that is free of recognized health or safety hazards to employees. It is FCE policy to provide such a workplace. Employees are encouraged to discuss any known or perceived health or safety issues or concerns with FCE management or EHS associates.

### **3 SITE SECURITY & ACCESS**

Public access to the fuel cell equipment is first restricted by their location on the campus of a private, round-the-clock secured facility. Additional security is maintained by a locked, eight foot high twist selvage chain link fence enclosure surrounding the plants. The enclosure is equipped with personnel and equipment doors or gates for necessary access. All doors/gates are kept locked when facility personnel are not present. Emergency Fire Department access to the site would be obtained by removing the lock with a bolt cutter.

All FCE power plants are remotely monitored 24 hours per day, 7 days per week, year round by FCE's GMCC personnel. Any tampering or unauthorized manipulation of fuel cell components that would result in any significant performance change for the plant will be immediately detected by the GTAC operator and/or result in an Emergency ShutDown of the plant, restoring the plant to a safe condition. All FCE fuel cell power plants are designed for "fail-safe" operation, where all foreseeable process deviations have been considered and the consequences minimized, through a hazard and operability (hazop) analysis.

#### **4 EMERGENCY RESPONDER / LOCAL COMMUNITY COORDINATION & NOTIFICATION SYSTEM**

FCE will coordinate with local emergency response departments to familiarize personnel with the operations and equipment installed at the site. At a point prior to plant mechanical completion, FuelCell Energy will contact the Local Fire Department to schedule a walk around tour and training event for the near-completed installation. Either prior to or at this time, a compilation of Safety Data Sheets for chemicals used on the site can be provided to the Fire Department. It is not anticipated that any chemical quantities on-site will exceed Emergency Planning and Community Right-to-know Act (EPCRA) notification or reporting thresholds at any time, so therefore Tier II notifications and reporting will not be required.

During the construction phase, prior to a scheduled delivery of any piece of major equipment, the site owner will be notified to manage campus traffic, as required. Prior to connecting or making natural gas available at the facility, FCE will coordinate with the local fire department, provide training regarding the facility equipment and facility safety features, tour Department personnel and provide description of how the plant facility will respond should a fire, smoke, or volatile gas release occur.

FuelCell Energy will record the names and contact information of those local residents that request to be informed of any actual emergency response situation that may develop at the subject power plant which may affect them. The names and contact information of the local residents will be incorporated into the Emergency Action Plan in the table provided for notification in an emergency response situation that could potentially affect these residents. Responsibility for making such notifications will be the on-site manager during the construction phase of the project, and GMCC during the operation phase of the project.



State Historic Preservation Office

One Constitution Plaza | Hartford, CT 06103 | 860.256.2800 | Cultureandtourism.org

PROJECT REVIEW COVER FORM

1. This information relates to a previously submitted project.

You do not need to complete the rest of the form if you have been previously issued a SHPO Project Number. Please attach information to this form and submit.

SHPO Project Number \_\_\_\_\_  
(Not all previously submitted projects will have project numbers)

Project Address 445 Eastern Point Road, Groton  
(Street Address and City or Town)

2. This is a new Project.

If you have checked this box, it is necessary to complete ALL entries on this form .

Project Name Pfizer Fuel Cell Project

Project Location 445 Eastern Point Road

City or Town Groton  
Include street number, street name, and or Route Number. If no street address exists give closest intersection.

County New London  
In addition to the village or hamlet name (if appropriate), the municipality must be included here.

If the undertaking includes multiple addresses, please attach a list to this form.

Date of Construction (for existing structures) N/A

PROJECT DESCRIPTION SUMMARY (include full description in attachment):

Installation of a 5.6 MW fuel cell combined heat and power generating facility, including all associated equipment and site improvements at the Pfizer research and development site in Groton.

TYPE OF REVIEW REQUESTED

a. Does this undertaking involve funding or permit approval from a State or Federal Agency?

Yes  No

Agency Name/Contact	Type of Permit/Approval	State	Federal
<u>Connecticut Siting Council</u>	<u>Petition of Groton Fuel Cell 1, LLC for a</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<u>Declaratory Ruling that a Certificate of Environmental</u>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Compatibility and Public Need is Not Required for the</u>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>the Installation of a Fuel Cell at Pfizer Inc.'s</u>		
	<u>Groton Facility</u>		

b. Have you consulted the SHPO and UCONN Dodd Center files to determine the presence or absence of previously identified cultural resources within or adjacent to the project area?  Yes  No

If yes: Was the project site wholly or partially located within an identified archeologically sensitive area?  Yes  No

Does the project site involve or is it substantially contiguous to a property listed or recommended for listing in the CT State or National Registers of Historic Places?  Yes  No

Does the project involve the rehabilitation, renovation, relocation, demolition or addition to any building or structure that is 50 years old or older?  Yes  No



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**PROJECT REVIEW COVER FORM**

**The Historic Preservation Review Process in Connecticut** Cultural Resource Review under the National Historic Preservation Act – Section 106 <http://www.achp.gov/106summary.html> involves providing technical guidance and professional advice on the potential impact of publicly funded, assisted, licensed or permitted projects on the state's historic, architectural and archaeological resources. This responsibility of the State Historic Preservation Office (SHPO) is discharged in two steps: (1) identification of significant historic, architectural and archaeological resources; and (2) advisory assistance to promote compatibility between new development and preservation of the state's cultural heritage.

Project review is conducted in two stages. First, the SHPO assesses affected properties to determine whether or not they are listed or eligible for listing in the Connecticut State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures. For more information and guidance, please see our website at: <http://www.cultureandtourism.org/cct/cwp/view.asp?a=3933&q=293820>

**ALL PROJECTS SUBMITTED FOR REVIEW MUST INCLUDE THE FOLLOWING MATERIALS\*:**

**PROJECT DESCRIPTION** Please attach a full description of the work that will be undertaken as a result of this project. Portions of environmental statements or project applications may be included. The project boundary of the project should be clearly defined\*\*

**PROJECT MAP** This should include the precise location of the project – preferably a clear color image showing the nearest streets or roadways as well as all portions of the project. Tax maps, Sanborn maps and USGS quadrangle maps are all acceptable, but Bing and Google Earth are also accepted if the information provided is clear and well labeled. The project boundary should be clearly defined on the map and affected legal parcels should be identified.

**PHOTOGRAPHS** Clear, current images of the property should be submitted. Black and white photocopies will not be accepted. Include images of the areas where the proposed work will take place. May require: exterior elevations, detailed photos of elements to be repaired/replaced (windows, doors, porches, etc.) All photos should be clearly labeled.

For Existing Structures	Yes	N/A	Comments
Property Card	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
For New Construction	Yes	N/A	Comments
Project plans or limits of construction (if available)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If project is located in a Historic District include renderings or elevation drawings of the proposed structure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Soils Maps <a href="http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm">http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Historic Maps <a href="http://magic.lib.uconn.edu/">http://magic.lib.uconn.edu/</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
For non-building-related projects (dams, culverts, bridge repair, etc)	Yes	N/S	Comments
Property Card	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Soils Map (see above)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Historic Maps (see above)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**PROJECT CONTACT**

Name Jennifer D. Arasimowicz, Esq. Title Vice President, Managing Counsel  
 Firm/Agency FuelCell Energy, Inc. (sole member of Groton Fuel Cell 1, LLC)  
 Address 3 Great Pasture Road  
 City Danbury State CT Zip 06810  
 Phone (203) 825-6070 Cell (860) 213-0592 Fax (203) 825-6069  
 Email jarasimowicz@fce.com

\*Note that the SHPO's ability to complete a timely project review depends largely on the quality of the materials submitted.  
 \*\* Please be sure to include the project name and location on *each page* of your submission.

### **General System Description**

Groton Fuel Cell 1, LLC, a wholly-owned subsidiary of FuelCell Energy, Inc. shall install, own and operate two units of FuelCell Energy, Inc.'s Direct FuelCell® DFC®3000 power plants, each rated at an electrical output of 2.8 MW, at the Pfizer Groton campus and sell electrical and thermal output to Pfizer.

The two DFC3000 units shall be installed in line with each other and separated by a common maintenance area. The attached preliminary site plan documents show the system layout. Electricity from the fuel cells will be provided to Pfizer's critical loads through the DFC3000 Customer Critical Bus (CCB), thus enabling seamless and continuous delivery of power in a grid outage.

Heat produced by the fuel cell system shall be recovered, converted to steam and delivered to the Pfizer campus. For each DFC3000 unit, Seller shall install one Cain Industries ESG1 model exhaust steam generator (HRSG) to recover exhaust heat and produce 45 psig steam. The HRSG will be housed in a separate building adjacent to the DFC3000 fuel cells along with a deaerator and feed pumps to convert the pressurized condensate into boiler feed water. Each steam generator will produce between 3,400 and 4,000 lbs/hr of continuous steam to the Pfizer campus.

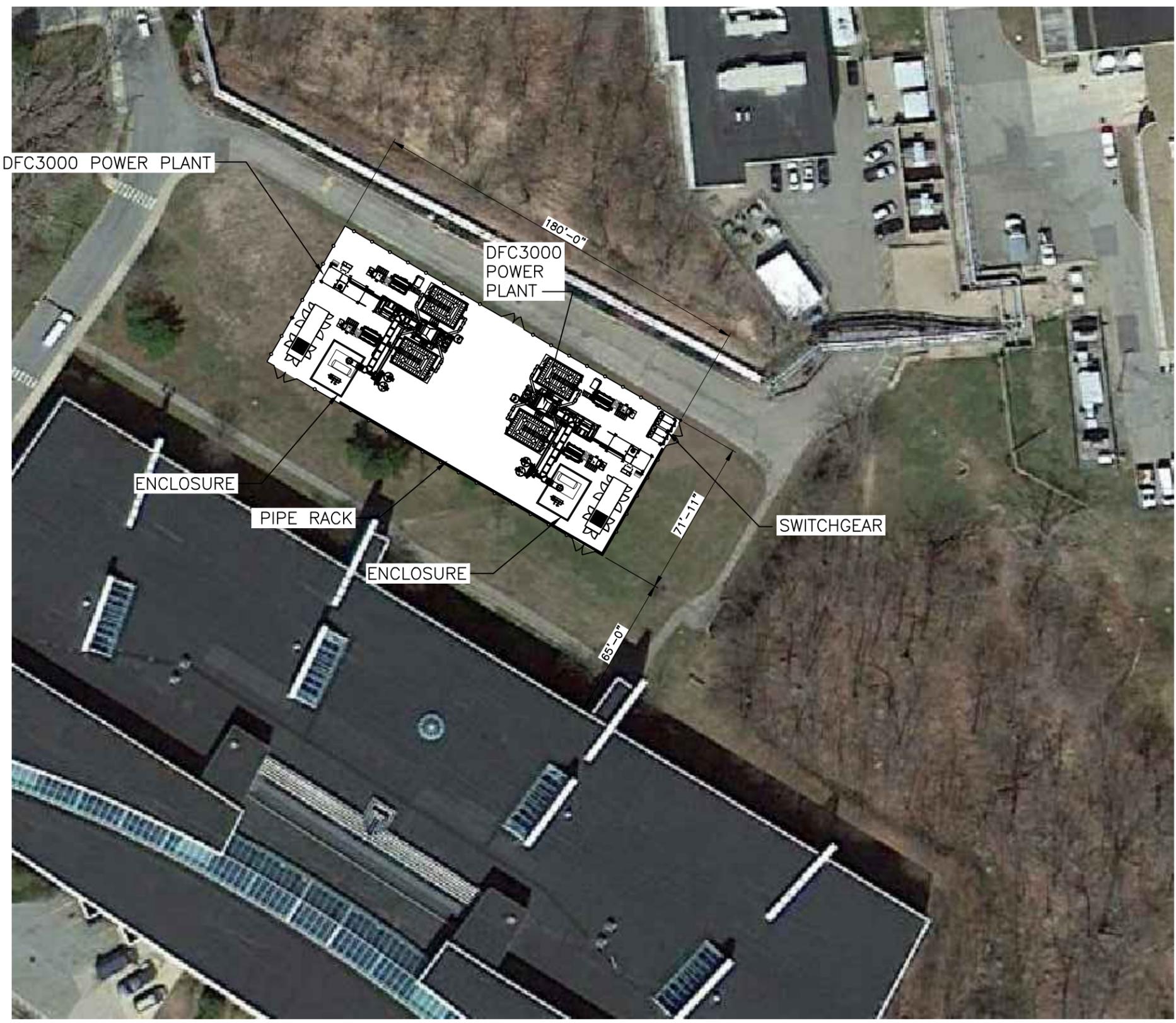
Each DFC3000 will include FuelCell Energy's standard load leveler product option. This option allows the unit to provide load following duty during stand-alone, islanded operation. It includes a computer controlled resistive load bank and dedicated Customer Critical Bus (CCB) medium-voltage breaker to which Pfizer can connect up to 2.5 MWs per unit of critical building loads. This configuration provides uninterruptable power in the event the Pfizer electrical system loses power from the grid. Each CCB will be individually metered.



Google earth



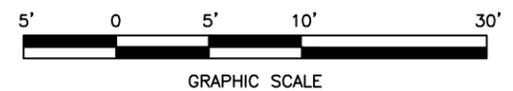
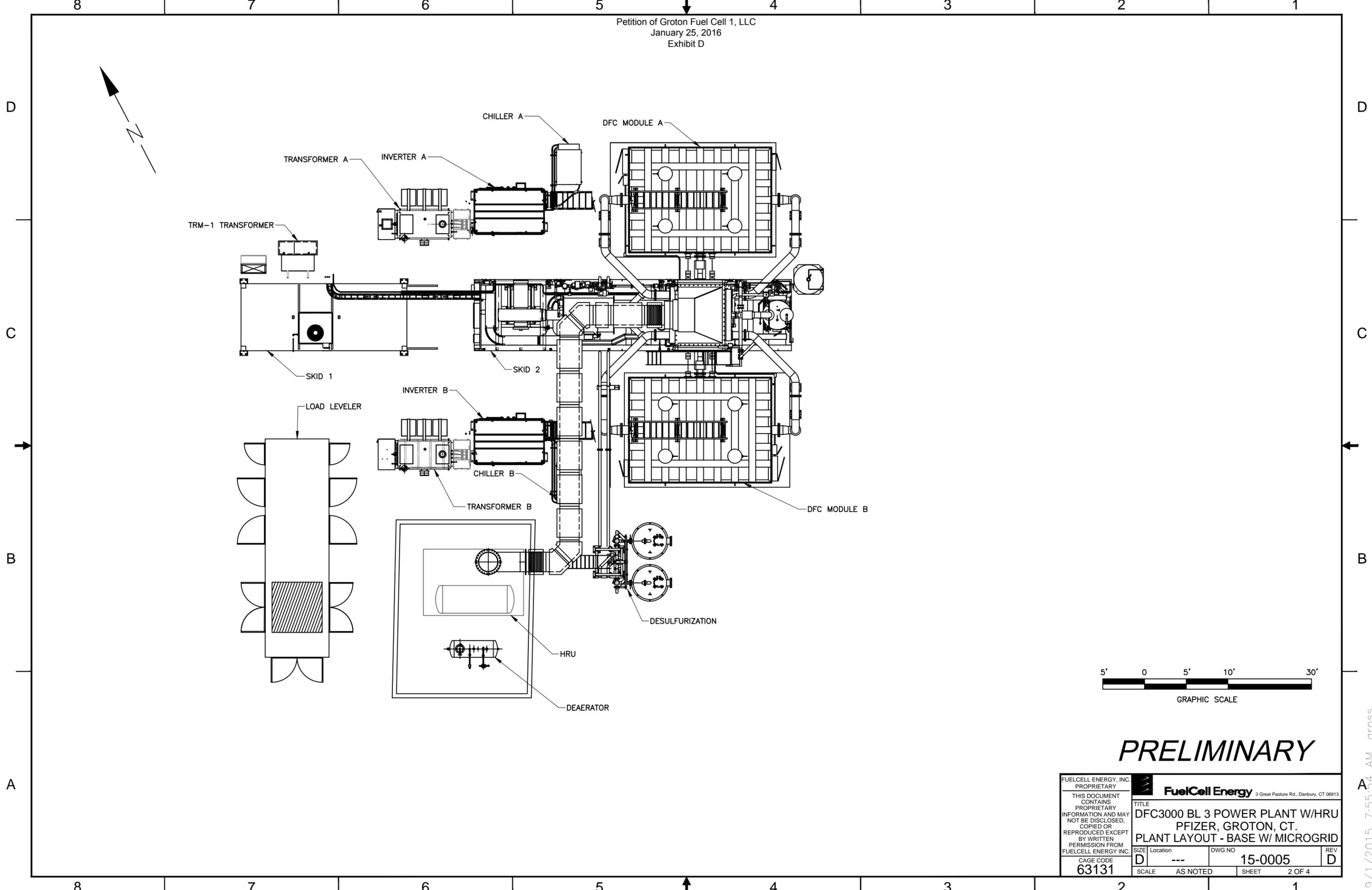
REVISION HISTORY				
REV	DESCRIPTION	BY	APPROVED	DATE
A	PRELIMINARY FOR REVIEW	MB	I.COREA	05/19/15
B	REVISION PER INTERNAL REVIEW	KGG	I.COREA	07/22/15
C	ADDED OPTION #2	KGG	I.COREA	07/28/15
D	ADDED PIPE RACK / MOVED SWITCHGEAR	KGG	I.COREA	09/01/15



**PRELIMINARY**

FUELCELL ENERGY, INC. PROPRIETARY THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE DISCLOSED, COPIED OR REPRODUCED EXCEPT BY WRITTEN PERMISSION FROM FUELCELL ENERGY INC. CAGE CODE <b>63131</b>	SIGNATURES		FuelCell Energy 3 Great Pasture Rd., Danbury, CT 06813	
	DRAWN: M.BRUESKI 05/19/15	ENGINEER: I.COREA 05/19/15		
	TITLE DFC3000 BL 3 POWER PLANT W/HRU PFIZER, GROTON, CT. PLOT PLAN - BASE W/ MICROGRID			
	APPROVED: I.COREA 05/19/15	SIZE Location D ---		DWG NO 15-0005
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE ±1/16"		SCALE AS NOTED	SHEET 1 OF 4	
REVISION INDICATOR FLAG NOTE				

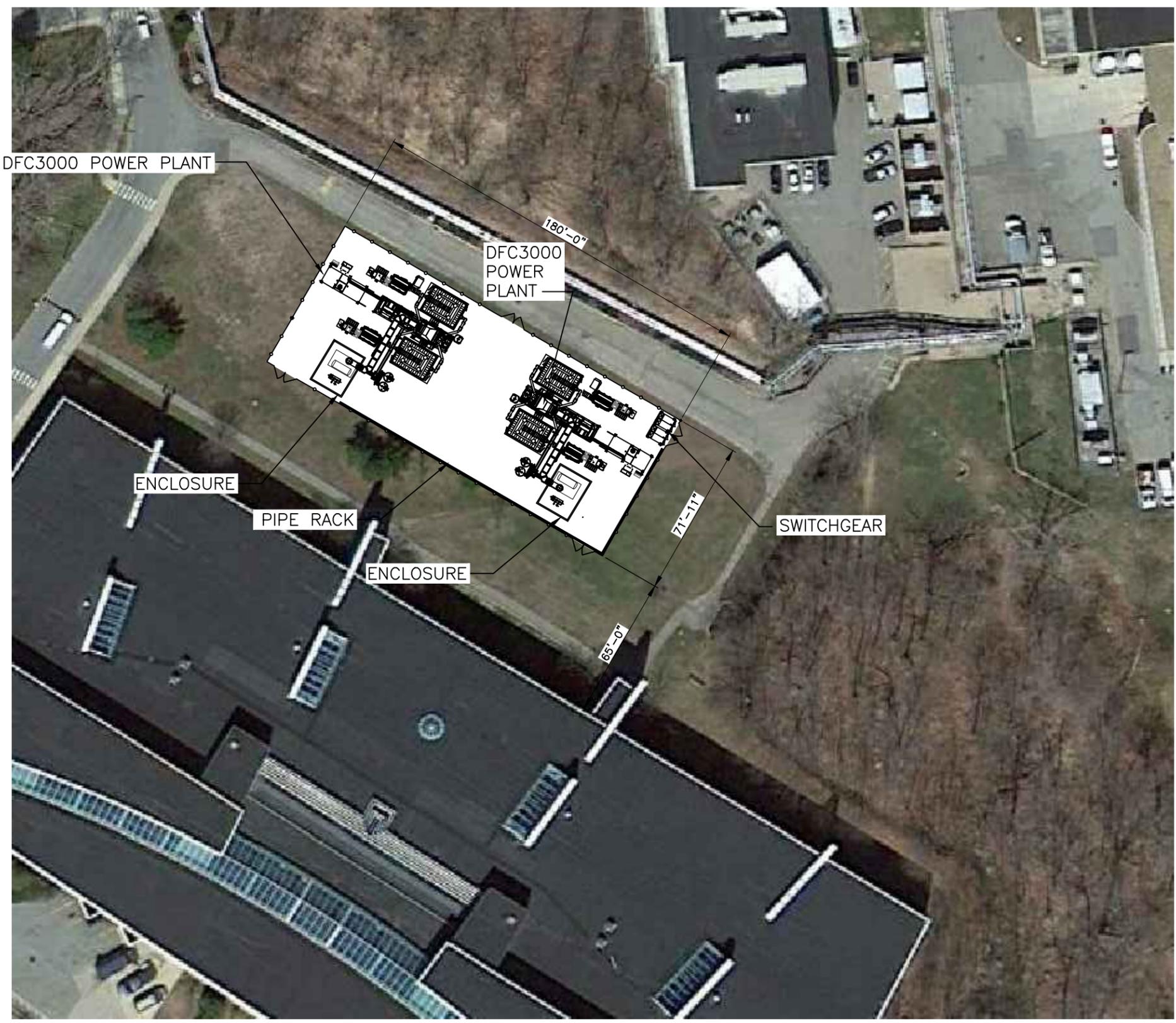
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**PRELIMINARY**

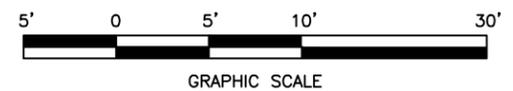
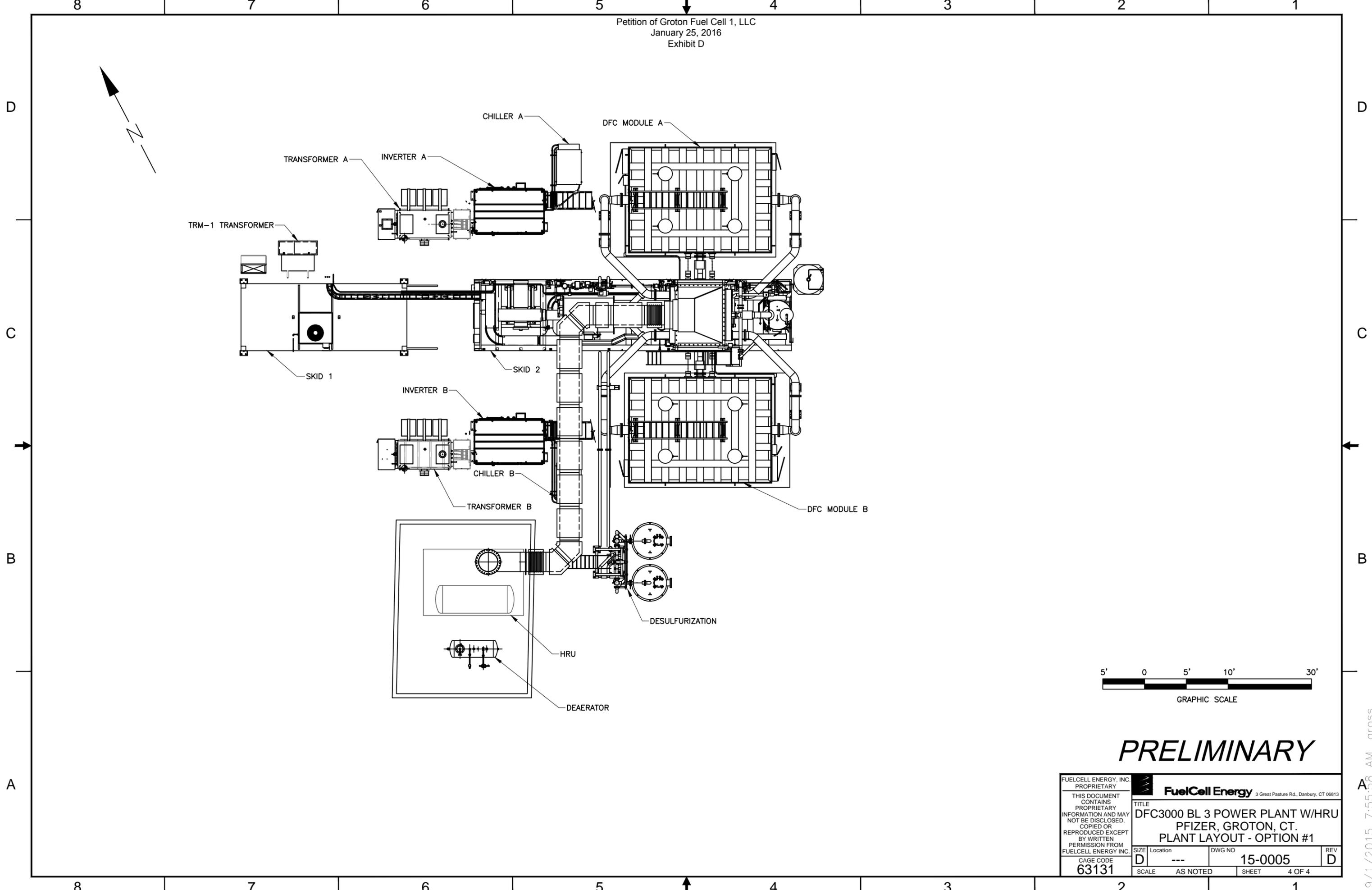
FUELCELL ENERGY, INC. PROPRIETARY THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE DISCLOSED, COPIED OR REPRODUCED EXCEPT BY WRITTEN PERMISSION FROM FUELCELL ENERGY INC. CAGE CODE <b>63131</b>	<b>FuelCell Energy</b> 3 Great Pasture Rd., Danbury, CT 06813		
	TITLE <b>DFC3000 BL 3 POWER PLANT W/HRU                  PFIZER, GROTON, CT.                  PLANT LAYOUT - BASE W/ MICROGRID</b>		
	SIZE Location <b>D ---</b>	DWG NO <b>15-0005</b>	REV <b>D</b>
	SCALE AS NOTED	SHEET 2 OF 4	

9/1/2015 7:55:54 AM, gross



**PRELIMINARY**

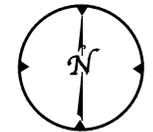
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CAGE CODE <b>63131</b>		TITLE <b>DFC3000 BL 3 POWER PLANT W/HRU                  PFIZER, GROTON, CT.                  PLOT PLAN - OPTION #1</b>	
SIZE <b>D</b>	Location ---	DWG NO <b>15-0005</b>	REV <b>D</b>
SCALE AS NOTED		SHEET 3 OF 4	



**PRELIMINARY**

FUELCELL ENERGY, INC. PROPRIETARY THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND MAY NOT BE DISCLOSED, COPIED OR REPRODUCED EXCEPT BY WRITTEN PERMISSION FROM FUELCELL ENERGY INC.		<b>FuelCell Energy</b> 3 Great Pasture Rd., Danbury, CT 06813	
TITLE DFC3000 BL 3 POWER PLANT W/HRU PFIZER, GROTON, CT. PLANT LAYOUT - OPTION #1			
CAGE CODE <b>63131</b>	SIZE D	Location ---	DWG NO <b>15-0005</b>
SCALE AS NOTED	SHEET 4 OF 4	REV D	REV D

9/1/2015 7:55:58 AM, gross



**SITE LEGEND**

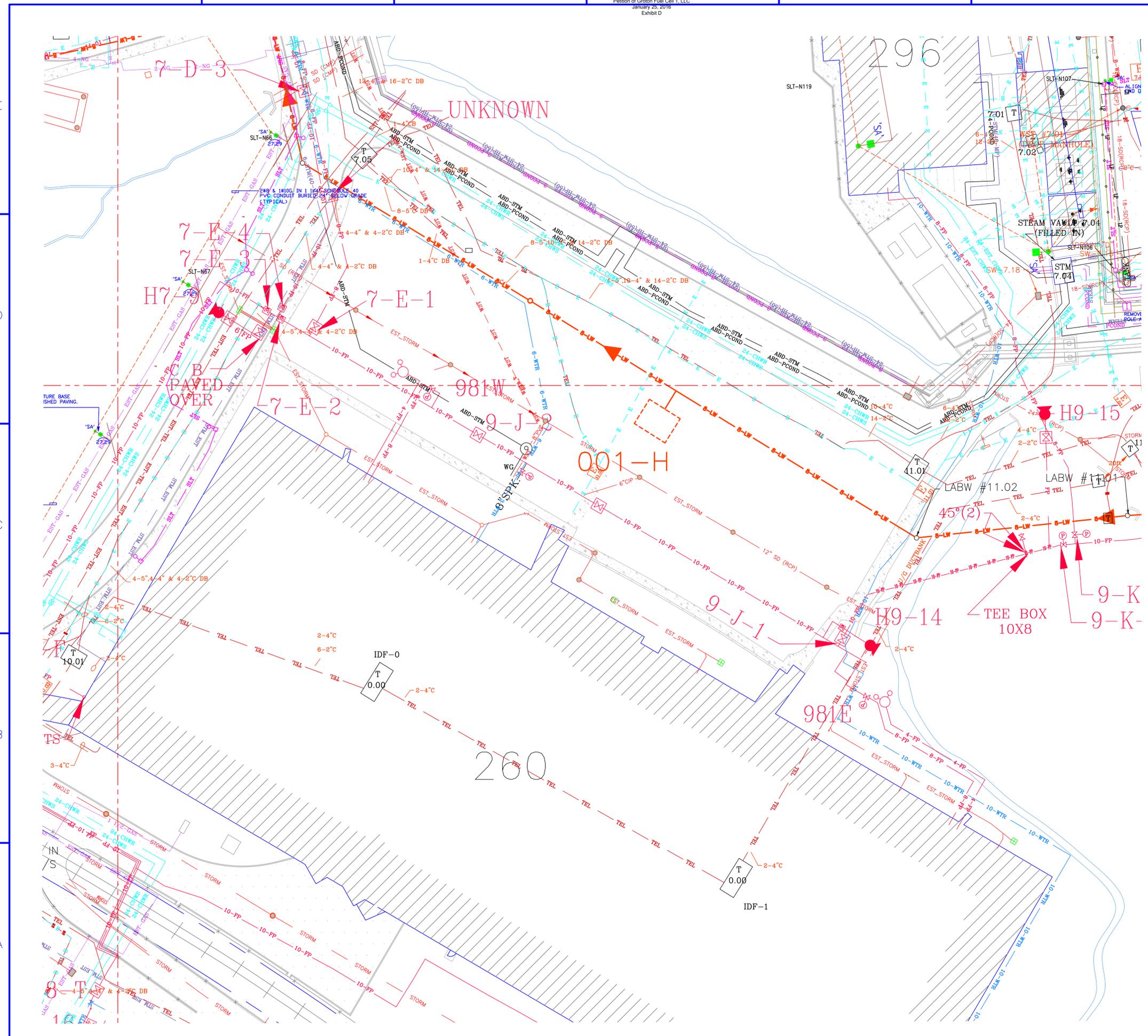
- BUILDING
- FENCE
- BLACKTOP
- SIDEWALK
- TRAILER
- BROOK
- TRAIL

**UTILITY LEGEND**

- CHW CHILLED WATER
- CW CONDENSER WATER
- LABW NOT IN USE
- LABW LAB WASTE
- NEUTRALIZATION TANK
- STORAGE TANK
- CHEMICAL TANK
- BYPASS CAPABILITIES
- PWR ELEC POWER
- TEL TELECOM
- SNET SNET FIBER
- FA FIRE ALARM
- FIB SEC SECURITY FIBER
- security SECURITY
- PW POTABLE WATER
- CWTR CITY WATER
- STM STEAM
- CND CONDENSATE
- LPG LP GAS
- NIT NITROGEN
- NG NATURAL GAS
- IRRG IRRIGATION MAIN
- IRRB IRRIGATION BRANCH
- FP FIRE WATER MAIN
- FIRE HYDRANT
- POST INDICATOR VALVE
- ABD-FIRE ABANDONED FIRE WATER MAIN
- WST WASTE
- WASTE MANHOLE
- WASTE CLEAN OUT
- SLT SITE LIGHTING
- LIGHT POLE
- SD STORM DRAIN
- STORM CURB BOX
- STORM MANHOLE
- STORM CLEAN OUT

**NOTES**

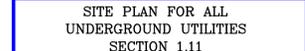
1. UTILITIES CROSS HATCHED WITH THIS SYMBOL ##### ARE ABANDONED IN PLACE.
2. UTILITIES DRAWN IN HIDDEN LINES ARE AN ESTIMATED LOCATION. ALL UTILITIES IN SOLID LINES HAVE BEEN LOCATED BY A SURVEYOR.



REV	DATE	DESCRIPTION	CHK APP	DRN APP
1	5/5/08	FIRE MAIN CHANGES	CIG	

**REVISIONS**

THIS DRAWING IS THE PROPERTY OF PFIZER INC. AND IS RETURNABLE UPON REQUEST. IT IS NOT TO BE COPIED OR USED WITHOUT THE WRITTEN CONSENT OF PFIZER INC.



**SITE PLAN FOR ALL UNDERGROUND UTILITIES SECTION 1.11**

SCALE: 1"=25'-0"	PM:
DATE: 6/02/08	A/E:
DRN: MW	A/E #:
PROJ#:	SIZE # 34x44
FILE: YARD-0-310-1.11_1_Site Plan For All Underground	UTIL
PFIZER DWG #:	PROJ DWG #:
YARD-0-310-1.11	1

Petition of Groton Fuel Cell 1, LLC  
January 25, 2016  
Exhibit D



Petition of Groton Fuel Cell 1, LLC  
January 25, 2016  
Exhibit D



Petition of Groton Fuel Cell 1, LLC  
January 26, 2016  
Exhibit D





Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

January 15, 2016

Jennifer D. Arasimowicz  
Fuelcell Energy, Inc.  
3 Great pasture Road  
Danbury, CT 06810  
Jarasimowicz@fce.com

Project: Pfizer Fuel Cell Project Located at 445 Eastern Point Road in Groton  
NDDB Determination No.: 201600199

Dear Jennifer D. Arasimowicz,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the area delineated on the map provided for the proposed Pfizer Fuel Cell Project Located at 445 Eastern Point Road in Groton, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for one year. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by January 15, 2017.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or [dawn.mckay@ct.gov](mailto:dawn.mckay@ct.gov) . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

A handwritten signature in cursive script that reads "Dawn M. McKay". The signature is written in black ink on a white background.

Dawn M. McKay  
Environmental Analyst 3