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Submittal via NYSDEC File Transfer Service Only (https://fts.dec.state.ny.us/fts/)

January 5, 2022

Thomas Haley
Regional Permit Administrator, Region 8
New York State Department of Environmental Conservation
6274 East Avon-Lima Rd.
Avon, NY 14414-9519

Re: Air State Facility Permit Application
Plug Power Innovation Center – New Facility in West Henrietta, NY

Dear Mr. Haley:

On behalf of Plug Power Inc. (Plug Power), Trinity Consultants is submitting the enclosed Air State Facility Permit application for Plug Power's proposed fuel cell manufacturing facility (Plug Power Innovation Center) to be located at 1025 John Street in West Henrietta, New York. The application is being submitted to the New York State Department of Environmental Conservation (NYSDEC) in accordance with the requirements in Title 6 of the Codes, Rules and Regulations of New York (6 CRR-NY) Subpart 201-5.

This submittal includes commercial information that is confidential to Plug Power and contains trade secrets that Plug Power is requesting to be protected from disclosure in accordance with 6 CRR-NY Part 616. The pages that contain confidential information are labeled "CONFIDENTIAL" at the top of the page. These pages contain information that would cause substantial injury to Plug Power's competitive position and place Plug Power at a significant competitive disadvantage if disclosed to a competitor. Specifically, confidentiality is being sought for information critical to Plug Power's confidential manufacturing processes. Given this information, competitors may obtain knowledge of Plug Power's processes in an attempt to recreate the process. The information on pages marked as "CONFIDENTIAL" is closely protected within Plug Power's operations and with select non-Plug Power personnel with whom appropriate non-disclosure agreements are in place.

If there are any questions or comments regarding this permit application, please contact Himani Gupta, Trinity Consultants at 617.984.9757 or by email at hgupta@trinityconsultants.com.

Sincerely,

Himani Gupta
Managing Consultant

ecc: Dan O'Connell, Plug Power
Mick Snyder, Plug Power
Brian Noel, Trinity Consultant

NEW YORK AIR STATE FACILITY PERMIT APPLICATION

Plug Power Inc
Plug Power Innovation Center, NY

TRINITY CONSULTANTS
1580 Columbia Turnpike, Bldg. 1, Ste. 1
Castleton-On-Hudson, NY 12033

January, 2022 Project

213302.0028

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Trinity Consultants

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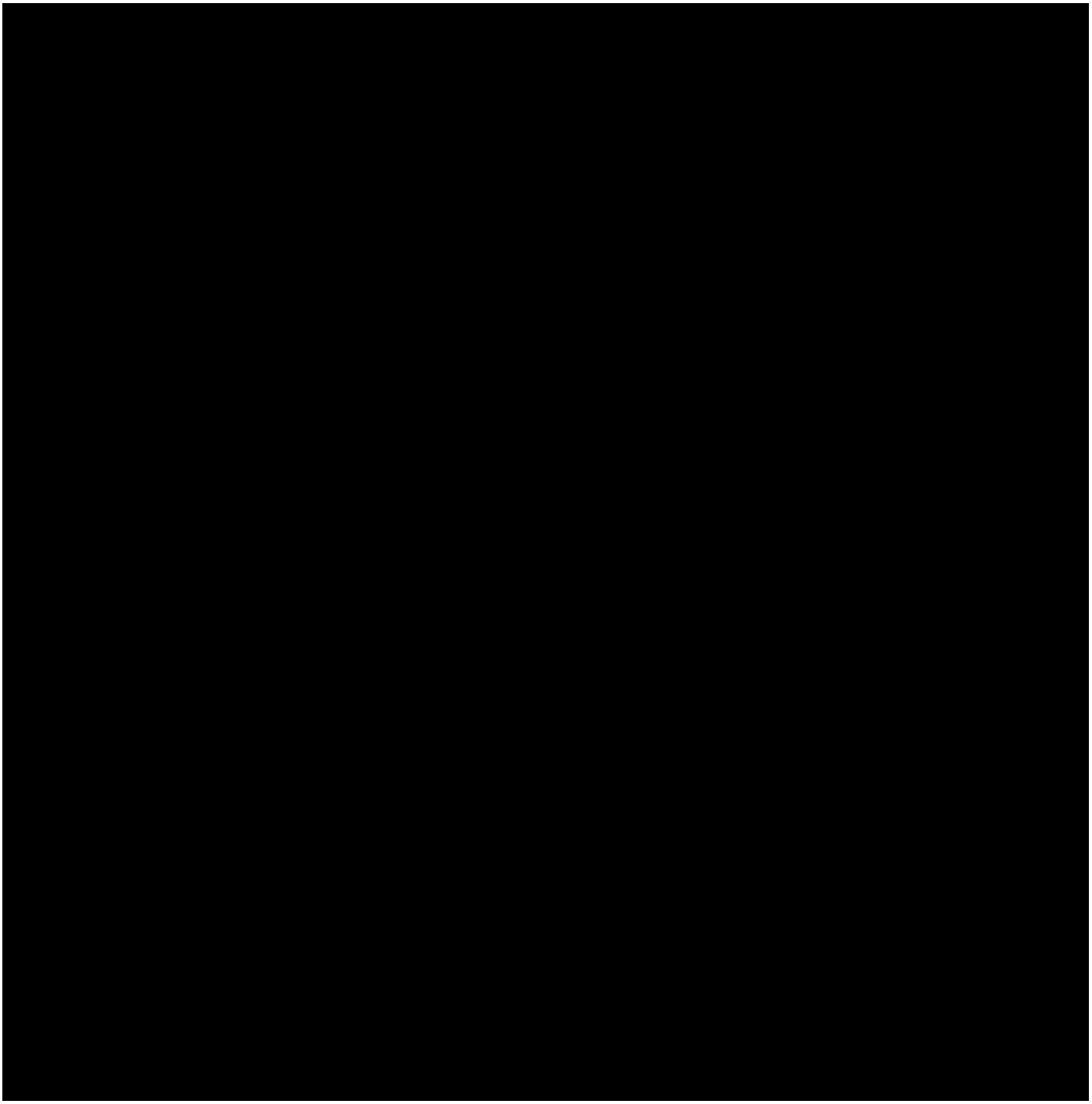
1. INTRODUCTION

Plug Power Inc. (Plug Power) is proposing to construct a new fuel cell manufacturing line at 1025 John Street in West Henrietta, New York (Plug Power Innovation Center or facility). Figure 1-1 presents an aerial map of the location. The building in which the new operations will be housed is currently vacant and there are no existing operations apart from heating, ventilation and air conditioning (HVAC) equipment and a cooling tower. Plug Power is proposing to retain some of the existing support equipment and they are included in this application. Based on the facility-wide potential to emit (PTE), Plug Power is submitting this air permit application to apply for a new Air State Facility Permit for the Plug Power Innovation Center pursuant to the requirements in Title 6 of the Codes, Rules and Regulations of New York (6 CRR-NY) Section 201-5.

Figure 1-1. Aerial View of the Proposed Plug Power Facility Location

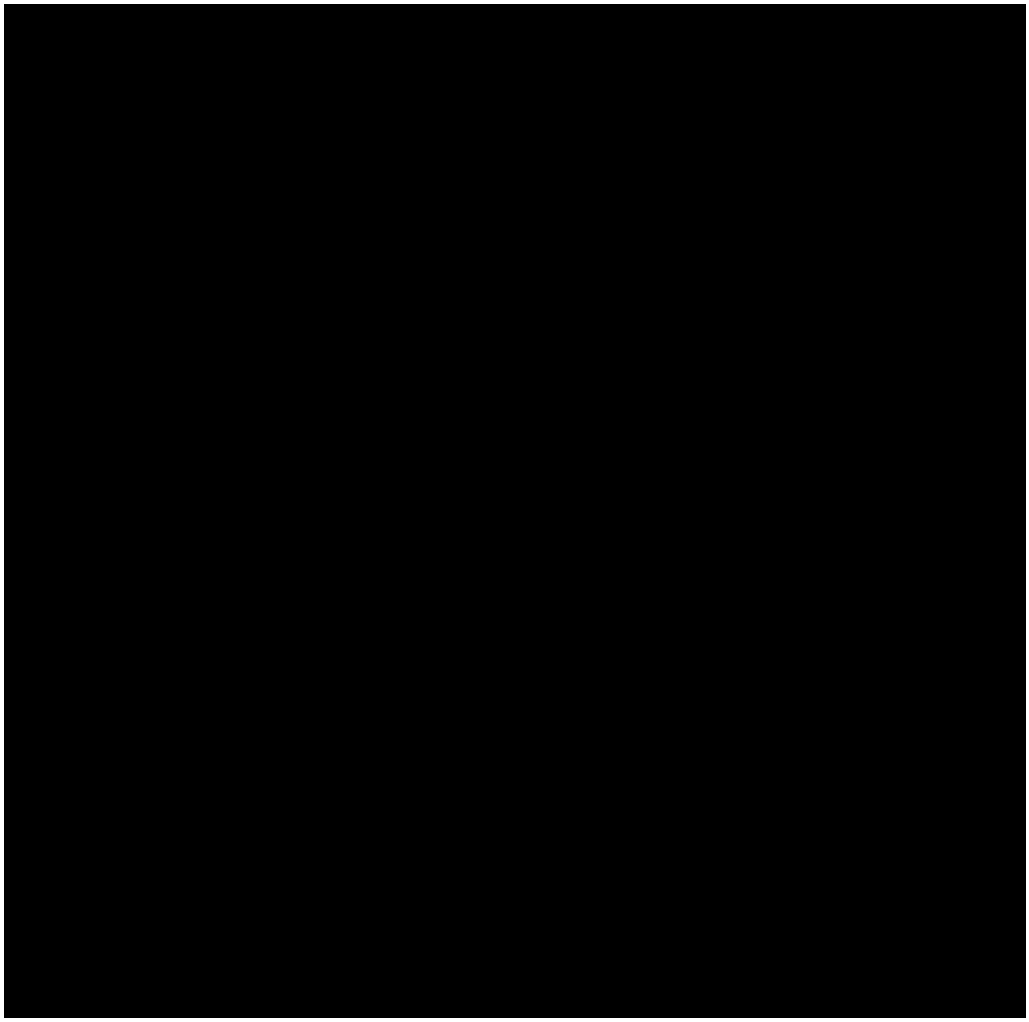
1.1 Description of Plug Power's Operations

The new fuel cell manufacturing line at the Plug Power Innovation Center will consist of the air emission sources and/or activities listed below. This detail is intended for the permit application and Plug Power prefers not to publish this level of detail in the permit.



1.2 Simplified Process Flow Diagram

A simplified block flow diagram illustrating the different processes and activities involved in the manufacturing of a fuel cell is included below.



The following information is included as part of this application:

- Section 1 – Introduction and description of the facility
- Section 2 – Emissions Calculation Methodology
- Section 3 – Regulatory Applicability
- Appendix A – State Facility Permit Application Forms
- Appendix B – Detailed Emission Calculations and Supporting Documentation
- Appendix C – SEQR Short Environmental Assessment Form

2. EMISSIONS CALCULATION METHODOLOGY

This section provides a description of the emission calculation methodologies and important assumptions utilized for the emission sources at the Plug Power facility. Detailed emissions calculations are presented in Appendix B to this application.

2.1 Ink/Coating Preparation

Plug Power will prepare ink/coating in batches of 10 gallons or 40 gallons. The emissions calculations for material loading, mixing and milling and clean-in-place steps during the ink preparation are based on worst case hourly emissions for each batch size.

2.1.1 Material Loading

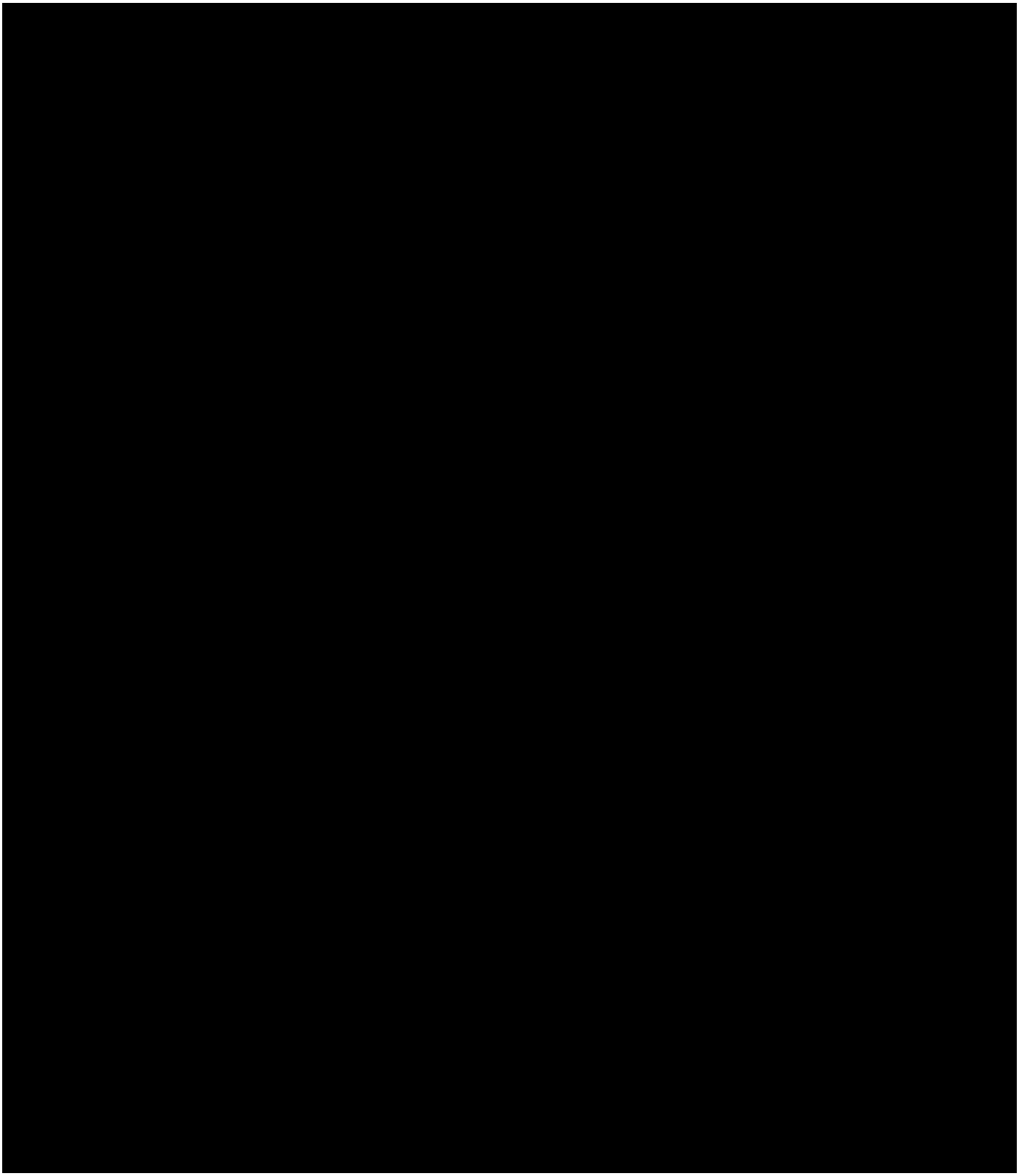
The first step in ink preparation process is raw material charging into the preparation vessels. The VOC emissions from material loading are estimated using the calculation method presented in the US EPA's Emission Inventory Improvement Program (EIIP) Document, Volume II*,* Chapter 8 (EIIP Vol II Ch. 8)[1], *Section 4.1*, *Emission Model for Material Loading*. The saturation factor was obtained from Table 5.2-1 of AP-42 *Chapter 5.2 Transportation and Marketing of Petroleum Liquids* published by the Environmental Protection Agency (EPA). The vapor space in the vessel was conservatively assumed to be saturated with the solvent vapors under normal operation conditions. The conservative material loading time is used to estimate maximum hourly emissions. The annual PTE is based on maximum hourly VOC emissions and continuous operation throughout the year (i.e., 8760 hours per year).

The particulate emissions (PM) from the material loading are estimated based on the maximum hourly quantity of material loaded into the vessels, total solid weight percent, and PM emission factor of 2 pounds per ton of pigment from AP-42 Chapter 6.7 Printing Ink, Table 6.7-1 Emission Factors for Printing Ink Manufacturing. The PM emissions from material loading will primarily consist of carbon black from catalyst materials. Other catalyst components (e.g., platinum) are much heavier compared to carbon black and are not expected to emitted during the loading process. However, in order to be conservative, total weight of solid components is used as the basis for pigment usage. Similar to VOC emissions, annual PM PTE is based on maximum hourly emissions and 8,760 hours per year. The emissions of PM, particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) are assumed to be the same as PM emissions.

2.1.2 Mixing and Milling

During the mixing and milling processes for ink/coating preparation, the VOCs are emitted to the atmosphere due to heat-up losses that occur during the operation of high-speed dispersers, bead and ball mills, and similar types of dispersing equipment. In addition, there may be emissions due to surface evaporation. For both types of emissions, annual PTE is based on maximum hourly VOC emissions and continuous operation throughout the year (i.e., 8760 hours per year).

[1] EIIP Volume II, Chapter 8 - Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (February 2005)



[2] https://www.fuelcellsetc.com/store/DS/safe-handling-and-use-of-perfluorosulfonic-acid-nafion.pdf

2.4 Cooling Tower

Potential PM emissions from one (1) cooling tower are calculated using the total dissolve solids (TDS) concentration for Lake Hemlock Lake, one of the main sources of water in Henrietta, from 2020 Water Quality Report[3] and cycles of concentration of 5 as provided by the service provider of the cooling tower. A drift loss of 0.005% is assumed based on engineering estimate for cooling towers with drift eliminators.

2.5 Natural Gas Combustion Equipment

The natural gas combustion emissions from all combustion equipment except emergency generator are calculated using emission factors presented in the EPA's Compilation of Air Pollutant Emission Factors (AP-42) Section 1.4, *Natural Gas Combustion* (July 1998). These emission factors are used to calculate PM, PM_{10}, $PM_{2.5}$, nitrogen oxides (NO_X), SO_2, CO, VOCs, and hazardous air pollutants (HAPs). The PTE for all combustion units assumes continuous operation throughout the year (i.e., 8760 hours per year).

The greenhouse gas (GHG) emissions of CO_2, methane (CH_4), and nitrous oxide (N_2O) from natural gas-combustion units are calculated using the emissions factors given in Title 40 of the Code of Federal Regulations (40 CFR) Part 98, Subpart C. Equivalent carbon dioxide (CO_2e) emissions are calculated for the 100-year horizon using Global Warming Potentials (GWPs) presented in 40 CFR 98, Table A-1 and for the 20-year horizon using GWPs in 6 CRR-NY 496.5. In addition, upstream CO_2e emissions are calculated using emission factors presented in Table 1 of the *Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents* (NYSDEC Version 02/2021).

2.6 Emergency Generator

The combustion emissions from one (1) natural gas-fired emergency generator are calculated using the emissions factors provided in Generac's manufacturer specification sheet, *Statement of Exhaust Emissions* (December 2020) for CO, NO_X and VOC and AP-42 Chapter 3.2, *Natural Gas-fired Reciprocating Engines* (August 2000) for all other pollutants. The PTE for the generator is based on operating a maximum of 500 hours per year to meet the definition of an emergency power generating stationary internal combustion engine in 6 CRR-NY 200.1(cq).

[3] https://mcwa-wordpress-media.s3.amazonaws.com/wp-content/uploads/2020-Data-Summary.pdf

Greenhouse gas and equivalent carbon dioxide emissions are calculated with same methodology as the Natural Gas-Combustion Equipment process described above.

3. REGULATORY APPLICABILITY

The proposed fuel cell manufacturing process at the Plug Power Innovation Center will be subject to certain federal and state air regulations. This section of the application summarizes the air permitting requirements and key air quality regulations that apply to the facility. This section is broken down into sections for New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and NYSDEC, including NSR, regulations.

3.1 New Source Performance Standards

The NSPS, located in 40 CFR 60, require new, modified, or reconstructed sources in applicable source categories to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. The following is a discussion of potentially applicable NSPS's for the new facility.

In addition to the specific standards described below, Plug Power must also comply with the general provisions of 40 CFR 60, Subpart A, which establish notification, recordkeeping, testing, monitoring, and reporting requirements for any and all sources subject to a particular NSPS.

3.1.1 40 CFR Part 60, Subpart Dc – Small Industrial-Commercial-Institutional Steam Generating Units

40 CFR Part 60, Subpart Dc (NSPS Subpart Dc) provides standards of performance for steam generating units with a heat input capacity greater than or equal to 10 million British thermal units per hour (MMBtu/hr) (2.9 MW) but less than or equal to 100 MMBtu/hr (29 MW) for which construction, modification, or reconstruction commenced after June 9, 1989.

"Steam generating unit" is defined in 40 CFR 60.41c as follow:

> *… a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.*

Most of the heaters and boilers at the facility have a maximum heat input capacity of less than 10 MMBtu/hr; therefore, they are not subject to the requirements of Subpart Dc. However, Plug Power is proposing to install one (1) 10 MMBtu/hr hot water boiler and one (1) 16 MMBtu/hr steam boiler at the facility. These boilers will combust natural gas exclusively and will be considered affected facilities with respect to NSPS Dc. The applicable requirements are described in section below.

3.1.1.1 Natural Gas Combustion

During combustion of natural gas, the SO_2 and PM performance standards established in 40 CFR 60.42c and 40 CFR 60.43c, respectively, will not apply. Furthermore, the emissions monitoring requirements provided in 40 CFR 60.46c and 40 CFR 60.47c are not applicable to units that are not subject to emission limits or SO_2 and PM, respectively. The proposed boilers will be subject to general recordkeeping and reporting requirements contained in 40 CFR 60.48c. The only specifically applicable recordkeeping requirement under NSPS Dc is specified under 40 CFR 60.48c(g)(2). Under this provision, Plug Power will track and maintain monthly records of fuel usage in the proposed boilers. Additionally, Plug Power will submit the initial

construction notification under 40 CFR 60.7(a)(1) and 40 CFR 60.48c(a) within 30 days of commencing construction and startup notification under 40 CFR 60.7(a)(3) within 15 days after the startup.

3.1.2 40 CFR Part 60, Subpart IIII – Stationary Compression Ignition Internal Combustion Engines

Affected sources under 40 CFR 60, Subpart IIII (NSPS Subpart IIII), include stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005, and that were manufactured after April 1, 2006 (for non-fire pump engines) or after July 1, 2006 (if manufactured as a certified National Fire protection Association (NFPA) fire pump). Plug Power is not proposing to operate or install any compression ignition internal combustion engine as part of this project. Therefore, NSPS Subpart IIII does not apply to the facility.

3.1.3 40 CFR Part 60, Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines

40 CFR Part 60, Subpart JJJJ (NSPS Subpart JJJJ) applies to owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction, modification, or reconstruction after June 12, 2006. Specifically for emergency engines, it applies to engines which are greater than 25 hp and manufactured on or after January 1, 2009. Plug Power is proposing to install a 777 bhp natural gas-fired emergency at the facility which will be subject to the requirements of NSPS Subpart JJJJ.

In accordance with 40 CFR 60.4233(e), owners and operators of SI ICE with maximum engine power greater than or equal to 100 hp must comply with the emission standards in Table 1 of NSPS Subpart JJJJ. The applicable emission standards from Table 1 are listed below:

- NO_X: 2 gram per horsepower per hour (g/hp-hr)
- CO: 4 g/hp-hr
- VOC: 1 g/hp-hr

Plug Power will achieve compliance with these emission standards by purchasing an emergency engine that is certified to meet these emission limits per 40 CFR 60.4243(b)(1). The manufacturer specifications and emissions data for the proposed emergency generator are included in Appendix B to this application. Per 40 CFR 60.4245(c), initial notification is not required for a certified engine. Finally, Plug Power will retain records as required by 40 CFR 60.4245.

3.2 National Emission Standards for Hazardous Air Pollutants

The NESHAPs, located in 40 CFR 63, are typically applicable to specific categories of sources that have the potential to emit HAP. Additionally, NESHAPS located in 40 CFR 61 regulate specific HAPs. There are two overall categories of NESHAP, one for facilities with HAP PTE greater than 10 tpy for any individual HAP or 25 tpy for any combination of HAP (i.e., major HAP sources) and other for facilities with total and individual HAP PTE less than 25 and 10 tpy, respectively (i.e., area sources of HAP). Emissions and operational limitations provided in the NESHAPs for major HAP sources are established on the basis of a Maximum Achievable Control Technology (MACT) determination for a particular source category. For area sources of HAP, generally available control technology (GACT) based NESHAPs require sources to control emissions to the level achievable by the use of generally available control technologies or management practices to reduce emissions of HAPs.

Because the Plug Power Innovation Center has the potential to emit total and individual HAP in quantities less than 25 and 10 tpy, respectively, the facility is considered an area source of HAP. The following section of this and provides applicability determinations for each of the NESHAP standards to which the facility is potentially subject.

In addition to the specific standards described below, Plug Power will also have to comply with the general provisions of 40 CFR 63, Subpart A, which establish notification, recordkeeping, testing, monitoring, and reporting requirements for any and all sources subject to a particular NESHAP standard.

3.2.1 40 CFR Part 63, Subpart Q – Industrial Process Cooling Towers

The provisions of NESHAP Subpart Q, relating to Industrial Process Cooling Towers, applies to cooling towers that are operated with chromium-based water treatment chemicals at major sources. The cooling tower at the facility will not utilize chromium-based water treatment chemicals, and as such is not subject to this standard.

3.2.2 40 CFR Part 63, Subpart JJJJ – Paper and Other Web Coating

40 CFR 63 Subpart JJJJ (NESHAP Subpart JJJJ) applies to owners or operators of a facility with paper and other web coating lines that is a major source of HAP. The facility will not be a major source of HAPs, therefore this regulation does not apply.

3.2.3 40 CFR Part 63, Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines

NESHAP Subpart ZZZZ, relating to Stationary Reciprocating Internal Combustion Engines, applies to reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions. The natural-gas emergency generator proposed as part of this project is subject to the requirements of NESHSAP Subpart ZZZZ and will be categorized as "new" RICE per §63.6590(a)(2)(iii) because it will be constructed after June 12, 2006, at an area source of HAP emissions.

Pursuant to 40 CFR 63.6590(c)(1), new spark ignition RICE located at an area source of HAP need to comply only with NSPS JJJJ, and no further NESHAP Subpart ZZZZ requirements apply to that engine. As such, Plug Power will comply with the requirements of NESHAP Subpart ZZZZ for the proposed engine by complying with NSPS JJJJ.

3.2.4 40 CFR Part 63, Subpart JJJJJJ – Industrial, Commercial, and Institutional Boilers Area Sources

The affected sources subject to NESHAP Subpart JJJJJJ (GACT 6J) include each new and existing industrial, commercial, and institutional boiler and process heater located at an area source of HAP. A boiler is defined in 40 CFR 63.11237 as "*an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water….*". However, gas-fired boilers are exempt from the requirements of this rule under 40 CFR 63.11195(e). The definition of gas-fired boiler under 40 CFR 63.11237 includes:

> *…any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or for periodic testing, maintenance, or operator training on liquid fuel. Periodic*

testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

The boilers at the facility will exclusively fire natural gas and are therefore exempt from the requirements of this subpart. Other combustion sources planned to be operated at the Plug Power Innovation Center do not meet the definition of boiler; therefore, NESHAP Subpart JJJJJJ does not apply to them.

3.3 State Regulatory Requirements

This section discusses the applicability of potentially applicable state regulations to the proposed Plug Power Innovation Center.

3.3.1 6 CRR-NY 201 – Permits and Registrations

The owners and operators of air contamination sources in New York State are required to obtain a permit pursuant to 6 CRR-NY Part 201, which dictates permitting requirements and permit application content requirements. Part 201 recently underwent substantial changes that became effective on February 25, 2021. This regulatory analysis references the latest regulatory language.

Facilities in New York State can fall into one of four categories for the purposes of air pollution control permitting. Those categories include sources that operate only emission sources that are exempt from permitting (Subpart 201-3), facilities that are required to file minor facility registrations (Subpart 201-4), Air State Facility permitted facilities (Subpart 201-5) and Title V facilities (Subpart 201-6). As previously mentioned, based on the facility-wide PTE, the Plug Power Innovation Center is subject to Subpart 201-5 permitting. The calculated PTE for the facility is less than major facility thresholds defined in 6 CRR-NY 201-2.1(b)(21).

The State Facility Permit application forms are included in Appendix A to this application. Please note that since the MDEV R&D laboratory does not require permitting per 6 CRR-NY 201-1.16, it is not included as an emission unit in the application form.

3.3.2 6 CRR-NY 211 – General Prohibitions

3.3.2.1 Section 211.1 – Air Pollution

The facility will not cause any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emissions, either alone or in combination with others, to be emitted to the outdoor atmosphere in such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property in accordance with 6 CRR-NY 211.1.

3.3.2.2 Section 211.2 – Visible Emissions

Section 211.2 defines general opacity limits for sources of air pollution in New York State. The general requirement that is applicable is that any air contamination source cannot emit any material having an opacity equal to or greater than 20 percent (six-minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity. The facility will follow and maintain Good Engineering Practice (GEP) and operate its sources in a manner that effectively meets the visible emissions standards.

3.3.3 6 CRR-NY 212 – Process Operations

Part 212 applies to process emission sources associated with a process operation upon issuance of a new, modified, or renewal permit for a facility containing process emission sources and/or emission points.

A process operation is defined in 6 CRR-NY 212-1.2(b)(18) as:

> *Any industrial, institutional, commercial, agricultural or other activity, operation, manufacture or treatment in which chemical, biological and/or physical properties of the material or materials are changed, or in which the material(s) is conveyed or stored without changing the material(s) if the conveyance or storage system is equipped with a vent(s) and is non-mobile, and that emits air contaminants to the outdoor atmosphere. A process operation does not include an open fire, operation of a combustion installation, or incineration of refuse other than by-products or wastes from a process operation(s).*

A process emission source is defined in 6 CRR-NY 212-1.2(b)(19) as:

> *Any apparatus, contrivance or machine, including any appurtenant exhaust system or air cleaning device capable of causing emissions of any air contaminant to the outdoor atmosphere from a process operation.*

3.3.3.1 Emission Sources Not Subject to Part 212

As discussed in subsequent section for Part 228, Surface Coating Process, the coating line at the Plug Power facility is subject to Table 1 of Subpart 228-1. Therefore, per 6 CRR-NY 212-1.4(l)(1), it is exempt from Part 212 requirements for non A-rated VOCs. Since coating line does not have any A-rated VOC emissions, it is exempt from Part 212.

Combustion installations are not process operations per the definition in Part 212. 6 CRR-NY 200.1(l) defines combustion installation as:

> *An installation consisting of a single furnace, device, engine, or turbine in which fossil fuel, wood, and/or other solid, liquid, or gaseous fuel is burned with air or oxygen and the emissions include products from (1) the fuel combustion; (2) fuel additives (3) and material that is specifically introduced to alter emissions.*

The natural-gas-fired boilers, hot water heaters, emergency generator, soak heaters, air handling units and the make-up air unit are combustion installations, and are not subject to the requirements of Part 212.

Trivial and exempt sources in Subparts 201-3.2 and 201-3.3 are excluded from applicability to Part 212 per 6 CRR-NY 212-1.4(a). Table 3-1 presents the list of trivial or exempt activities at the facility. Therefore, all the sources listed in Table 3-1 are not subject to Part 212.

Table 3-1. List of Trivial and Exempt Activities at Saint-Gobain Facility

Activity Description (Quantity)	Capacity	Applicable Exemption
Boiler (1), Heaters (9), Make-up Air Units (2),	<10 MMBtu/hr	§201-3.2(c)(1)(i)

Activity Description (Quantity)	Capacity	Applicable Exemption
Air Handling Units (1), Soak Heaters (3)		
Emergency generator (1)	N/A	§201-3.2(c)(6)
Non-contact cooling tower (1)	N/A	§201-3.2(c)(7)
Roadways and parking lots	N/A	§201-3.3(c)(37)
Analytical lab (1)	N/A	§201-3.2(c)(40)

3.3.3.2 Volatile Organic Compounds

DAR-1, *Guidelines for the Evaluation and Control of Ambient Air Contaminants Under 6NYCRR Part 212*.[4] clarifies that VOC is not a criteria air contaminant and that VOCs should not be addressed using Table 3 of Part 212.[5] As such, individual compounds that are VOC are assessed as described below.

3.3.3.2.1 Propyl Alcohol

The proposed fuel cell manufacturing line will utilize n-propyl alcohol ("1-propanol" or "propanol") as one of the main constituents of the ink/coating prepared at site for coating. In addition, ink preparation/mixing vessels will be cleaned using 50% propanol. Propanol is not assigned a toxicity in the list of pollutants within DAR-1. As such propanol is assigned an initial environmental rating (ER) of B and is subject to the control requirements as specified in §212-2.1(b) and §212-2.3(b) Table 4.

The propanol emissions from different steps in ink/coating preparation, except clean-in-place, will be emitted through a common stack or emission point. The emission rate potential (ERP) of propanol emissions from this emission point and the emission point for clean-in-place is less than 10 lbs/hr. In addition, the ERP of propanol emissions from MDEV R&D lab emitted from a separate stack is less than 10 lbs/hr. Therefore, compliance with Part 212 will be met by using air dispersion modeling to demonstrate that the maximum offsite impacts from the facility-wide propanol emissions are less than the annual guideline concentrations (AGC) listed in DAR-1. The propanol emissions from the RTO will also be included in the modeling. Note that, DAR-1 does not have a short-term guideline concentration (SGC) for propanol. Plug Power will submit an air dispersion modeling protocol under a separate cover following the submittal of this application for NYSDEC's review.

3.3.3.2.2 Ethyl Alcohol

Ethanol is another component of the ink/coating prepared at the Plug Power facility. Ethyl alcohol ("ethanol") is identified as a "Low Toxicity Contaminant" in DAR-1. Low toxicity air contaminants are assigned an initial ER of C. The ERP of ethanol from all Part 212 subject process operations at the proposed Plug Power facility is less than 10 lb/hr. Therefore, compliance with Part 212 will be met using air dispersion modeling to demonstrate that the maximum offsite impacts from the facility-wide ethanol emissions are less than the AGC listed in DAR-1. The ethanol emissions from the RTO will be included in the modeling. Similar to propanol, DAR-1 does not have an SGC for ethanol.

[4] https://www.dec.ny.gov/docs/air_pdf/dar1.pdf

[5] DAR-1, February 2021; Section V.E.1.

3.3.3.4 Other Criteria Pollutants

Other than PM, which is described above, all other criteria pollutants from the Plug Power facility are from combustion installations and are not subject to Part 212 as illustrated in section 3.3.3.

3.3.4 6 CRR-NY 225 – Fuel Composition and Use

Subpart 225-1 applies to facilities which use fuels in combustion installations and regulates the sulfur content of fuel. All the combustion installation at the Plug Power facility will fire natural gas and Subpart 225-1 does not have any requirements for natural gas firing. Therefore, Subpart 225-1 does not apply.

3.3.5 6 CRR-NY 226 – Solvent Cleaner Processes and Industrial Cleaning Solvents

The facility will not meet the emission threshold of three tons or more of VOC emissions from industrial cleaning solvents on a twelve-month rolling total basis and therefore is not subject to 6 CRR-NY 226-2 Industrial Cleaning Solvents. Purchase records of cleaning solvents subject to §226-2 and associated safety data sheets (SDSs) detailing VOC content of the solvents will be maintained at the facility.

3.3.6 6 CRR-NY 227 – Stationary Combustion Installations

The particulate emission standards of Subpart 227-1 apply to stationary combustion installations that are not subject to NSPS or NESHAP standards, where the particulate matter standards of the federal regulation are less stringent than the standards established within the subpart.

Subpart 227-1 applies to combustion installations that fire solid or liquid fuels alone or in combination with gaseous fuels. The boiler, hot water heaters, and other combustion equipment at the Plug Power facility will fire only natural gas, and as such are not subject to the particulate emission standards in Section 227-1.3.

The facility is subject to the general opacity standards provided in 6 CRR-NY 227-1.4(a), which indicates that no greater than 20 percent opacity (six-minute average), except for one six-minute period per hour of not more than 27 percent opacity is allowed. As stated previously, the facility will follow GEP and effectively operate the combustion installations to ensure that the opacity standards are met.

3.3.7 6 CRR-NY 228-1 – Surface Coating Processes

This Subpart applies to facilities containing coating lines which consist of the application of surface coatings (including inks). Per 6 CRR-NY 228-1.1(a)(1), coating lines identified in Table 1 of Subpart 228-1 are subject to the requirements of the Subpart if certain conditions are met (i.e., location of the source and if emission thresholds are exceeded). Based on the type of substrate on which coating will be applied, the coating line at the Plug Power facility is classified as Class D in Table 1 of Part 228.[6] Per applicability in 6 CRR-NY 228-1.1(a)(1), since the Plug Power facility is not located in New York City metropolitan area, or the Orange County towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury and it will have PTE of greater than or equal to 10 tons per year, the coating line at the facility is subject to Part 228 requirements. Plug Power is proposing to control the VOC emissions from the coating line using an RTO with at least 98% overall control efficiency which meets the requirements for add-on control in 6 CRR-NY 228-1.5(b) as allowed by §228-1.4(d)(1).

The proposed coating activities in the MDEV R&D laboratory are exempt from Part 228 requirements per 6 CRR-NY 228-1.1(b)(1).

3.3.8 6 CRR-NY 231 – New Source Review

The Plug Power Innovation Center is located in Monroe County, New York. Monroe County is currently designated as attainment or unclassifiable for all pollutants in 40 CFR Part 81.333. However, all of New York State is located within the ozone transport region. Therefore, Monroe County is treated as a nonattainment area for ozone.

3.3.8.1 NSR Applicability Overview – PSD

Major source thresholds for PSD regulated pollutants for facilities in New York are established in 6 CRR-NY 231-13.5, Table 5. According to §201-2.1(b)(21)(v), a 250 ton per year "major" source threshold for criteria pollutants applies to facilities that are not on the list of sources categories in §201-2.1(b)(21)(iii)(a) through (z). Fuel cell manufacturing facilities are not one of the source categories identified in that list. As demonstrated in the PTE summary in Appendix B, the facility-wide emissions of all PSD-regulated pollutants are below 250 tpy; therefore, the facility is considered a minor source with respect to the PSD permitting program and is not subject to Part 231 permitting for attainment air contaminants.

[6] NESHAP Subpart JJJ (Paper and Other Web Coating) defines "web" as a "continuous substrate (e.g., paper, film, foil) which is flexible enough to be wound or unwound as rolls." The substrate used at the Plug Power facility is flexible enough to be wound as rolls, therefore, Plug Power is categorizing its coating line as a Part 228 Class D coating line which includes web type substrate such as paper, film and foil.

3.3.8.2 NSR Applicability Overview – NNSR

Major facility thresholds for the NNSR regulated pollutants for facilities in New York are established in 6 CRR-NY 231-13, Table 1. The major facility thresholds for NO_X and VOC for facilities located within the ozone transport region are 100 tpy and 50 tpy, respectively. As demonstrated in the PTE summary in Appendix B, the facility-wide emissions of NO_X and VOC are below 100 tpy and 50 tpy thresholds, therefore, the new facility is considered a minor source with respect to NNSR program and is not subject to Part 231 permitting for nonattainment air contaminants.

3.3.9 6 CRR-NY 234 – Graphic Arts

This regulation applies to certain graphic arts facilities in New York. 6 CRR-NY 234.2(b)(13) defines graphic arts as "*Packaging rotogravure, publication rotogravure, flexographic, offset lithographic, letterpress and screen printing processes*". The ink preparation and coating processes proposed at the Plug Power facility do not meet the definition of graphic arts. Therefore, the requirements of Part 234 do not apply.

3.3.10 6 CRR-NY 617 – State Environmental Quality Review Act

New York's State Environmental Quality Review Act (SEQR) requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision making. This state facility permit application seeks to authorize the installation and operation of a new fuel cell manufacturing line at the Plug Power Innovation Center. The project meets the definition of an action because it requires NYSDEC approval; however, is not considered a Type I Action (6 CRR-NY 617.4) likely to have significant adverse environmental impact, nor does it meet the criteria to be considered a Type II Action (§617.5). Therefore, Plug Power is submitting a short environmental assessment form (SEAF) as part of this application illustrating no environmental impact. The SEAF is included in Appendix C.

3.4 Climate Leadership and Community Protection Act

The Climate Leadership and Community Protection Act (CLCPA) was signed into law in July 2019 and became effective January 1, 2020. CLCPA currently requires the NYSDEC to review applications for new state facility permits, new Title V permits, and significant modifications to state facility permits and Title V permits for consistency with the requirements and goals of CLCPA. Since the proposed project is a new state facility permit, an analysis of this project with respect to the objectives of the CLCPA is required.

The overall project, installation and operation of a fuel cell manufacturing facility in New York, is aligned with the goals of CLCPA to achieve 85% GHG emissions reductions by 2050.[7] A hydrogen fuel cell combines hydrogen and oxygen to produce electricity, with water and heat as the only by-products.[8] The fuel cells allow devices with electric motors to run cleanly and efficiently with zero emissions. Investing in green hydrogen manufacturing will provide significant carbon reductions to Plug Power's customers.[9] The new facility will accelerate the expansion in innovative green hydrogen solutions that will replace fossil fuel supported electricity production. Plug Power's innovative technology powers electric motors with hydrogen fuel cells amid an ongoing paradigm shift in the power, energy, and transportation industries to address

[7] The CLCPA includes economy-wide requirements to reduce GHG emissions in New York State by 40% below 1990 levels by 2030, and 85% below 1990 levels by 2050.

[8] Plug Power ESG Rpeort 2020 - https://www.plugpower.com/wp-content/uploads/2021/06/PlugPower_2020ESGReport_F.pdf

[9] *Ibid.*

climate change and energy security, while meeting sustainability goals.[10] Hydrogen and fuel cell products are integral parts of a comprehensive, sustainable energy and climate mitigation strategy to achieve the needed reduction in GHG emissions to achieve net zero goals.

For the purposes of this application, Plug Power has also evaluated the project emission sources with respect to the objectives of the CLCPA and considered following components:

- Identification of GHGs emitted from emission sources for the project or at the facility under review.
- Quantification of emissions of individual GHGs and the total CO_2e based on the 20-year GWP of each individual GHG resulting from:
  - Direct emissions of GHGs released from the process operations at the facility,
  - Direct emissions of GHGs that are generated due to the combustion of carbon-based fuels in combustion equipment at the facility, and
  - Indirect emissions of GHGs associated with the extraction, production and transmission of carbon-based fuels imported into New York State for the project or the facility under review.
- An analysis of the emission sources affected by the permitting action to determine if there are alternatives that are technically viable that result in less emissions of GHGs.
- An evaluation of co-pollutants (i.e., HAP) which are also emitted from the GHG sources.

3.4.1 Greenhouse Gases Emitted from the Facility

None of the process emission sources, existing or proposed, at the facility have the potential to emit any GHGs as defined in 6 CRR-NY 200.1(cu) or listed in §496.5. The only GHG emissions from facility operations are the results of the combustion of carbon-based fuels in support equipment such as the RTO, heaters, MAUs, boilers and emergency generator. Plug Power is proposing to use natural gas (fossil fuel with lowest GHG emissions on a heat-input basis) for all of its support combustion equipment.

3.4.2 Quantification of Greenhouse Gases

The GHGs emissions from fuel combustion at the facility are included in the emission calculations in Appendix B and presented on Table 3-2. The calculation methodology is described in Section 2 of this application. The carbon dioxide equivalent emission rates presented in Appendix B have been calculated on a 100-year and 20-year GWP basis for completeness.

Table 3-2. Carbon Dioxide Equivalent PTE

Air Contaminant	Existing Combustion Equipment (tpy)	RTO (tpy)	Soak Heaters (tpy)	Boilers (tpy)	Emergency Generator (tpy)	Facility Wide Potential to Emit (tpy)
Direct 20-Year CO_2e Emissions	2,944	2,824	539	13,349	175	19,831
Upstream 20-Year CO_2e Emissions	2,447	2,348	448	11,098	146	16,517
Total 20-Year CO_2e Emissions	5,391	5,172	987	24,447	321	36,318

[10] *Ibid.*

3.4.3 Alternatives Analysis

As previously stated, all sources of GHG at the Plug Power facility are sources of combustion. Each type of combustion source is addresses in the following paragraphs.

3.4.3.1 Thermal Oxidizers

Plug Power is proposing to install a natural gas-fired RTO to reduce the emissions of VOCs (propanol and ethanol) from its coating operations.

3.4.3.1.1 Alternative Technologies

In addition to thermal treatment of VOCs, other generally acceptable means of controlling VOC include adsorption onto media such as carbon, absorption into a liquid medium such as water or another solvent, or condensation.[11] As demonstrated in Table 1-1 of the Control Techniques for Volatile Organic Compound Emissions from Stationary Sources,[12] various combustion-based control techniques are capable of achieving similar levels of emission control. In practice the actual level of VOC control depends on several design and operation characteristics. This CLCPA analysis is required to evaluate reduction of onsite and upstream GHG generation and emissions of co-pollutants. By design, a *recuperative* thermal oxidizer is to recuperate waste heat from the combustion of fuel and VOC for use in preheating incoming gasses prior to combustion. This makes an RTO highly thermally efficient when compared to other combustion-based VOC control technologies that do not recuperate wasted heat. Because the proposed RTO have a very low heat input (5.5 MMBtu/hr), the inherent efficiency of an RTO, and the fact that multiple thermal control of VOCs generally achieve a similar emission control efficiency, the various types of thermal control options are not considered further in this CLCPA analysis. It is assumed that any reduction in GHG emissions that may be realized by changing from proposed RTO to a boiler, an incinerator, a flare or other similar device would be minimal because of the small heat input into the proposed RTO.

Carbon adsorption is commonly used to control vapor streams with varied organic compositions. Carbon adsorption utilizes a column of activated carbon to adsorb organic pollutants. In adsorption (as opposed to absorption) the molecules of organic pollutants are attracted to the carbon by a physical, rather than chemical, process. The result is a weak bond that can be reversed with heat or pressure. EPA's Air Pollution Control Cost Manual, Chapter 1 (2018) on Carbon Adsorbers states the following:

> *Activated carbon can adsorb a wide range of VOCs; however, there are some limitations. First,* ***activated carbon is less effective for compounds that are highly polar, volatile*** *or have small diameters. For example, vinyl chloride, methanol, and formaldehyde are not adsorbed well by activated carbon.[13] [Emphasis added]*

The chemical compounds in the coating operations exhaust include n-propanol and ethanol. Both of which are highly polar, volatile compounds. Because activated carbon is less effective at controlling highly polar, volatile compounds such as propanol, the effectiveness of this technology is questionable. Finally, Table 3-3

[11] Control Techniques for Volatile Organic Compound Emissions from Stationary Sources; EPA 453/R-92-2018, December 1992. Section 3.

[12] *Ibid.*, Page 1-7.

[13] https://www.epa.gov/sites/default/files/2018-10/documents/final_carbonadsorberschapter_7thedition.pdf, page 1-6.

of Control Techniques for Volatile Organic Compound Emissions from Stationary Sources[14] does not list propanol (the main component requiring control) as an organic compound that is controlled by carbon adsorption. Because of these reasons, the use of activated carbon to control the VOC from coating operations at Plug Power is not considered further in this analysis. In addition, polar adsorbents such as silica gel and activated alumina are poor adsorbents of volatile organic compounds[15] such as propanol and ethanol. Therefore, adsorption is not considered further in this analysis.

Condensation may be used as a separation technique where condensable VOC compounds in a vapor stream are separated from the remaining vapors through reducing the temperature below the saturation temperature of the VOC forcing condensation on the cool condenser surfaces and removal from the vapor stream. EPA's Air Pollution Control Cost Manual, Chapter 2 (2017) on Refrigerated Condensers indicates that condensers are suitable for high VOC concentrations (usually >5,000 ppm by volume, ppmv), and that removal efficiencies of up to 90% can be achieved.[16] The proposed operations at Plug Power facility require greater than 95% VOC removal efficiency in order to stay under the major source applicability threshold for VOC. Therefore, achieving higher control efficiency is a key requirement for the proposed control device. Because of this reason, condensation is not considered further for this analysis.

Absorption of air contaminants may be accomplished through the use of several types of absorption equipment ranging from packed tower beds to venturi scrubbers. When used for air pollution control, absorption is the process of mass transfer of contaminants from a gaseous stream into an absorbent stream (typically water or another solvent). As discussed in Section 3.4 of EPA's Control Techniques for Volatile Organic Compound Emissions from Stationary Sources,[17] there are several factors that impact effective removal of air contaminants in an absorbent process. The most notable aspects are the solubility of contaminants in the absorbent and the means of ensuring good air-to-absorbent contact within the absorber. Since propanol and ethanol present in the coating operations exhaust stream are readily soluble in water, absorption presents a potential alternative to RTO. However, at maximum capacity, the coating line has the potential to evaporate over 230 lb/hr propanol. Capturing this volume (over 30 gallons per hour) and managing the wastewater presents additional environmental challenges, including wastewater treatment and the potential for evaporation of the captured propanol from the wastewater stream. Plug Power's coating operation requires high propanol-based, which makes an attempt to reclaim propanol from the wastewater for on-site use impractical without specialized and costly equipment. Additionally, EPA's Control Techniques for Volatile Organic Compound Emissions from Stationary Sources,[18] notes that absorption is generally more expensive compared to incineration. The exhaust stream from Plug Power coating operations may have variable VOC concentration, depending on the ink/coating type being used, which makes the design of adsorber challenging.

[14] Control Techniques for Volatile Organic Compound Emissions from Stationary Sources; EPA 453/R-92-2018, December 1992, page 3-37.

[15] Control Techniques for Volatile Organic Compound Emissions from Stationary Sources; EPA 453/R-92-2018, December 1992. Section 3.3.2

[16] https://www.epa.gov/sites/default/files/2017-12/documents/refrigeratedcondenserschapter_7thedition_final.pdf, page 2-1.

[17] EPA's Control Techniques for Volatile Organic Compound Emissions from Stationary Sources; EPA 453/R-92-018, December 1992, page 3-52.

[18] EPA's Control Techniques for Volatile Organic Compound Emissions from Stationary Sources; EPA 453/R-92-018, December 1992, Section 3.4.

In addition, absorbers require regular operational checks and maintenance to ensure operation within the design parameters which adds to the operational cost. Finally, as noted in detail above, the VOC removal through absorption produces wastewater or a waste liquid stream that must be treated before discharge. Considering these additional infrastructure requirements, high capital and operational costs, energy requirements for driving pumps, blowers, cooling water associated with adsorption, Plug Power considers the use of RTO option to be more technically and economically feasible than installation of a water scrubber and the associated infrastructure.

3.4.3.1.2 Summary of Alternative Technologies to Thermal Oxidizers

Several alternatives to use of RTO that would not generate GHG emissions have been evaluated and have been found to not be suitable for this project. This conclusion was made based on several factors, including the following:

- Candidate alternate technology's lower control efficiency than the current/proposed thermal oxidation technology which would result in the potential for higher VOC emissions, potentially exceeding major source thresholds.
- The inability for activated carbon to reliably control emissions of propanol.
- Higher costs and additional required infrastructure and environmental risk generated by use of absorption technology to achieve similar control efficiency as an RTO.

In conclusion, the RTO proposed for use at the Plug Power facility offers the best option to achieve the dual goals of the CLCPA of reducing emissions of GHG overall and controlling emissions. Further, the proposed RTO have a relatively low carbon footprint and maximum reliable reduction in emissions of VOC from the facility.

3.4.3.2 Emergency Generator and Other Combustion Sources

The facility fires and will continue to fire natural gas for its existing and proposed combustion equipment including emergency generator, boilers, and heaters. The utility network in the project location does not have the electrical infrastructure to support this equipment with electrically-heated equipment. Due to the availability of natural gas through the local utility, and lower GHG potential of natural gas compared to diesel fuel, no other fuels are considered appropriate for firing in these combustion equipment at this time. In addition, the emergency generators may operate only for a limited time of 500 hrs/yr so resulting GHG and co-pollutant emissions are very low.

3.4.4 Co-Pollutant Emissions

Co-pollutants are defined by the CLCPA as "hazardous air pollutants produced by greenhouse gas emissions sources".[19] As previously mentioned, all the GHG sources at the facility are sources of combustion. Each of the GHG sources was evaluated for applicability and compliance with federal NSPS and NESHAP regulations and each source fell below the applicability thresholds or was demonstrated to be in compliance with the applicable requirements. Further, those co-pollutants emitted from sources of combustion that are comingled with emissions from process operations (i.e., the RTO) are subject to and evaluated for compliance with 6 CRR-NY 212, and have been confirmed to meet the applicable requirements therein. Therefore, the requirement of the CLCPA to address co-pollutant emissions is met.

[19] CLCPA Section §2, amending Environmental Conservation Law §75-0101.3; https://nyassembly.gov/leg/?default_fld=&leg_video=&bn=A08429&term=2019&Summary=Y&Actions=Y&Text=Y

APPENDIX A. STATE FACILITY PERMIT APPLICATION FORMS

New York State Department of Environmental Conservation
Air Permit Application

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

DEC ID	Application ID	Application Type
- -	- - /	× State Facility ☐ Title V

Section I - Certification

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information required to complete this application, I believe the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Responsible Official: Dan O'Connell	Title: General Manager
Signature: Daniel P O'Connell	Date: 12-23-2021

Professional Engineer Certification

I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments as they pertain to the practice of engineering. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Professional Engineer: Brian Noel	NYS License No.: 097494
Signature: B. S. N.	Date: 12-23-2021

Section II - Identification Information

Type of Permit Action Requested

× New ☐ Renewal ☐ Significant Modification ☐ Administrative Amendment ☐ Minor Modification

× Application for the construction of a new facility ☐ Application involves the construction of new emission unit(s)

Facility Information

Name: Plug Power Innovation Center

Location Address: 1025 John Street

☐ City / × Town / ☐ Village: West Henrietta — Zip: 14586

Owner/Firm Information

Business Taxpayer ID: 2 2 3 6 7 2 3 7 7

Name: Plug Power Inc.

Street Address: 1025 John St.

City: W. Henrietta — State/Province: NY — Country: USA — Zip: 14586

Owner Classification: ☐ Federal ☐ State ☐ Municipal × Corporation/Partnership ☐ Individual

Owner/Firm Contact Information

Name: Dan O'Connell — Phone: 518-441-2712

E-mail Address: doconnell@plugpower.com — Fax:

Affiliation: Plug Power Inc. — Title: General Manager

Street Address: 1025 John St.

City: W. Henrietta — State/Province: NY — Country: USA — Zip: 14586

Facility Contact Information

Name: Mick Snyder — Phone: 518-527-0666

E-mail Address: msnyder@plugpower.com — Fax:

Affiliation: Plug Power Inc. — Title: EHS Manager

Street Address: 1025 John St.

City: W. Henrietta — State/Province: NY — Country: USA — Zip: 14586

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Project Description ☐ Continuation Sheet(s)

Plug Power is proposing to construct a new fuel cell manufacturing line at 1025 John Street in West Henrietta, New York (Plug Power Innovation Center). The building in which the new operations will be housed is currently vacant and there are no existing operations apart from heating, ventilation and air conditioning (HVAC) equipment and a cooling tower. Additional details are included in the attached narrative.

Section III - Facility Information

Facility Classification

☐ Hospital ☐ Residential ☐ Educational/Institutional ☐ Commercial ☒ Industrial ☐ Utility

Affected States (Title V Applications Only)

☐ Vermont ☐ Massachusetts ☐ Rhode Island ☐ Pennsylvania Tribal Land: _____
☐ New Hampshire ☐ Connecticut ☐ New Jersey ☐ Ohio Tribal Land: _____

SIC Code(s)			NAICS Code(s)			
3629			334413			

Facility Description ☐ Continuation Sheet(s)

The new fuel cell manufacturing line at the Plug Power Innovation Center will consist of coating/ink preparation, coating activities, membrane electrode assembly (MEA), and clean-in-place activities. The VOC emissions from coating will be controlled using an RTO. The facility will also consist of supporting units or activities such as one cooling tower, autogenous fiber laser welding, two research and development laboratories, one emergency generator and other natural-gas fired combustion equipment.

Compliance Statements (Title V Applications Only)

I certify that as of the date of this application the facility is in compliance with all applicable requirements. ☐ Yes ☐ No

If one or more emission units at the facility are not in compliance with all applicable requirements at the time of signing this application (the 'NO' box must be checked), the noncomplying units must be identified in the "Compliance Plan" block on page 8 of this form along with the compliance plan information required. For all emission units at the facility that are operating in compliance with all applicable requirements, complete the following:

☐ This facility will continue to be operated and maintained in such a manner as to assure compliance for the duration of the permit, except those emission units referenced in the compliance plan portion of this application.

☐ For all emission units subject to any applicable requirements that will become effective during the term of the permit, this facility will meet such requirements on a timely basis.

☐ Compliance certification reports will be submitted at least once per year. Each report will certify compliance status with respect to each applicable requirement, and the method used to determine the status.

Facility Applicable Federal Requirements ☒ Continuation Sheet(s)

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	60	Dc						
40	CFR	60	JJJJ						
40	CFR	63	ZZZZ						
6	CRR-NY	201	7	1					

Facility State Only Requirements ☐ Continuation Sheet(s)

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	201	3						
6	CRR-NY	201	5						
6	CRR-NY	211		1					

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Section III - Facility Information

Facility Applicable Federal Requirements (continuation)									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	211		2					
6	CRR-NY	227	1	4	a				
6	CRR-NY	228	1	4	d	1			

Continuation Sheet ____ of ____

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Facility Compliance Certification

☐ Continuation Sheet(s)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause

☐ Applicable Federal Requirement ☐ State Only Requirement	☐ Capping	CAS Number	Contaminant Name

Monitoring Information

☐ Work Practice Involving Specific Operations ☐ Ambient Air Monitoring ☐ Record Keeping/Maintenance Procedures

Compliance Activity Description

Not Applicable. No facility-wide emission cap is being requested.

Work Practice Type Code	Process Material		Reference Test Method
	Code	Description	

Monitored Parameter		Manufacturer's Name/Model Number
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

Averaging Method		Monitoring Frequency		Reporting Requirements	
Code	Description	Code	Description	Code	Description

Facility Emissions Summary

☐ Continuation Sheet(s)

CAS Number	Contaminant Name	Potential to Emit (tons/yr)	Actual Emissions (pounds/yr)
0NY075 - 00 - 5	PM-10		
0NY750 - 02 - 5	PM-2.5	Please refer to PTE	
007446 - 09 - 5	Sulfur Dioxide	Summary in Appendix B	
0NY210 - 00 - 0	Oxides of Nitrogen		
000630 - 08 - 0	Carbon Monoxide		
007439 - 92 - 1	Lead (elemental)		
0NY998 - 00 - 0	Total Volatile Organic Compounds		
0NY100 - 00 - 0	Total Hazardous Air Pollutants		
0NY750 - 00 - 0	Carbon Dioxide Equivalents		

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Section IV - Emission Unit Information

Emission Unit Description	☒ Continuation Sheet(s)
Emission Unit	E-00001

This emission unit includes fuel cell manufacturing line, including ink preparation, coating, clean-in-place operations, and membrane electrode assembly.

Building Information ☐ Continuation Sheet(s)

Building ID	Building Name	Length (ft)	Width (ft)	Orientation
BLDG1	Main Building	445	280	1

Emission Unit Emissions Summary ☐ Continuation Sheet(s)

Emission Unit: -

CAS Number	Contaminant Name			
	N/A - No Emission Unit level emission limits apply.			
ERP (lbs/yr)	Potential to Emit		Actual Emissions	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS Number	Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS Number	Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS Number	Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)	
Emission Unit	E-00002

This emission unit includes two natural gas fired boilers - one (1) 10 MMBtu/hr hot water boiler and one (1) 16 MMBtu/hr steam boiler.

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All Coordinates in UTM.

Emission Point Information

☒ Continuation Sheet(s)

Emission Point	1 - R T O					
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
541.9	35	N/A	36	161		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
	11,936	282.75	4771.70	BLDG1		

Emission Point	1 - C I P					
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
544.9	30.2	roof level	12	Ambient		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
	120	282.67	4771.72	BLDG1		

Emission Point	1 - I N K					
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
544.1	30.15	roof level	4	Ambient		
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal
	250	282.69	4771.72	BLDG1		

Emission Source/Control Information

☒ Continuation Sheet(s)

Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model Number
0 0 0 0 1	K				127	Thermal Oxidation	RTO for coating operations

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
98	136	percent				

Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model Number
0 0 0 0 2	I						ink preparation

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model Number
0 0 0 0 3	I						clean-in-place

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

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Section IV - Emission Unit Information

Emission Point Information (continuation)

Emission Unit	E-0001	Emission Point	1-MEA

Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
544	30.2	roof level	12	Ambient		
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (km)**	**NYTM (N) (km)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
	70	TBD	TBD	BLDG1		

Emission Unit	-	Emission Point	

Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
Intentionally	left blank					
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (km)**	**NYTM (N) (km)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**

Emission Unit	E-0002	Emission Point	1-BLR

Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
544	Stack information	for boiler is TBD		BLDG1		
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (km)**	**NYTM (N) (km)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**

Emission Unit	E-0002	Emission Point	2-BLR

Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
544	Stack information	for boiler is TBD				
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (km)**	**NYTM (N) (km)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**

Emission Unit	-	Emission Point	

Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (km)**	**NYTM (N) (km)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**

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Section IV - Emission Unit Information

Emission Source/Control (continuation)							
Emission Unit	E - 0 0 0 0 1						
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
00004	I						membrane electrode assembly with silicone sealing
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
Emission Source ID	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
Design Capacity	Design Capacity Units Code	Design Capacity Units Description		Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Continuation Sheet 1 of 2

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Section IV - Emission Unit Information

Emission Source/Control (continuation)

Emission Unit: E - 0 0 0 0 2

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
00005	C						steam boiler

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
16	25	million Btu per hour				

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
00006	C						hot water boiler

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description
10	25	million Btu per hour				

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Continuation Sheet 2 of 2

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Process Information ☒ Continuation Sheet(s)

Emission Unit	E - 0 0 0 0 1	Process	1 0 0

Process Description

This process includes coating operations. The VOC emissions from coating are controlled using an RTO with at least 98% control efficiency.

Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description
40299998		[redacted]		

☒ Confidential Operating at Maximum Capacity	Hours/Day	Days/Year	Building	Floor/Location
	24	365	BLDG1	

Emission Point Identifier(s)

1-RTO						

Emission Source/Control Identifier(s)

00001						

Emission Unit	E - 0 0 0 0 1	Process	2 0 0

Process Description

This process includes ink/coating preparation. Specific steps include charging raw material into mixing vessels, mixing, and milling. All the emissions are exhausted through a common stack.

Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description
30102018		[redacted]		

☒ Confidential Operating at Maximum Capacity	Hours/Day	Days/Year	Building	Floor/Location
	24	365	BLDG1	

Emission Point Identifier(s)

1-INK						

Emission Source/Control Identifier(s)

00002						

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Section IV - Emission Unit Information

Process Information (continuation)

Emission Unit	E-0001	Process	300

Description

This process involves cleaning of ink vessels using a solvent.

Source Classification Code (SCC)	Total Throughput Quantity/Hr	Total Throughput Quantity/Yr	Throughput Quantity Units Code	Throughput Quantity Units Description
30102072	[redacted]			

☒ Confidential
☐ Operating at Maximum Capacity

Operating Schedule Hrs/Day	Operating Schedule Days/Yr	Building	Floor/Location
24	365	BLDG1	

Emission Point Identifier(s)

1-CIP						

Emission Source/Control Identifier(s)

00003						

Emission Unit	E-0001	Process	400

Description

This process includes membrane electrode assembly (MEA) which includes sealing of fuel cell components using silicone elastomer.

Source Classification Code (SCC)	Total Throughput	Throughput Quantity Units Description
40202599	[redacted]	

☒ Confidential
☐ Operating at Maximum Capacity

Operating Schedule Hrs/Day	Operating Schedule Days/Yr	Building	Floor/Location
24	365	BLDG1	

Emission Point Identifier(s)

1-MEA						

Emission Source/Control Identifier(s)

00004						

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Section IV - Emission Unit Information

Process Information (continuation)

Emission Unit	E - 0 0 0 0 2	Process	5 0 0

Description

This process includes firing natural gas in boilers.

Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description
10200602	24	8,760	0083	hours of operation

☐ Confidential ☐ Operating at Maximum Capacity	Operating Schedule		Building	Floor/Location
	Hrs/Day	Days/Yr		
	24	365	BLDG1	

Emission Point Identifier(s)

1-BLR	2-BLR					

Emission Source/Control Identifier(s)

00005	00006					

Emission Unit	-	Process

Description

Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description

☐ Confidential ☐ Operating at Maximum Capacity	Operating Schedule		Building	Floor/Location
	Hrs/Day	Days/Yr		

Emission Point Identifier(s)

Emission Source/Control Identifier(s)

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Process Emissions Summary

☐ Continuation Sheet(s)

Emission Unit	-						Process		
CAS Number	Contaminant Name		% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Not Applicable	No process limit proposed								
Potential to Emit			Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)		

Emission Unit	-						Process		
CAS Number	Contaminant Name		% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)		

Emission Unit	-						Process		
CAS Number	Contaminant Name		% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)		

Emission Source Emissions Summary

☐ Continuation Sheet(s)

Emission Source						Process		
CAS Number	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Not Applicable	No ES-level limit proposed							
Potential to Emit		Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)	

Emission Source						Process		
CAS Number	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit		Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)	

Emission Source						Process		
CAS Number	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit		Standard Units	Potential to Emit How Determined		Actual Emissions			
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)	

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Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements							Continuation Sheet(s)		
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Cl.	Subcl.
E-00002		500		40	CFR	60	Dc	48c	a				
E-00002		500		40	CFR	60	Dc	48c	g	2			
E-00001	1-RTO	100	00001	6	CRR-NY	201	7	1					
E-00001	1-RTO	100	00001	6	CRR-NY	228	1	4	d	1			

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements							Continuation Sheet(s)		
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Cl.	Subcl.
E-00001	1-INK	200	00002	6	CRR-NY	212	2	4	b	1			
E-00001	1-INK, 1-CIP	200, 300	00002, 00003	6	CRR-NY	212	2	1	a				

Emission Unit Compliance Certification

[X] Continuation Sheet(s)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	228	1	4		d	1		

[×] Applicable Federal Requirement [ ] State Only Requirement [ ] Capping

Emission Unit	Emission Point	Process	Emission Source	CAS Number	Contaminant Name
E-00001	1-RTO	100	00001	0NY998-00-0	VOC

Monitoring Information

[ ] Continuous Emission Monitoring
[ ] Intermittent Emission Testing
[ ] Ambient Air Monitoring
[×] Monitoring of a Process or Control Device Parameters as a Surrogate
[ ] Work Practice Involving Specific Operations
[ ] Record Keeping/Maintenance Procedures

Compliance Activity Description

RTO must be operated at a minimum temperature of 1600 degrees Fahrenheit to achieve a minimum of 98% destruction and removal efficiency for VOC. To demonstrate compliance with Part 228-1 control requirements, a minimum of 90% control efficiency is required per 228-1.5(b). Facility is accepting a 98% control requirement to stay under the major source thresholds for VOC. The facility shall maintain the equipment following manufacturer's guidance or good engineering practices. Records of maintenance activity shall be made available to Department representatives upon request.

Work Practice Type Code	Process Material		Reference Test Method
	Code	Description	
04			

Monitored Parameter		Manufacturer's Name/Model Number
Code	Description	
03	Temperature	

Limit		Limit Units	
Upper	Lower	Code	Description
	90	332	percent reduction by weight

Averaging Method		Monitoring Frequency		Reporting Requirements	
Code	Description	Code	Description	Code	Description
61	Min. - not to fall below stated value - see monitoring description	14	see monitoring description		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	212	2	1	a				

☒ Applicable Federal Requirement ☐ State Only Requirement ☐ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
E-00001	1-INK, 1-CIP			71-23-8, 64-17-5	Propanol, Ethanol

Monitoring Information

☐ Continuous Emission Monitoring
☐ Intermittent Emission Testing
☐ Ambient Air Monitoring
☐ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Work Practice Involving Specific Operations
☒ Record Keeping/Maintenance Procedures

Description

Facility operations result in emissions of propanol and ethanol. Both compounds are assigned an environmental rating of "B" and Part 212 requires that compliance is demonstrated through air dispersion modeling for certain emission points.

Facility completed an ambient air impact assessment in order to demonstrate that the maximum annual off site ambient air concentration for propanol and ethanol do not exceed their respective Annual Guideline Concentrations (AGC) in DAR-1. Facility will maintain records of dispersion modeling results and make the results available for the Department's inspection upon request.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Monitored Parameter Code	Monitored Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
		14	as required - see monitoring description	10	upon request by regulatory agency

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	212	2	4	b	1			

☒ Applicable Federal Requirement ☐ State Only Requirement ☐ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
E-00001	1-INK			0NY075-00-0	Particulates

Monitoring Information

☐ Continuous Emission Monitoring
☐ Intermittent Emission Testing
☐ Ambient Air Monitoring
☐ Monitoring of Process or Control Device Parameters as a Surrogate
☒ Work Practice Involving Specific Operations
☐ Record Keeping/Maintenance Procedures

Description

The particulate emissions from the exhaust associated with material loading for ink/coating preparation will not exceed 0.05 grains per dry standard cubic foot of exhaust gas. The calculations provided in the air permit application demonstrate that this will be achieved without add-on control.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Monitored Parameter Code	Monitored Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
0.05		12	grains per dscf

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	CRR-NY	201	7	1					

☒ Applicable Federal Requirement ☐ State Only Requirement ☒ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
E-00001	1-RTO	100	00001	0NY998-00-0	VOC

Monitoring Information

☐ Continuous Emission Monitoring
☐ Intermittent Emission Testing
☐ Ambient Air Monitoring
☒ Monitoring of Process or Control Device Parameters as a Surrogate
☐ Work Practice Involving Specific Operations
☐ Record Keeping/Maintenance Procedures

Description

RTO must be operated at a minimum temperature of 1600 degrees Fahrenheit to achieve a minimum of 98% destruction and removal efficiency for VOC. The facility shall maintain the equipment following manufacturer's guidance or good engineering practices. Records of maintenance activity shall be made available to Department representatives upon request.

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method
04			

Monitored Parameter Code	Monitored Parameter Description	Manufacturer Name/Model No.
03	Temperature	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
	98	332	percent reduction by weight

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
61	Min. - not to fall below stated value - see monitoring description	14	as required - see monitoring description		

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Determination of Non-Applicability (Title V Applications Only) ☐ Continuation Sheet(s)

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause

Emission Unit	Emission Point	Process	Emission Source	☐ Applicable Federal Requirement ☐ State Only Requirement

Non-Applicability Description

Rule Citation

Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause

Emission Unit	Emission Point	Process	Emission Source	☐ Applicable Federal Requirement ☐ State Only Requirement

Non- Applicability Description

Compliance Plan ☐ Continuation Sheet(s)

For any emission units which are <u>not in compliance</u> at the time of permit application, the applicant shall complete the following:

Consent Order		Certified progress reports are to be submitted every 6 months beginning / /

Emission Unit	Process	Emission Source	Applicable Federal Requirement									
			Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.

Remedial Measures and Intermediate Milestones	R/I	Date Scheduled

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Request for Emission Reduction Credits

☐ Continuation Sheet(s)

Emission Source

Emission Reduction Description

Contaminant Emission Reduction Data

Baseline Period ____/____/_____ to ____/____/_____

		Reduction	
		Date	Method

CAS Number	Contaminant Name	ERC (lbs/yr)	
		Netting	Offset

Facility to Use Future Reduction

Name | Application ID

Location Address

☐ City/ ☐ Town / ☐ Village | State | Zip

Use of Emission Reduction Credits

☐ Continuation Sheet(s)

Emission Source

Proposed Project Description

Contaminant Emissions Increase Data

CAS Number	Contaminant Name	Project Emission Potential (lbs/yr)

Statement of Compliance

☐ All facilities under the ownership of this "owner/firm" are operating in compliance with all applicable requirements and state regulations including any compliance certification requirements under Section 114(a)(3) of the Clean Air Act Amendments of 1990, or are meeting the schedule of a consent order.

Source of Emission Reduction Credit - Facility

Name | Permit ID

Location Address

☐ City/ ☐ Town / ☐ Village | State | Zip

Emission Source	CAS Number	Contaminant Name	ERC (lbs/yr)	
			Netting	Offset

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Supporting Documentation and Attachments	
Required Supporting Documentation	Date of Document
☐ List of Exempt Activities (attach form)	
☐ Plot Plan	
☒ Process Flow Diagram	12/2021
☐ Methods Used to Determine Compliance (attach form)	
☒ Emissions Calculations	12/2021
Optional Supporting Documentation	Date of Document
☐ Air Quality Model	
☐ Confidentiality Justification	
☐ Ambient Air Quality Monitoring Plan or Reports	
☐ Stack Test Protocol	
☐ Stack Test Report	
☐ Continuous Emissions Monitoring Plan	
☐ Lowest Achievable Emission Rate (LAER) Demonstration	
☐ Best Available Control Technology (BACT) Demonstration	
☐ Reasonably Available Control Technology (RACT) Demonstration	
☐ Toxic Impact Assessment (TIA)	
☐ Environmental Rating Demonstration	
☐ Operational Flexibility Protocol/Description of Alternate Operating Scenarios	
☐ Title IV Permit Application	
☐ Emission Reduction Credit (ERC) Quantification (attach form)	
☐ Baseline Period Demonstration	
☐ Use of Emission Reduction Credits (attach form)	
☐ Analysis of Contemporaneous Emissions Increase/Decrease	
Other Supporting Documentation	Date of Document

APPENDIX B. DETAILED EMISSION CALCULATIONS AND SUPPORTING DOCUMENTATION

Plug Power Innovation Center - West Henrietta, NY
New Fuel Cell Manufacturing Line
PTE Summary

Emission Source Description	Potential Annual Emissions (tpy)										
	NO_X	CO	PM	Total PM_{10}	Total $PM_{2.5}$	SO_2	VOC	Lead	Total HAP	CO_2e (100-yr)	CO_2e (20-yr)
[redacted]											
Hot Water Boiler	4.29	3.61	0.33	0.33	0.33	0.03	0.24	2.1E-05	0.08	5,129	5,134
Steam Boiler	6.87	5.77	0.52	0.52	0.52	0.04	0.38	3.4E-05	0.13	8 206	8 215
Emergency Generator	0.01	0.26	0.01	0.01	0.01	8.8E-04	0.07	--	0.11	175	175
Facility-Wide Total (tpy)	**16.45**	**14.07**	**2.08**	**2.08**	**2.08**	**0.10**	**31.01**	**8.22E-05**	**0.42**	**19,810**	**19,831**
Relevant Title V Major Source Threshold (MST)	**100**	**100**	**100**	**100**	**100**	**100**	**50**	**100**	**25**	**-**	**-**
Above Title V MST?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**-**	**-**

[redacted]rietta, NY

Reference Document: EPA Emission Inventory Improvement Program (EIIP) Document, Volume II, Chapter 8: Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities, Section 4.1

Method: EPA EIIP, Volume II, Chapter 8, Equation 8.4-1

$$E_{VOC} = 12.46 \times \frac{S \times P \times M \times Q}{T}$$

where

E_{VOC} = total VOC loading emissions (lb/yr)
S = saturation factor (dimensionless; see Table 5.2-1 in *AP-42*)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/yr)
T = temperature of liquid loaded (°R).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-5

$$m_x = \frac{z_x/M_x}{\Sigma(z_x/M_x)}$$

where

m_x = liquid mole fraction of VOC species x (mole/mole)
z_x = liquid mass fraction of VOC species x (lb/lb)
M_x = molecular weight of VOC species x (lb/lb-mole).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-3

$$P_x = m_x \times VP_x$$

where

P_x = partial vapor pressure of VOC species x (psia)
m_x = liquid mole fraction of VOC species x (mole/mole)
VP_x = true vapor pressure of VOC species x (psia).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-2

$$P = \Sigma P_x$$

where

P = vapor pressure of material loaded (psia)
P_x = partial pressure of VOC species x (psia).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-7

$$y_x = \frac{P_x}{P} \qquad (8.4\text{-}7)$$

where

y_x = vapor mole fraction of VOC species x (mole/mole)
P_x = partial pressure of VOC species x (calculated using Equation 8.4-3 or 8.4-4) (psia)
P = vapor pressure of the material loaded (calculated using Equation 8.4-2).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-6

$$M = \Sigma(y_x \times M_x)$$

where

M = vapor molecular weight (lb/lb-mole)
y_x = vapor mole fraction of VOC species x (mole/mole)
M_x = molecular weight of VOC species x (lb/lb-mole).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-9

$$x_x = \frac{y_x \times M_x}{M} \qquad (8.4\text{-}9)$$

where

x_x = vapor mass fraction of VOC species x (lb/lb)
y_x = vapor mole fraction of VOC species x, calculated using Equation 8.4-7 (mole/mole)
M_x = molecular weight of VOC species x (lb/lb-mole)
M = vapor molecular weight, calculated using Equation 8.4-6 (lb/lb-mole).

AP-42, Section 7.1, Eq 1-26 (Antoine's Equation)

$$\log P = A - \left(\frac{B}{T_{LA} + C}\right)$$

where:

log = log 10
A = constant in vapor pressure equation, dimensionless
B = constant in vapor pressure equation, °C
C = constant in vapor pressure equation, °C
T_{LA} = average daily liquid surface temperature, °C
P = vapor pressure at average liquid surface temperature, mm Hg

[redacted]

Method: EPA EIIP, Volume II, Chapter 8, Equation 8.5-15

$$E_{PM} = EF_{PM} \times \Sigma Q_x \qquad (8.5\text{-}15)$$

where

E_{PM} = total PM emissions (lb/yr)
EF_{PM} = PM emission factor (lb PM/ton pigment)
ΣQ_x = total pigment (ton/yr).

[redacted]

[redacted]prietta, NV

Reference Document: EPA Emission Inventory Improvement Program (EIIP) Document, Volume II, Chapter 8: Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities, Section 4.2

Method: EPA EIIP, Volume II, Chapter 8, Equation 8.4-15

$$N_{x,out} = N_{avg} \ln\left(\frac{Pa_1}{Pa_2}\right) - \left(n_{x,2} - n_{x,1}\right)_{vented} \quad (8.4\text{-}15)$$

where

$N_{x,out}$ = moles of volatile component x leaving the vessel per batch
N_{avg} = average gas space molar volume during the heating process
Pa_1 = partial pressure of noncondensable in the vessel headspace at initial temperature
Pa_2 = partial pressure of noncondensable in the vessel headspace at final temperature
$n_{x,2}$ = moles of volatile component x in the vessel headspace at the final temperature
$n_{x,1}$ = moles of volatile component x in the vessel headspace at the initial temperature.

EPA EIIP, Volume II, Chapter 8, Equations 8.4-17 & 18

$$n_1 = \frac{P_1 V}{R T_1}$$

$$n_2 = \frac{P_2 V}{R T_2}$$

where

P_1 = total system pressure at initial temperature
P_2 = total system pressure at final temperature
V = volume of gas space in the vessel
R = gas constant
T_1 = initial temperature of vessel contents
T_2 = final temperature of vessel contents.

Method: EPA EIIP, Volume II, Chapter 8, Equation 8.4-16

$$N_{avg} = \frac{1}{2}\left(n_1 + n_2\right) \quad (8.4\text{-}16)$$

where

n_1 = total moles of gas in the vessel headspace at the initial temperature
n_2 = total moles of gas in the vessel headspace at the final temperature.

EPA EIIP, Volume II, Chapter 8, Equations 8.4-12 & 13

$$Pa_1 = 14.7 - \Sigma(P_x)_{T1} \quad (8.4\text{-}12)$$

$$Pa_2 = 14.7 - \Sigma(P_x)_{T2} \quad (8.4\text{-}13)$$

where

Pa_1 = initial gas pressure in vessel (psia)
Pa_2 = final gas pressure in vessel (psia)
$(P_x)_{T1}$ = partial pressure of each VOC, in the vessel headspace (psia) at the initial temperature T1; see Equations 8.4-3 and 8.4-4
$(P_x)_{T2}$ = partial pressure of each VOC$_x$ in the vessel headspace (psia) at the final temperature T2; see Equations 8.4-3 and 8.4-4.

AP-42, Section 7.1, Eq 1-26 (Antoine's Eq)

$$\log P = A - \left(\frac{B}{T_{LA} + C}\right)$$

where:

log = log 10
A = constant in vapor pressure equation, dimensionless
B = constant in vapor pressure equation, °C
C = constant in vapor pressure equation, °C
T_{LA} = average daily liquid surface temperature, °C
P = vapor pressure at average liquid surface temperature, mm Hg

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Reference Document: EPA Emission Inventory Improvement Program (EIIP) Document, Volume II, Chapter 8: Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities, Section 4.2

Method: **EPA EIIP, Volume II, Chapter 8, Equation 8.4-22**

$$E_x = \frac{M_x \times K_x \times A \times P_x \times 3600 \times H}{R \times T} \times B \qquad (8.4\text{-}22)$$

where

E_x = emissions of VOC species x (lb/yr)
M_x = molecular weight of VOC species x (lb/lb-mole)
K_x = gas-phase mass transfer coefficient for VOC species x (ft/sec)
A = surface area of exposure or opening of tank (ft^2)
P_x = true vapor pressure of VOC x (if a pure chemical is used) or the partial pressure of chemical x (if a mixture of VOCs is used) at temperature T $(psia)^2$
3600 = 3600 sec/hr
H = batch time (hr/batch)
R = universal gas constant at 1 atmosphere of pressure, 10.73 psia-ft^3/°R-lb mole;
T = temperature of the liquid, °R (°F+460)
B = number of batches per year (batches/yr).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-21

$$K_x = 0.00438 \times U^{0.78} \times \left(\frac{18}{M_x}\right)^{1/3} \qquad (8.4\text{-}21)$$

where

K_x = gas-phase mass transfer coefficient for VOC species x (ft/sec)
U = wind speed (mile/hr)
M_x = molecular weight of VOC species x (lb/lb-mole).

[redacted]

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[redacted]

Reference Document: EPA Emission Inventory Improvement Program (EIIP) Document, Volume II, Chapter 8: Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities, Section 4.5

Method: EPA EIIP, Volume II, Chapter 8, Equation 8.4-23

$$E_x = \frac{P_x \times F_{sc} \times M_x \times 60 \times OH}{R \times T} \times \frac{P_T}{P_T - \Sigma P_x}$$

where

E_x	=	emissions of VOC species x, lb/yr
P_x	=	partial pressure of VOC species x, psia
F_{sc}	=	flow rate into the vessel, ft^3/min
M_x	=	molecular weight of VOC species x, lb/lbmole
60	=	60 min/hr
OH	=	hours that the gas sweep or purge operates, hr/yr
R	=	universal gas constant (10.73 psia ft^3/lbmole °R)
T	=	temperature of the exhaust gas, °R
P_T	=	total system pressure, psia.

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[redacted]

VOC Emission Method: **Material Balance for VOC Emissions**

[redacted]

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[redacted]

Reference Document: EPA Emission Inventory Improvement Program (EIIP) Document, Volume II, Chapter 8: Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities, Section 4.1

Method: **EPA EIIP, Volume II, Chapter 8, Equation 8.4-1**

$$E_{VOC} = 12.46 \times \frac{S \times P \times M \times Q}{T}$$

where

E_{VOC} = total VOC loading emissions (lb/yr)
S = saturation factor (dimensionless; see Table 5.2-1 in *AP-42*)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/yr)
T = temperature of liquid loaded (°R).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-5

$$m_x = \frac{z_x/M_x}{\Sigma(z_x/M_x)}$$

where

m_x = liquid mole fraction of VOC species x (mole/mole)
z_x = liquid mass fraction of VOC species x (lb/lb)
M_x = molecular weight of VOC species x (lb/lb-mole).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-3

$$P_x = m_x \times VP_x$$

where

P_x = partial vapor pressure of VOC species x (psia)
m_x = liquid mole fraction of VOC species x (mole/mole)
VP_x = true vapor pressure of VOC species x (psia).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-2

$$P = \Sigma P_x$$

where

P = vapor pressure of material loaded (psia)
P_x = partial pressure of VOC species x (psia).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-7

$$y_x = \frac{P_x}{P} \qquad (8.4\text{-}7)$$

where

y_x = vapor mole fraction of VOC species x (mole/mole)
P_x = partial pressure of VOC species x (calculated using Equation 8.4-3 or 8.4-4) (psia)
P = vapor pressure of the material loaded (calculated using Equation 8.4-2).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-6

$$M = \Sigma(y_x \times M_x)$$

where

M = vapor molecular weight (lb/lb-mole)
y_x = vapor mole fraction of VOC species x (mole/mole)
M_x = molecular weight of VOC species x (lb/lb-mole).

EPA EIIP, Volume II, Chapter 8, Equation 8.4-9

$$x_x = \frac{y_x \times M_x}{M} \qquad (8.4\text{-}9)$$

where

x_x = vapor mass fraction of VOC species x (lb/lb)
y_x = vapor mole fraction of VOC species x, calculated using Equation 8.4-7 (mole/mole)
M_x = molecular weight of VOC species x (lb/lb-mole)
M = vapor molecular weight, calculated using Equation 8.4-6 (lb/lb-mole).

AP-42, Section 7.1, Eq 1-26 (Antoine's Equation)

$$\log P = A - \left(\frac{B}{T_{LA} + C}\right)$$

where:

log = log 10
A = constant in vapor pressure equation, dimensionless
B = constant in vapor pressure equation, °C
C = constant in vapor pressure equation, °C
T_{LA} = average daily liquid surface temperature, °C
P = vapor pressure at average liquid surface temperature, mm Hg

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Cooling Tower

Reference Document: EPA AP-42: Compilation of Air Emissions Factors, Chapter 13.4: Wet Cooling Towers; Reisman and Frisbie (July 2002), Calculating Realistic PM10 Emissions from

Cooling Tower Emissions

EP Description	Water Flow Rate	Drift Loss	Cycles of Concentration[1]	TDS[2]	Hourly Emissions (lbs/hr)			Annual Emissions[3] (tpy)		
	(gpm)	(%)		(ppmw)	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Cooling Tower	33	0.005%	5	800	6.61E-04	5.62E-04	2.45E-06	2.9E-03	2.5E-03	1.1E-05

[1] *Per cooling tower manufacturer specifications.*

[2] *TDS for water source: Lake Hemlock Lake (one of the main source of water in Henrietta) from 2020 Water Quality Report by Monroe County Water Authority. (https://mcwa-wordpress-media.s3.amazonaws.com/wp-content/uploads/2020-Data-Summary.pdf).*

160 PPM

[3] *Assumes equipment operates 24 hours per day, 365 days per year.*

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Existing Natural Gas Combustion Equipment

Total Maxmimum Heat Input Rate:	5.73	MMBtu/hr	
Number of Units:	13		
Maximum Unit Size:	1.12	MMBtu/hr	
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 1.4-1, footnote a
Proposed Hours of Operation:	8760	hrs/yr	

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	100	lb/MMscf	0.56	2.46	AP-42, Table 1.4-1 (07/98)
CO	84	lb/MMscf	0.47	2.07	
Total PM	7.60	lb/MMscf	0.04	0.19	AP-42, Table 1.4-2 (07/98)
Total PM_{10}	7.60	lb/MMscf	0.04	0.19	
Total $PM_{2.5}$	7.60	lb/MMscf	0.04	0.19	
SO_2	0.60	lb/MMscf	3.37E-03	0.01	
VOC	5.50	lb/MMscf	0.03	0.14	

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	670.68	2,937.57	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	1.26E-02	5.54E-02	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	1.26E-03	5.54E-03	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	671	2,941	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	672	2,944	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	559	2,447	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] *CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A. Units are in kg/MMBtu.*

CO_2	1
CH_4	25
N_2O	298

[2] *Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]*

[3] *CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496.5.*

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
Lead	Yes	5.00E-04	lb/MMscf	2.81E-06	1.23E-05	AP-42, Table 1.4-2 (07/98)
2-Methylnaphthalene	Yes	2.40E-05	lb/MMscf	1.35E-07	5.91E-07	AP-42, Table 1.4-3 (07/98)
3-Methylcholanthrene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	lb/MMscf	8.99E-08	3.94E-07	
Acenaphthene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Acenaphthylene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Anthracene	Yes	2.40E-06	lb/MMscf	1.35E-08	5.91E-08	
Benz(a)anthracene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Benzene	Yes	2.10E-03	lb/MMscf	1.18E-05	5.17E-05	
Benzo(a)pyrene	Yes	1.20E-06	lb/MMscf	6.75E-09	2.95E-08	
Benzo(b)fluoranthene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Benzo(g,h,i)perylene	Yes	1.20E-06	lb/MMscf	6.75E-09	2.95E-08	
Benzo(k)fluoranthene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Butane	No	2.10E+00	lb/MMscf	1.18E-02	5.17E-02	
Chrysene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Dibenzo(a,h)anthracene	Yes	1.20E-06	lb/MMscf	6.75E-09	2.95E-08	
Dichlorobenzene	No	1.20E-03	lb/MMscf	6.75E-06	2.95E-05	
Ethane	No	3.10E+00	lb/MMscf	1.74E-02	7.63E-02	
Fluoranthene	Yes	3.00E-06	lb/MMscf	1.69E-08	7.39E-08	
Fluorene	Yes	2.80E-06	lb/MMscf	1.57E-08	6.89E-08	
Formaldehyde	Yes	7.50E-02	lb/MMscf	4.22E-04	1.85E-03	
Hexane	Yes	1.80E+00	lb/MMscf	1.01E-02	4.43E-02	
Indeno(1,2,3-cd)pyrene	Yes	1.80E-06	lb/MMscf	1.01E-08	4.43E-08	
Naphthalene	Yes	6.10E-04	lb/MMscf	3.43E-06	1.50E-05	
Pentane	No	2.60E+00	lb/MMscf	1.46E-02	6.40E-02	
Phenanathrene	Yes	1.70E-05	lb/MMscf	9.56E-08	4.19E-07	
Propane	No	1.60E+00	lb/MMscf	8.99E-03	3.94E-02	
Pyrene	Yes	5.00E-06	lb/MMscf	2.81E-08	1.23E-07	
Toluene	Yes	3.40E-03	lb/MMscf	1.91E-05	8.37E-05	
Arsenic	Yes	2.00E-04	lb/MMscf	1.12E-06	4.92E-06	AP-42, Table 1.4-4 (07/98)
Barium	No	4.40E-03	lb/MMscf	2.47E-05	1.08E-04	
Beryllium	Yes	1.20E-05	lb/MMscf	6.75E-08	2.95E-07	
Cadmium	Yes	1.10E-03	lb/MMscf	6.18E-06	2.71E-05	
Chromium	Yes	1.40E-03	lb/MMscf	7.87E-06	3.45E-05	
Cobalt	Yes	8.40E-05	lb/MMscf	4.72E-07	2.07E-06	
Copper	No	8.50E-04	lb/MMscf	4.78E-06	2.09E-05	
Manganese	Yes	3.80E-04	lb/MMscf	2.14E-06	9.36E-06	
Mercury	Yes	2.60E-04	lb/MMscf	1.46E-06	6.40E-06	
Molybdenum	No	1.10E-03	lb/MMscf	6.18E-06	2.71E-05	
Nickel	Yes	2.10E-03	lb/MMscf	1.18E-05	5.17E-05	
Selenium	Yes	2.40E-05	lb/MMscf	1.35E-07	5.91E-07	
Vanadium	No	2.30E-03	lb/MMscf	1.29E-05	5.66E-05	
Zinc	No	2.90E-02	lb/MMscf	1.63E-04	7.14E-04	
			Total HAPs	**1.06E-02**	**4.65E-02**	
			Max HAP	**1.01E-02**	**4.43E-02**	

Plug Power Innovation Center - West Henrietta, NY
[redacted] RTO Combustion Emissions

Emission Point ID:	EC-05		
Emission Point Description:	Electrode Coating (RTO)		
Total Maxmimum Heat Input Rate:	5.50	MMBtu/hr	
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 1.4-1, footnote a
Proposed Hours of Operation:	8760	hrs/yr	

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	100	lb/MMscf	0.54	2.36	AP-42, Table 1.4-1 (07/98)
CO	84	lb/MMscf	0.45	1.98	
Total PM	7.60	lb/MMscf	0.04	0.18	AP-42, Table 1.4-2 (07/98)
Total PM_{10}	7.60	lb/MMscf	0.04	0.18	
Total $PM_{2.5}$	7.60	lb/MMscf	0.04	0.18	
SO_2	0.60	lb/MMscf	3.24E-03	0.01	
VOC	5.50	lb/MMscf	0.03	0.13	

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	643.38	2,817.98	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	1.21E-02	5.31E-02	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	1.21E-03	5.31E-03	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	644	2,821	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	645	2,824	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	536	2,348	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A. Units are in kg/MMBtu.

CO_2	1
CH_4	25
N_2O	298

[2] Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]

[3] CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496.5.

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
Lead	Yes	5.00E-04	lb/MMscf	2.70E-06	1.18E-05	AP-42, Table 1.4-2 (07/98)
2-Methylnaphthalene	Yes	2.40E-05	lb/MMscf	1.29E-07	5.67E-07	AP-42, Table 1.4-3 (07/98)
3-Methylcholanthrene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	lb/MMscf	8.63E-08	3.78E-07	
Acenaphthene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Acenaphthylene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Anthracene	Yes	2.40E-06	lb/MMscf	1.29E-08	5.67E-08	
Benz(a)anthracene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Benzene	Yes	2.10E-03	lb/MMscf	1.13E-05	4.96E-05	
Benzo(a)pyrene	Yes	1.20E-06	lb/MMscf	6.47E-09	2.83E-08	
Benzo(b)fluoranthene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Benzo(g,h,i)perylene	Yes	1.20E-06	lb/MMscf	6.47E-09	2.83E-08	
Benzo(k)fluoranthene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Butane	No	2.10E+00	lb/MMscf	1.13E-02	4.96E-02	
Chrysene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Dibenzo(a,h)anthracene	Yes	1.20E-06	lb/MMscf	6.47E-09	2.83E-08	
Dichlorobenzene	No	1.20E-03	lb/MMscf	6.47E-06	2.83E-05	
Ethane	No	3.10E+00	lb/MMscf	1.67E-02	7.32E-02	
Fluoranthene	Yes	3.00E-06	lb/MMscf	1.62E-08	7.09E-08	
Fluorene	Yes	2.80E-06	lb/MMscf	1.51E-08	6.61E-08	
Formaldehyde	Yes	7.50E-02	lb/MMscf	4.04E-04	1.77E-03	
Hexane	Yes	1.80E+00	lb/MMscf	9.71E-03	4.25E-02	
Indeno(1,2,3-cd)pyrene	Yes	1.80E-06	lb/MMscf	9.71E-09	4.25E-08	
Naphthalene	Yes	6.10E-04	lb/MMscf	3.29E-06	1.44E-05	
Pentane	No	2.60E+00	lb/MMscf	1.40E-02	6.14E-02	
Phenanathrene	Yes	1.70E-05	lb/MMscf	9.17E-08	4.02E-07	
Propane	No	1.60E+00	lb/MMscf	8.63E-03	3.78E-02	
Pyrene	Yes	5.00E-06	lb/MMscf	2.70E-08	1.18E-07	
Toluene	Yes	3.40E-03	lb/MMscf	1.83E-05	8.03E-05	
Arsenic	Yes	2.00E-04	lb/MMscf	1.08E-06	4.72E-06	AP-42, Table 1.4-4 (07/98)
Barium	No	4.40E-03	lb/MMscf	2.37E-05	1.04E-04	
Beryllium	Yes	1.20E-05	lb/MMscf	6.47E-08	2.83E-07	
Cadmium	Yes	1.10E-03	lb/MMscf	5.93E-06	2.60E-05	
Chromium	Yes	1.40E-03	lb/MMscf	7.55E-06	3.31E-05	
Cobalt	Yes	8.40E-05	lb/MMscf	4.53E-07	1.98E-06	
Copper	No	8.50E-04	lb/MMscf	4.58E-06	2.01E-05	
Manganese	Yes	3.80E-04	lb/MMscf	2.05E-06	8.97E-06	
Mercury	Yes	2.60E-04	lb/MMscf	1.40E-06	6.14E-06	
Molybdenum	No	1.10E-03	lb/MMscf	5.93E-06	2.60E-05	
Nickel	Yes	2.10E-03	lb/MMscf	1.13E-05	4.96E-05	
Selenium	Yes	2.40E-05	lb/MMscf	1.29E-07	5.67E-07	
Vanadium	No	2.30E-03	lb/MMscf	1.24E-05	5.43E-05	
Zinc	No	2.90E-02	lb/MMscf	1.56E-04	6.85E-04	
			Total HAPs	**1.02E-02**	**4.46E-02**	
			Max HAP	**9.71E-03**	**4.25E-02**	

Plug Power Innovation Center - West Henrietta, NY
[redacted] **Combustion Emissions**

Emission Point IDs:	ELX-06, ELX-10, ELX-11		
Emission Point Description:	Soak Heater		
Total Maxmimum Heat Input Rate:	1.05	MMBtu/hr	
Number of Units:	3		
Maximum Unit Size:	0.35	MMBtu/hr	
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 1.4-1, footnote a
Proposed Hours of Operation:	8760	hrs/yr	

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	100	lb/MMscf	0.10	0.45	AP-42, Table 1.4-1 (07/98)
CO	84	lb/MMscf	0.09	0.38	
Total PM	7.60	lb/MMscf	0.01	0.03	AP-42, Table 1.4-2 (07/98)
Total PM_{10}	7.60	lb/MMscf	0.01	0.03	
Total $PM_{2.5}$	7.60	lb/MMscf	0.01	0.03	
SO_2	0.60	lb/MMscf	6.18E-04	0.00	
VOC	5.50	lb/MMscf	0.01	0.02	

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	122.83	537.98	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	2.31E-03	1.01E-02	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	2.31E-04	1.01E-03	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	123	539	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	123	539	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	102	448	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] *CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A. Units are in kg/MMBtu.*

CO_2	1
CH_4	25
N_2O	298

[2] *Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]*

[3] *CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496.5.*

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
Lead	Yes	5.00E-04	lb/MMscf	5.15E-07	2.25E-06	AP-42, Table 1.4-2 (07/98)
2-Methylnaphthalene	Yes	2.40E-05	lb/MMscf	2.47E-08	1.08E-07	AP-42, Table 1.4-3 (07/98)
3-Methylcholanthrene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	lb/MMscf	1.65E-08	7.21E-08	
Acenaphthene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Acenaphthylene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Anthracene	Yes	2.40E-06	lb/MMscf	2.47E-09	1.08E-08	
Benz(a)anthracene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Benzene	Yes	2.10E-03	lb/MMscf	2.16E-06	9.47E-06	
Benzo(a)pyrene	Yes	1.20E-06	lb/MMscf	1.24E-09	5.41E-09	
Benzo(b)fluoranthene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Benzo(g,h,i)perylene	Yes	1.20E-06	lb/MMscf	1.24E-09	5.41E-09	
Benzo(k)fluoranthene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Butane	No	2.10E+00	lb/MMscf	2.16E-03	9.47E-03	
Chrysene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Dibenzo(a,h)anthracene	Yes	1.20E-06	lb/MMscf	1.24E-09	5.41E-09	
Dichlorobenzene	No	1.20E-03	lb/MMscf	1.24E-06	5.41E-06	
Ethane	No	3.10E+00	lb/MMscf	3.19E-03	1.40E-02	
Fluoranthene	Yes	3.00E-06	lb/MMscf	3.09E-09	1.35E-08	
Fluorene	Yes	2.80E-06	lb/MMscf	2.88E-09	1.26E-08	
Formaldehyde	Yes	7.50E-02	lb/MMscf	7.72E-05	3.38E-04	
Hexane	Yes	1.80E+00	lb/MMscf	1.85E-03	8.12E-03	
Indeno(1,2,3-cd)pyrene	Yes	1.80E-06	lb/MMscf	1.85E-09	8.12E-09	
Naphthalene	Yes	6.10E-04	lb/MMscf	6.28E-07	2.75E-06	
Pentane	No	2.60E+00	lb/MMscf	2.68E-03	1.17E-02	
Phenanathrene	Yes	1.70E-05	lb/MMscf	1.75E-08	7.67E-08	
Propane	No	1.60E+00	lb/MMscf	1.65E-03	7.21E-03	
Pyrene	Yes	5.00E-06	lb/MMscf	5.15E-09	2.25E-08	
Toluene	Yes	3.40E-03	lb/MMscf	3.50E-06	1.53E-05	
Arsenic	Yes	2.00E-04	lb/MMscf	2.06E-07	9.02E-07	AP-42, Table 1.4-4 (07/98)
Barium	No	4.40E-03	lb/MMscf	4.53E-06	1.98E-05	
Beryllium	Yes	1.20E-05	lb/MMscf	1.24E-08	5.41E-08	
Cadmium	Yes	1.10E-03	lb/MMscf	1.13E-06	4.96E-06	
Chromium	Yes	1.40E-03	lb/MMscf	1.44E-06	6.31E-06	
Cobalt	Yes	8.40E-05	lb/MMscf	8.65E-08	3.79E-07	
Copper	No	8.50E-04	lb/MMscf	8.75E-07	3.83E-06	
Manganese	Yes	3.80E-04	lb/MMscf	3.91E-07	1.71E-06	
Mercury	Yes	2.60E-04	lb/MMscf	2.68E-07	1.17E-06	
Molybdenum	No	1.10E-03	lb/MMscf	1.13E-06	4.96E-06	
Nickel	Yes	2.10E-03	lb/MMscf	2.16E-06	9.47E-06	
Selenium	Yes	2.40E-05	lb/MMscf	2.47E-08	1.08E-07	
Vanadium	No	2.30E-03	lb/MMscf	2.37E-06	1.04E-05	
Zinc	No	2.90E-02	lb/MMscf	2.99E-05	1.31E-04	
			Total HAPs	**1.94E-03**	**8.51E-03**	
			Max HAP	**1.85E-03**	**8.12E-03**	

Plug Power Innovation Center - West Henrietta, NY

[redacted]

Hot Water Boiler Combustion Emissions

Emission Point ID:	BOIL-HW		
Emission Point Description:	HW Boiler		
Total Maxmimum Heat Input Rate:	10.0	MMBtu/hr	
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 1.4-1, footnote a
Proposed Hours of Operation:	8760	hrs/yr	

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	100	lb/MMscf	0.98	4.29	AP-42, Table 1.4-1 (07/98)
CO	84	lb/MMscf	0.82	3.61	
Total PM	7.60	lb/MMscf	0.07	0.33	AP-42, Table 1.4-2 (07/98)
Total PM_{10}	7.60	lb/MMscf	0.07	0.33	
Total $PM_{2.5}$	7.60	lb/MMscf	0.07	0.33	
SO_2	0.60	lb/MMscf	5.88E-03	0.03	
VOC	5.50	lb/MMscf	0.05	0.24	

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	1,169.77	5,123.60	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	2.20E-02	9.66E-02	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	2.20E-03	9.66E-03	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	1,171	5,129	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	1,172	5,134	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	975	4,269	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A. Units are in kg/MMBtu.

CO_2	1
CH_4	25
N_2O	298

[2] Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]

[3] CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496.5.

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
Lead	Yes	5.00E-04	lb/MMscf	4.90E-06	2.15E-05	AP-42, Table 1.4-2 (07/98)
2-Methylnaphthalene	Yes	2.40E-05	lb/MMscf	2.35E-07	1.03E-06	AP-42, Table 1.4-3 (07/98)
3-Methylcholanthrene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	lb/MMscf	1.57E-07	6.87E-07	
Acenaphthene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Acenaphthylene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Anthracene	Yes	2.40E-06	lb/MMscf	2.35E-08	1.03E-07	
Benz(a)anthracene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Benzene	Yes	2.10E-03	lb/MMscf	2.06E-05	9.02E-05	
Benzo(a)pyrene	Yes	1.20E-06	lb/MMscf	1.18E-08	5.15E-08	
Benzo(b)fluoranthene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Benzo(g,h,i)perylene	Yes	1.20E-06	lb/MMscf	1.18E-08	5.15E-08	
Benzo(k)fluoranthene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Butane	No	2.10E+00	lb/MMscf	2.06E-02	9.02E-02	
Chrysene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Dibenzo(a,h)anthracene	Yes	1.20E-06	lb/MMscf	1.18E-08	5.15E-08	
Dichlorobenzene	No	1.20E-03	lb/MMscf	1.18E-05	5.15E-05	
Ethane	No	3.10E+00	lb/MMscf	3.04E-02	1.33E-01	
Fluoranthene	Yes	3.00E-06	lb/MMscf	2.94E-08	1.29E-07	
Fluorene	Yes	2.80E-06	lb/MMscf	2.75E-08	1.20E-07	
Formaldehyde	Yes	7.50E-02	lb/MMscf	7.35E-04	3.22E-03	
Hexane	Yes	1.80E+00	lb/MMscf	1.76E-02	7.73E-02	
Indeno(1,2,3-cd)pyrene	Yes	1.80E-06	lb/MMscf	1.76E-08	7.73E-08	
Naphthalene	Yes	6.10E-04	lb/MMscf	5.98E-06	2.62E-05	
Pentane	No	2.60E+00	lb/MMscf	2.55E-02	1.12E-01	
Phenanathrene	Yes	1.70E-05	lb/MMscf	1.67E-07	7.30E-07	
Propane	No	1.60E+00	lb/MMscf	1.57E-02	6.87E-02	
Pyrene	Yes	5.00E-06	lb/MMscf	4.90E-08	2.15E-07	
Toluene	Yes	3.40E-03	lb/MMscf	3.33E-05	1.46E-04	
Arsenic	Yes	2.00E-04	lb/MMscf	1.96E-06	8.59E-06	AP-42, Table 1.4-4 (07/98)
Barium	No	4.40E-03	lb/MMscf	4.31E-05	1.89E-04	
Beryllium	Yes	1.20E-05	lb/MMscf	1.18E-07	5.15E-07	
Cadmium	Yes	1.10E-03	lb/MMscf	1.08E-05	4.72E-05	
Chromium	Yes	1.40E-03	lb/MMscf	1.37E-05	6.01E-05	
Cobalt	Yes	8.40E-05	lb/MMscf	8.24E-07	3.61E-06	
Copper	No	8.50E-04	lb/MMscf	8.33E-06	3.65E-05	
Manganese	Yes	3.80E-04	lb/MMscf	3.73E-06	1.63E-05	
Mercury	Yes	2.60E-04	lb/MMscf	2.55E-06	1.12E-05	
Molybdenum	No	1.10E-03	lb/MMscf	1.08E-05	4.72E-05	
Nickel	Yes	2.10E-03	lb/MMscf	2.06E-05	9.02E-05	
Selenium	Yes	2.40E-05	lb/MMscf	2.35E-07	1.03E-06	
Vanadium	No	2.30E-03	lb/MMscf	2.25E-05	9.88E-05	
Zinc	No	2.90E-02	lb/MMscf	2.84E-04	1.25E-03	
			Total HAPs	**1.85E-02**	**8.10E-02**	
			Max HAP	**1.76E-02**	**7.73E-02**	

Plug Power Innovation Center - West Henrietta, NY

[redacted]

Steam Boiler Combustion Emissions

Emission Point ID:	BOIL-STEAM		
Emission Point Description:	Steam Boiler		
Total Maxmimum Heat Input Rate:	16.00	MMBtu/hr	
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 1.4-1, footnote a
Proposed Hours of Operation:	8760	hrs/yr	

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	100	lb/MMscf	1.57	6.87	AP-42, Table 1.4-1 (07/98)
CO	84	lb/MMscf	1.32	5.77	
Total PM	7.60	lb/MMscf	0.12	0.52	AP-42, Table 1.4-2 (07/98)
Total PM_{10}	7.60	lb/MMscf	0.12	0.52	
Total $PM_{2.5}$	7.60	lb/MMscf	0.12	0.52	
SO_2	0.60	lb/MMscf	9.41E-03	0.04	
VOC	5.50	lb/MMscf	0.09	0.38	

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	1,871.64	8,197.77	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	3.53E-02	1.54E-01	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	3.53E-03	1.54E-02	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	1,874	8,206	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	1,876	8,215	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	1,559	6,830	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A. Units are in kg/MMBtu.

CO_2	1
CH_4	25
N_2O	298

[2] Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]

[3] CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496.5.

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
Lead	Yes	5.00E-04	lb/MMscf	7.84E-06	3.44E-05	AP-42, Table 1.4-2 (07/98)
2-Methylnaphthalene	Yes	2.40E-05	lb/MMscf	3.76E-07	1.65E-06	AP-42, Table 1.4-3 (07/98)
3-Methylcholanthrene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	lb/MMscf	2.51E-07	1.10E-06	
Acenaphthene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Acenaphthylene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Anthracene	Yes	2.40E-06	lb/MMscf	3.76E-08	1.65E-07	
Benz(a)anthracene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Benzene	Yes	2.10E-03	lb/MMscf	3.29E-05	1.44E-04	
Benzo(a)pyrene	Yes	1.20E-06	lb/MMscf	1.88E-08	8.24E-08	
Benzo(b)fluoranthene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Benzo(g,h,i)perylene	Yes	1.20E-06	lb/MMscf	1.88E-08	8.24E-08	
Benzo(k)fluoranthene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Butane	No	2.10E+00	lb/MMscf	3.29E-02	1.44E-01	
Chrysene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Dibenzo(a,h)anthracene	Yes	1.20E-06	lb/MMscf	1.88E-08	8.24E-08	
Dichlorobenzene	No	1.20E-03	lb/MMscf	1.88E-05	8.24E-05	
Ethane	No	3.10E+00	lb/MMscf	4.86E-02	2.13E-01	
Fluoranthene	Yes	3.00E-06	lb/MMscf	4.71E-08	2.06E-07	
Fluorene	Yes	2.80E-06	lb/MMscf	4.39E-08	1.92E-07	
Formaldehyde	Yes	7.50E-02	lb/MMscf	1.18E-03	5.15E-03	
Hexane	Yes	1.80E+00	lb/MMscf	2.82E-02	1.24E-01	
Indeno(1,2,3-cd)pyrene	Yes	1.80E-06	lb/MMscf	2.82E-08	1.24E-07	
Naphthalene	Yes	6.10E-04	lb/MMscf	9.57E-06	4.19E-05	
Pentane	No	2.60E+00	lb/MMscf	4.08E-02	1.79E-01	
Phenanathrene	Yes	1.70E-05	lb/MMscf	2.67E-07	1.17E-06	
Propane	No	1.60E+00	lb/MMscf	2.51E-02	1.10E-01	
Pyrene	Yes	5.00E-06	lb/MMscf	7.84E-08	3.44E-07	
Toluene	Yes	3.40E-03	lb/MMscf	5.33E-05	2.34E-04	
Arsenic	Yes	2.00E-04	lb/MMscf	3.14E-06	1.37E-05	AP-42, Table 1.4-4 (07/98)
Barium	No	4.40E-03	lb/MMscf	6.90E-05	3.02E-04	
Beryllium	Yes	1.20E-05	lb/MMscf	1.88E-07	8.24E-07	
Cadmium	Yes	1.10E-03	lb/MMscf	1.73E-05	7.56E-05	
Chromium	Yes	1.40E-03	lb/MMscf	2.20E-05	9.62E-05	
Cobalt	Yes	8.40E-05	lb/MMscf	1.32E-06	5.77E-06	
Copper	No	8.50E-04	lb/MMscf	1.33E-05	5.84E-05	
Manganese	Yes	3.80E-04	lb/MMscf	5.96E-06	2.61E-05	
Mercury	Yes	2.60E-04	lb/MMscf	4.08E-06	1.79E-05	
Molybdenum	No	1.10E-03	lb/MMscf	1.73E-05	7.56E-05	
Nickel	Yes	2.10E-03	lb/MMscf	3.29E-05	1.44E-04	
Selenium	Yes	2.40E-05	lb/MMscf	3.76E-07	1.65E-06	
Vanadium	No	2.30E-03	lb/MMscf	3.61E-05	1.58E-04	
Zinc	No	2.90E-02	lb/MMscf	4.55E-04	1.99E-03	
			Total HAPs	**2.96E-02**	**1.30E-01**	
			Max HAP	**2.82E-02**	**1.24E-01**	

Plug Power Innovation Center - West Henrietta, NY
Emergency Generator

Generator Make:	Generac		Manufacturer Data
Generator Model:	SG500		Manufacturer Data
Engine Power:	777	BHP	Manufacturer Data
Fuel Consumption Rate (at 100% load in demand response):	5862	scf/hr	Manufacturer Data
Fuel:	Natural Gas		
Natural Gas Higher Heating Value:	1020	Btu/scf	AP-42, Table 3.2-2, footnote b
Heat Input Rate	5.98	MMBtu/hr	
Allowed Hours of Operation:	500	hrs/yr	6 CRR-NY 200.1(bl)

Criteria Air Pollutant Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
NO_X	0.03	g/BHP-hr	0 05	0.01	Generac Statement of Exhaust Emissions
CO	0.60	g/BHP-hr	1 03	0.26	
Total PM	9.99E-03	lb/MMBtu	0 06	0.01	AP-42, Table 3.2-2 (08/00)
Total PM_{10}	9.99E-03	lb/MMBtu	0 06	0.01	
Total $PM_{2.5}$	9.99E-03	lb/MMBtu	0 06	0.01	
SO_2	5.88E-04	lb/MMBtu	3.52E-03	0.001	
VOC	0.16	g/BHP-hr	0 27	0.07	Generac Statement of Exhaust Emissions

Greenhouse Gas Emissions

Pollutant	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
CO_2	53.06	kg/MMBtu	699.44	174.86	40 CFR Appendix Table C-1 to Subpart C of Part 98
CH_4	1.00E-03	kg/MMBtu	1.32E-02	0.00	40 CFR Appendix Table C-2 to Subpart C of Part 98
N_2O	1.00E-04	kg/MMBtu	1.32E-03	0.00	
CO_2e (100-yr horizon)[1,2]	53.11	kg/MMBtu	700	175	See footnote 1
CO_2e (20-yr horizon)[2,3]	53.17	kg/MMBtu	701	175	See footnote 3
CO_2e (Upstream Emissions)	44.21	kg/MMBtu	583	146	Preliminary Interim Draft Emission Factors for Use by State Agencies and Project Proponents Table 1 (02/2021)

[1] CO_2e emissions calculated based on Global Warming Potentials for 100-yr horizon per 40 CFR 98 Table A-1 to Subpart A Units are in kg/MMBtu

CO_2	1
CH_4	25
N_2O	298

[2] Annual CO_2e Emissions (tpy) = [GWP x Annual CO_2 emissions (tpy)] + [GWP x Annual CH_4 emissions (tpy)] + [GWP x Annual N_2O emissions (tpy)]

[3] CO_2e emissions calculated based on Global Warming Potentials for 20-yr horizon per 6 CRR-NY 496 5

CO_2	1
CH_4	84
N_2O	264

Hazardous and Other Air Pollutant Emissions

Pollutant	HAP?	Emission Factor	Emission Factor Units	Maximum Emissions (lbs/hr)	Potential Emissions (tpy)	Emission Factor Source
1,1,2,2-Tetrachloroethane	Yes	4.00E-05	lb/MMBtu	2.39E-04	5.98E-05	AP-42, Table 3.2-2 (08/00)
1,1,2-Trichloroethane	Yes	3.18E-05	lb/MMBtu	1.90E-04	4.75E-05	
1,1-Dichloroethane	No	2.36E-05	lb/MMBtu	1.41E-04	3.53E-05	
1,2,3-Trimethylbenzene	No	2.30E-05	lb/MMBtu	1.38E-04	3.44E-05	
1,2,4-Trimethylbenzene	No	1.43E-05	lb/MMBtu	8.55E-05	2.14E-05	
1,2-Dichloroethane	No	2.36E-05	lb/MMBtu	1.41E-04	3.53E-05	
1,2-Dichloropropane	No	2.69E-05	lb/MMBtu	1.61E-04	4.02E-05	
1,3,5-Trimethylbenzene	No	3.38E-05	lb/MMBtu	2.02E-04	5.05E-05	
1,3-Butadiene	Yes	2.67E-04	lb/MMBtu	1.60E-03	3.99E-04	
1,3-Dichloropropene	Yes	2.64E-05	lb/MMBtu	1.58E-04	3.95E-05	
2-Methylnaphthalene	Yes	3.32E-05	lb/MMBtu	1.99E-04	4.96E-05	
2 2 4-Trimethylpentane	Yes	2.50E-04	lb/MMBtu	1.49E-03	3.74E-04	
Acenaphthene	Yes	1.25E-06	lb/MMBtu	7.47E-06	1.87E-06	
Acenaphthylene	Yes	5.53E-06	lb/MMBtu	3.31E-05	8.27E-06	
Acetaldehyde	Yes	8.36E-03	lb/MMBtu	5.00E-02	1.25E-02	
Acrolein	Yes	5.14E-03	lb/MMBtu	3.07E-02	7.68E-03	
Benzene	Yes	4.40E-04	lb/MMBtu	2.63E-03	6.58E-04	
Benzo(b)fluoranthene	Yes	1.66E-07	lb/MMBtu	9.93E-07	2.48E-07	
Benzo(e)pyrene	Yes	4.15E-07	lb/MMBtu	2.48E-06	6.20E-07	
Benzo(g,h,i)perylene	Yes	4.14E-07	lb/MMBtu	2.48E-06	6.19E-07	
Biphenyl	Yes	2.12E-04	lb/MMBtu	1.27E-03	3.17E-04	
Butane	No	5.41E-04	lb/MMBtu	3.23E-03	8.09E-04	
Butyr/Isobutyraldehyde	No	1.01E-04	lb/MMBtu	6.04E-04	1.51E-04	
Carbon Tetrachloride	Yes	3.67E-05	lb/MMBtu	2.19E-04	5.49E-05	
Chlorobenzene	Yes	3.04E-05	lb/MMBtu	1.82E-04	4.54E-05	
Chloroethane	No	1.87E-06	lb/MMBtu	1.12E-05	2.80E-06	
Chloroform	Yes	2.85E-05	lb/MMBtu	1.70E-04	4.26E-05	
Chrysene	Yes	6.93E-07	lb/MMBtu	4.14E-06	1.04E-06	
Cyclopentane	No	2.27E-04	lb/MMBtu	1.36E-03	3.39E-04	
Ethane	No	1.05E-01	lb/MMBtu	6.28E-01	1.57E-01	
Ethylbenzene	Yes	3.97E-05	lb/MMBtu	2.37E-04	5.93E-05	
Ethylene Dibromide	Yes	4.43E-05	lb/MMBtu	2.65E-04	6.62E-05	
Fluoranthene	Yes	1.11E-06	lb/MMBtu	6.64E-06	1.66E-06	
Fluorene	Yes	5.67E-06	lb/MMBtu	3.39E-05	8.48E-06	
Formaldehyde	Yes	5.28E-02	lb/MMBtu	3.16E-01	7.89E-02	
Methanol	Yes	2.50E-03	lb/MMBtu	1.49E-02	3.74E-03	
Methylcyclohexane	No	1.23E-03	lb/MMBtu	7.35E-03	1.84E-03	
Methylene Chloride	Yes	2.00E-05	lb/MMBtu	1.20E-04	2.99E-05	
Hexane	Yes	1.11E-03	lb/MMBtu	6.64E-03	1.66E-03	
n-Nonane	No	1.10E-04	lb/MMBtu	6.58E-04	1.64E-04	
n-Octane	No	3.51E-04	lb/MMBtu	2.10E-03	5.25E-04	
Naphthalene	Yes	7.44E-05	lb/MMBtu	4.45E-04	1.11E-04	
n-Pentane	No	2.60E-03	lb/MMBtu	1.55E-02	3.89E-03	
PAH	Yes	2.69E-05	lb/MMBtu	1.61E-04	4.02E-05	
Phenanathrene	Yes	1.04E-05	lb/MMBtu	6.22E-05	1.55E-05	
Phenol	Yes	2.40E-05	lb/MMBtu	1.44E-04	3.59E-05	
Propane	No	4.19E-02	lb/MMBtu	2.51E-01	6.26E-02	
Pyrene	Yes	1.36E-06	lb/MMBtu	8.13E-06	2.03E-06	
Styrene	Yes	2.36E-05	lb/MMBtu	1.41E-04	3.53E-05	
Tetrachloroethane	Yes	2.48E-06	lb/MMBtu	1.48E-05	3.71E-06	
Toluene	Yes	4.08E-04	lb/MMBtu	2.44E-03	6.10E-04	
Vinyl Chloride	Yes	1.49E-05	lb/MMBtu	8.91E-05	2.23E-05	
Xylene	Yes	1.84E-04	lb/MMBtu	1.10E-03	2.75E-04	
			Total HAPs	**4.32E-01**	**1.08E-01**	
			Max HAP	**3.16E-01**	**7.89E-02**	

GENERAC | INDUSTRIAL POWER

STATEMENT OF EXHAUST EMISSIONS
2020 Spark-Ignited Generators
Industrial Series - NON-SCAQMD Certified, Stationary Emergency

	Model	Engine (L)	EPA Engine Family	Fuel	Catalyst Required	Combination Catalyst or Separate Catalyst	EPA Certification #	Grams/bhp-hr			Rated RPM	BHP	Fuel Flow (lb/hr)
								THC	NOx	CO			
Small Spark Ignited Engine (SSIE) Small Off-Road Engines (SORE)	QTA25	2.4	LGNXB02.42NN	NG	No	Not Required	LGNXB02.42NN-045	1.60	1.77	70.06	1,800	38	16.52
	QTA25	2.4	LGNXB02.42NL	LPG			LGNXB02.42NL-046	1.43	4.38	86.18	1,800	43	17.59
	SG035, 40, 45, 50NA	4.5	LGNXB04.52NN	NG			LGNXB04.52NN-001	0.64	4.48	35.10	1,800	75	25.89
	SG035, 40, 45, 50NA	4.5	LGNXB04.52NL	LPG			LGNXB04.52NL-002	0.84	5.27	64.25	1,800	76	29.51
	SG050T, 60, 70, 80	4.5	LGNXB04.52NN	NG			LGNXB04.52NN-001	0.49	3.36	42.88	1,800	129	45.22
	SG050T, 60, 70, 80	4.5	LGNXB04.52NL	LPG			LGNXB04.52NL-002	0.47	3.27	59.64	1,800	129	48.96
	SG050	6.8	LGNXB06.82NN	NG			LGNXB06.82NN-049	1.46	6.57	30.88	1,800	85	37.17
	SG050	6.8	LGNXB06.82NL	LPG			LGNXB06.82NL-007	1.86	2.67	172.30	1,800	85	46.55
	SG060	6.8	LGNXB06.82NN	NG			LGNXB06.82NN-049	1.47	2.94	75.88	1,800	97	38.76
	SG060	6.8	LGNXB06.82NL	LPG			LGNXB06.82NL-007	1.26	4.23	99.05	1,800	97	41.20
	SG070	6.8	LGNXB06.82NN	NG			LGNXB06.82NN-049	1.46	3.55	68.40	1,800	110	42.37
	SG070	6.8	LGNXB06.82NL	LPG			LGNXB06.82NL-007	1.26	3.28	111.49	1,800	118	51.86
	SG080	6.8	LGNXB06.82NN	NG			LGNXB06.82NN-049	2.37	0.95	197.85	1,800	125	56.09
	SG080 (DF)	6.8	LGNXB06.82NN	NG/LPV			LGNXB06.82NN-049	2.37	0.95	197.85	1,800	125	56.09
	SG080 (DF)	6.8	LGNXB06.82NN	NG/LPL			LGNXB06.82NN-049	2.37	0.95	197.85	1,800	125	56.09
	SG080	6.8	LGNXB06.82NL	LPG			LGNXB06.82NL-007	1.26	3.28	111.49	1,800	125	51.86
	SG080	9.0	LGNXB08.92U1	NG			LGNXB08.92U1-009	0.60	1.07	93.19	1,800	125	62.37
	SG080 (DF)	9.0	LGNXB08.92U1	NG/LPV			LGNXB08.92U1-009	0.42	1.89	52.04	1,800	125	57.18
	SG080 (DF)	9.0	LGNXB08.92U1	NG/LPL			LGNXB08.92U1-009	0.68	1.61	82.22	1,800	128	55.82
	SG080	9.0	LGNXB08.92U2	LPV			LGNXB08.92U2-008	0.71	1.54	124.79	1,800	128	61.52
	SG080	9.0	LGNXB08.92U2	LPL			LGNXB08.92U2-008	0.75	1.33	127.68	1,800	128	60.23
Large Spark Ignited Engines (LSIE)	SG100	6.8	LGNXB06.82C3	NG	Yes	Catalyst Muffler	LGNXB06.82C3-054	0.08	0.01	0.85	3,000	151	59.52
	SG100 (DF)	6.8	LGNXB06.82C3	NG/LPV			LGNXB06.82C3-054	0.31	0.08	0.61	3,000	151	56.86
	SG100 (DF)	6.8	LGNXB06.82C3	NG/LPL			LGNXB06.82C3-054	0.31	0.08	0.61	3,000	151	56.86
	SG100	6.8	LGNXB06.82C4	LPG			LGNXB06.82C4-055	0.04	0.14	1.24	3,000	153	61.77
	SG080, 100	9.0	LGNXB08.92O1	NG			LGNXB08.92O1-018	0.18	0.01	0.25	1,800	153	53.10
	SG080, 100 (LPF)	9.0	LGNXB08.92O1	NG			LGNXB08.92O1-018	0.11	0.12	0.03	1,800	153	53.24
	SG080, 100	9.0	LGNXB08.92O2	LPV			LGNXB08.92O2-019	0.01	0.21	0.22	1,800	142	54.36
	SG080, 100	9.0	LGNXB08.92O2	LPL			LGNXB08.92O2-019	0.03	0.00	0.36	1,800	142	55.27
	SG080, 100 (DF)	9.0	LGNXB08.92O1	NG/LPV			LGNXB08.92O1-018	0.14	0.00	0.17	1,800	148	53.20
	SG080, 100 (DF)	9.0	LGNXB08.92O1	NG/LPL			LGNXB08.92O1-018	0.17	0.01	1.03	1,800	151	51.86
	SG080, 100 (DF, LPF)	9.0	LGNXB08.92O1	NG/LPV			LGNXB08.92O1-018	0.11	0.00	0.18	1,800	152	46.90
	SG080, 100 (DF, LPF)	9.0	LGNXB08.92O1	NG/LPL			LGNXB08.92O1-018	0.08	0.00	0.09	1,800	151	51.58
	SG/MG130, 150	9.0	LGNXB08.92O3	NG			LGNXB08.92O3-020	0.14	0.10	0.74	1,800	228	86.37
	SG/MG130, 150 (DF)	9.0	LGNXB08.92O3	NG/LPV			LGNXB08.92O3-020	0.18	0.08	0.56	1,800	229	88.01
	SG/MG130, 150 (DF)	9.0	LGNXB08.92O3	NG/LPL			LGNXB08.92O3-020	0.06	0.09	0.19	1,800	228	84.82
	SG/MG130, 150	9.0	LGNXB08.92O4	LPV			LGNXB08.92O4-021	0.02	0.03	0.09	1,800	230	85.37
	SG/MG130, 150	9.0	LGNXB08.92O4	LPL			LGNXB08.92O4-021	0.01	0.28	0.20	1,800	230	86.38
	SG175	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.24	0.12	0.21	1,800	304	101.16
	SG/MG150, 200	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.24	0.12	0.21	1,800	304	101.16
	SG230	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.15	0.35	0.41	1,800	374	141.71
	SG/MG250	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.15	0.35	0.41	1,800	374	141.71
	SG275, 300	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.03	0.04	0.32	1,800	460	140.33
	MG300	14.2	LGNXB14.22C1	NG			LGNXB14.22C1-024	0.03	0.04	0.32	1,800	460	140.33
	SG350	21.9	LGNXB21.92C1	NG			LGNXB21.92C1-026	0.07	0.26	0.21	1,800	636	175.68
	SG350 (LPF)	21.9	LGNXB21.92C1	NG			LGNXB21.92C1-026	0.30	0.06	0.12	1,800	636	213.96
	SG/MG450	21.9	LGNXB21.92C3	NG			LGNXB21.92C3-027	0.08	0.06	0.10	1,800	673	208.97
	SG/MG450 (LPF)	21.9	LGNXB21.92C3	NG			LGNXB21.92C3-027	0.19	0.05	0.17	1,800	673	224.29
	SG/MG500	25.8	LGNXB25.82C1	NG			LGNXB25.82C1-028	0.16	0.03	0.60	1,800	777	280.37
	SG/MG500 (LPF)	25.8	LGNXB25.82C1	NG			LGNXB25.82C1-028	0.19	0.06	0.57	1,800	777	279.64
	SG/MG630	33.9	LGNXB33.92C1	NG			LGNXB33.92C1-029	0.18	0.31	0.92	1,800	1,077	416.90
	SG/MG750	33.9	LGNXB33.92C1	NG			LGNXB33.92C1-029	0.18	0.15	0.92	1,800	1,077	416.90
	SG/MG1000	49.0	MGNXB49.02C1	NG			MGNXB49.02C1-001	0.12	0.03	0.65	1,800	1,475	426.67

NG: Natural Gas
LPV: Liquid Propane Vapor
LPL: Liquid Propane Liquid

DF: Dual Fuel
LPG: Liquid Propane Vapor or Liquid Propane Liquid
LPF: Units with Option Low Pressure Fuel System

Refer to Page 2 for Definitions and Advisory Notes.

Part No. A0000527588
Rev. B 10/7/20

STATEMENT OF EXHAUST EMISSIONS
2020 Spark-Ignited Generators
Industrial Series - NON-SCAQMD Certified, Stationary Emergency

2020 EPA SPARK-IGNITED EXHAUST EMISSIONS DATA

Effective since 2009, the EPA has implemented exhaust emissions regulations on stationary spark-ignited (gaseous) engine generators for emergency applications. All Generac spark-ignited gensets, including SG, MG, QTA, QT and RG series gensets that are built with engines manufactured in 2009 and later meet the requirements of 40CFR part 60 subpart JJJJ and are EPA certified. These generator sets are labeled as EPA Certified with decals affixed to the engines' valve covers.

The attached documents summarize the general information relevant to EPA certification on these generator sets. This information can be used for submittal data and for permitting purposes, if required. These documents include the following information:

EPA Engine Family

The EPA Engine Family is assigned by the Manufacturer under EPA guidelines for certification purposes and appears on the EPA certificate.

Catalyst Required
Indicates whether a three-way catalyst (TWC) and Air/Fuel Ratio control system are required on the generator set to meet EPA certification requirements. Generally, units rated 80kW and smaller do not require a TWC to meet EPA certification requirements. Please note that some units that do not require a TWC to meet EPA requirements do need one if the California SCAQMD option is selected. Please see "California SCAQMD" below for additional information on this option.

Combination Catalyst or Separate Catalyst
SG and MG series generator sets typically utilize a single combination catalyst/silencer as part of meeting EPA certification requirements. Many QT and RG series generator sets use the same engines as SG series units, but have different exhaust configurations that require the use of conventional silencers with additional separate catalysts installed.

EPA Certificate Number
Upon certification by the EPA, a Certificate Number is assigned by the EPA.

Emissions Actuals - Grams/bhp-hr
Actual exhaust emission data for Total Hydrocarbons (THC), Nitrogen Oxides (NOx) and Carbon Monoxide (CO) that were submitted to EPA and are official data of record for certification. This data can be used for permitting if necessary. Values are expressed in grams per brake horsepower-hour; to convert to grams/kW-hr, multiply by 1.341. Please see advisory notes below for further information.

California Units, SCAQMD CEP Number
A separate low-emissions option is available on many Generac gaseous-fueled generator sets to comply with the more stringent South Coast Air Quality Management District requirements that are recognized in certain areas in California. Gensets that include this option are also EPA Certified.

General Advisory Note to Dealers
The information provided here is proprietary to Generac and its' authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc.

Advisory Notes on Emissions Actuals
- The stated values are actual exhaust emission test measurements obtained from units representative of the generator types and engines described.
- Values are official data of record as submitted to the EPA and SCAQMD for certification purposes. Testing was conducted in accordance with prevailing EPA protocols, which are typically accepted by SCAQMD and other regional authorities.
- No emission values provided are to be construed as guarantees of emissions levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emissions performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and must be consulted by the permit applicant/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems, Inc. cannot be construed as a guarantee of installability of the generator set.
- The emission values provided are the result of multi-mode, weighted scale testing in accordance with EPA testing regulations, and may not be representative of any specific load point.
- The emission values provided are not to be construed as emission limits.

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53187
P: (262) 544-4811
Part No. A0000527588
Rev. B 10/7/20

SG500 | 25.8L | 500 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

GENERAC | INDUSTRIAL POWER

DEMAND RESPONSE READY

Standby Power Rating
500 kW, 625 kVA, 60 Hz

Demand Response Rating
500 kW, 625 kVA, 60 Hz

Prime Power Rating
450 kW, 563 kVA, 60 Hz

ISO 9001:2008

USA ENGINEERED & BUILT* *Assembled in the USA using domestic and foreign parts

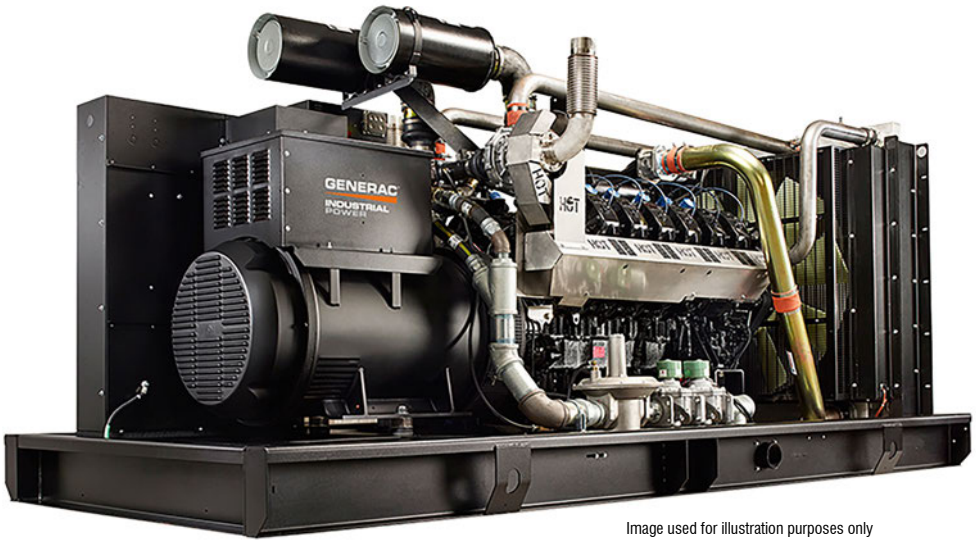


Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489

CSA C22.2, B149

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

Generac ensures superior quality by designing and manufacturing most of its generator components, such as alternators, enclosures, control systems and communications software. Generac also makes its own spark-ignited engines, and you'll find them on every Generac gaseous-fueled generator. We engineer and manufacture them from the block up — all at our facilities throughout Wisconsin. Applying natural gas and LP-fueled engines to generators requires advanced engineering expertise to ensure reliability, durability and necessary performance. By designing specifically for these dry, hotter-burning fuels, the engines last longer and require less maintenance. Building our own engines also means we control every step of the supply chain and delivery process, so you benefit from single-source responsibility.

Plus, Generac Industrial Power's distribution network provides all parts and service so you don't have to deal with third-party suppliers. It all leads to a positive owner experience and higher confidence level. Generac spark-ignited engines give you more options in commercial and industrial generator applications as well as extended run time from utility-supplied natural gas.

SG500 | 25.8L | 500 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

DEMAND RESPONSE READY

ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Shipped Loose Catalyst Silencer (Open Set Only)
- Oil Temperature Indication and Alarm

Fuel System

- NPT Fuel Line Connection
- Primary and Secondary Fuel Shutoff

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearing
- Amortisseur Winding
- Full Load Capacity Alternator

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby and Demand Response Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Unit Only)

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

CONTROL SYSTEM

Power Zone® Pro Sync Controller

Program Functions

- NFPA 110 Level 1 Compliant
- Engine Protective Functions
- Alternator Protective Functions
- Digital Engine Governor Control
- Digital Voltage Regulator
- Multiple Programmable Inputs and Outputs
- Remote Display Capability
- Remote Communication via Modbus® RTU, Modbus TCP/IP, and Ethernet 10/100
- Alarm and Event Logging with Real Time Stamping
- Expandable Analog and Digital Inputs and Outputs
- Remote Wireless Software Update Capable
- Wi-Fi, Bluetooth, BMS and Remote Telemetry
- Built-In Programmable Logic Eliminates the Need for External Controllers Under Most Conditions
- Ethernet Based Communications Between Generators
- Programmable I/O Channel Properties
- Built-In Diagnostics

Protections

- Low Oil Pressure
- Low Coolant Level
- High/Low Coolant Temperature
- Sensor Failure
- Oil Temperature
- Over/Under Speed
- Over/Under Voltage
- Over/Under Frequency
- Over/Under Current
- Over Load
- High/Low Battery Voltage
- Battery Charger Current
- Phase to Phase and Phase to Neutral Short Circuits (I^2T Algorithm)

7 Inch Color Touch Screen Display

- Resistive Color Touch Screen
- Sunlight Readable (1400 NITS)
- Easily Identifiable Icons
- Multi-Lingual
- On Screen Editable Parameters
- Key Function Monitoring
- Three Phase Voltage, Amperage, kW, kVA, and kVAr
- Selectable Line to Line or Line to Neutral Measurements
- Frequency
- Engine Speed
- Engine Coolant Temperature
- Engine Oil Pressure
- Engine Oil Temperature
- Battery Voltage
- Hourmeter
- Warning and Alarm Indication
- Diagnostics
- Maintenance Events/Information

SG500 | 25.8L | 500 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

CONFIGURABLE OPTIONS

DEMAND RESPONSE READY

ENGINE SYSTEM

- ○ Baseframe Cover/Rodent Guard
- ○ Oil Heater
- ○ Air Filter Restriction Indicator
- ○ Radiator Stone Guard (Open Set Only)
- ○ Level 1 Fan and Belt Guards (Enclosed Units Only)
- ○ Engine Coolant Heater
- ○ Shipped Loose Catalyst Silencer (Open Set Only)

FUEL SYSTEM

- ○ NPT Flexible Fuel Line

ELECTRICAL SYSTEM

- ○ 10A UL Listed Battery Charger
- ○ Battery Warmer

ALTERNATOR SYSTEM

- ○ Alternator Upsizing
- ○ Anti-Condensation Heater

CIRCUIT BREAKER OPTIONS

- ○ Main Line Circuit Breaker
- ○ 2nd Main Line Circuit Breaker
- ○ Shunt Trip and Auxiliary Contact
- ○ Electronic Trip Breakers

GENERATOR SET

- ○ Demand Response Rating
- ○ Extended Factory Testing (3-Phase Only)
- ○ 12 Position Load Center

ENCLOSURE

- ○ Weather Protected Enclosure
- ○ Level 1 Sound Attenuated
- ○ Level 2 Sound Attenuated
- ○ Level 2 Sound Attenuated with Motorized Dampers
- ○ Level 3 Sound Attenuated (Steel Only)
- ○ Steel Enclosure
- ○ Aluminum Enclosure
- ○ Damper Alarm (Motorized Dampers Only)
- ○ Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- ○ AC/DC Enclosure Lighting Kit
- ○ Enclosure Heaters
- ○ Door Open Alarm Switch

CONTROL SYSTEM

- ○ NFPA 110 Compliant 21-Light Remote Annunciator
- ○ Remote Relay Assembly (8 or 16)
- ○ Remote E-Stop (Break Glass-Type, Surface Mount)
- ○ Remote E-Stop (Red Mushroom-Type, Surface Mount)
- ○ Remote E-Stop (Red Mushroom-Type, Flush Mount)
- ○ 10A Engine Run Relay
- ○ Ground Fault Annunciator
- ○ 100 dB Alarm Horn
- ○ 120V GFCI and 240V Outlets

WARRANTY (Standby Gensets Only)

- ○ 2 Year Extended Limited Warranty
- ○ 5 Year Limited Warranty
- ○ 5 Year Extended Limited Warranty
- ○ 7 Year Extended Limited Warranty
- ○ 10 Year Extended Limited Warranty

ENGINEERED OPTIONS

ENGINE SYSTEM

- ○ Coolant Heater Ball Valves
- ○ Fluid Containment Pan

CONTROL SYSTEM

- ○ Battery Disconnect Switch

GENERATOR SET

- ○ Special Testing
- ○ Battery Box

CIRCUIT BREAKER OPTIONS

- ○ 3rd Main Line Circuit Breaker
- ○ 4th Main Line Circuit Breaker

SG500 | 25.8L | 500 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

DEMAND RESPONSE READY

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	12
Type	V12
Displacement - in^3 (L)	1,574.4 (25.8)
Bore - in (mm)	5.19 (132)
Stroke - in (mm)	6.30 (160)
Compression Ratio	10.0:1
Intake Air Method	Turbocharged/Aftercooled
Number of Main Bearings	7
Connecting Rods	Steel Alloy
Cylinder Head	Cast Iron
Cylinder Liners	Cast Steel Alloy
Ignition	Electronic
Piston Type	Cast Aluminum Alloy
Crankshaft Type	Forged Steel Alloy
Lifter Type	Solid
Intake Valve Material	High Temp Steel Alloy
Exhaust Valve Material	High Temp Steel Alloy
Hardened Valve Seats	High Temp Steel Alloy

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - qt (L)	95 (90)

Cooling System

Cooling System Type	Pressurized Closed Recovery
Fan Type	Pusher
Fan Speed - RPM	1,640
Fan Diameter - in (mm)	44 (1,118)

Fuel System

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure - in H_2O (kPa)	11 - 14 (2.7 - 3.5)
Optional Operating Fuel Pressure - in H_2O (kPa)	7 - 11 (1.7 - 2.7)

Engine Electrical System

System Voltage	24 VDC
Battery Charger Alternator	60 A
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(2) - 12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0500124Y23
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase)
Telephone Interference Factor (TIF)	<52

Standard Excitation	Permanent Magnet
Bearings	Sealed Ball
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SG500 | 25.8L | 500 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

OPERATING DATA

DEMAND RESPONSE READY

POWER RATINGS - NATURAL GAS

	Standby/Demand Response		Prime	
Three-Phase 120/208 VAC @0.8pf	500 kW/625 kVA	Amps: 1,737	450 kW/563 kVA	Amps: 1,563
Three-Phase 120/240 VAC @0.8pf	500 kW/625 kVA	Amps: 1,505	450 kW/563 kVA	Amps: 1,355
Three-Phase 277/480 VAC @0.8pf	500 kW/625 kVA	Amps: 753	450 kW/563 kVA	Amps: 677
Three-Phase 346/600 VAC @0.8pf	500 kW/625 kVA	Amps: 602	450 kW/563 kVA	Amps: 542

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%	208/240 VAC	30%
K0500124Y23	1,020	K0600124Y23	1,120
K0600124Y23	1,560	G0546124N23	1,760
K0832124Y23	2,800	K0792124Y23	2,130
		K0832124Y23	2,090

FUEL CONSUMPTION RATES*

Natural Gas – scfh (m^3/hr)

Percent Load	Standby/Demand Response	Prime
25%	2,550 (72)	2,431 (69)
50%	3,624 (103)	3,409 (97)
75%	4,770 (135)	4,426 (125)
100%	5,862 (166)	5,425 (154)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby/Demand Response	Prime
Air Flow (Fan Air Flow Across Radiator)	scfm (m^3/min)	31,400 (889)	31,400 (889)
Coolant Flow	gpm (Lpm)	225 (852)	225 (852)
Coolant System Capacity	gal (L)	25 (93)	25 (93)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)		See Bulletin No. 0199270SSD	
Maximum Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby/Demand Response	Prime
Flow at Rated Power - scfm (m^3/min)	935 (26.5)	865 (24.5)

ENGINE

		Standby/Demand Response	Prime
Rated Engine Speed	RPM	1,800	1,800
Horsepower at Rated kW**	hp	729	656
Piston Speed	ft/min (m/min)	1,890 (576)	1,890 (576)
BMEP	psi (kPa)	204 (1,404)	183 (1,263)

EXHAUST

		Standby/Demand Response	Prime
Exhaust Flow (Rated Output)	scfm (m^3/min)	3,186 (90.2)	2,907 (82.3)
Max. Backpressure (Post Silencer)	inHg (kPa)	0.75 (2.54)	0.75 (2.54)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1,380 (749)	1,355 (735)

** Refer to “Emissions Data Sheet” for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 0187500SSB
Demand Response - See Bulletin 10000018250
Prime - See Bulletin 0187510SSB

SG500 | 25.8L | 500 kW

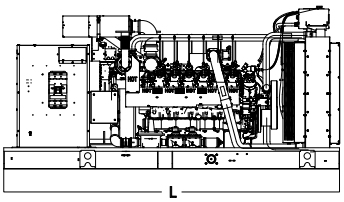
INDUSTRIAL SPARK-IGNITED GENERATOR SET

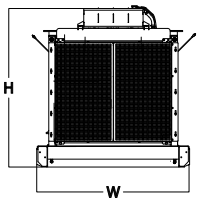
EPA Certified Stationary Emergency and Non-Emergency

GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*

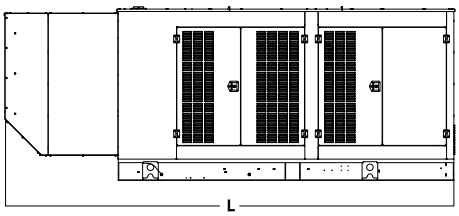
DEMAND RESPONSE READY

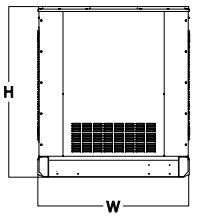




OPEN SET (Includes Exhaust Flex)

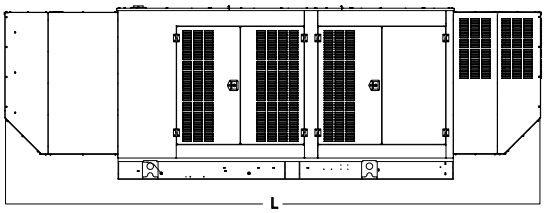
L x W x H - in (mm)	154.4 (3,922) x 70.5 (1,791) x 74.9 (1,902)
Weight - lbs (kg)	9,386 - 9,739 (4,257 - 4,417)

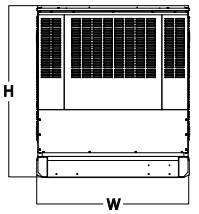




WEATHER PROTECTED ENCLOSURE

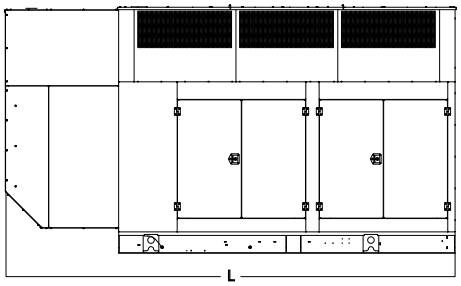
L x W x H - in (mm)	207.4 (5,268) x 70.9 (1,801) x 80.0 (2,032)
Weight - lbs (kg)	Steel: 11,576 - 11,929 (5,250 - 5,410) Aluminum: 10,489 - 10,841 (4,757 - 4,917)

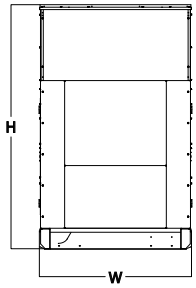




LEVEL 1 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	247.5 (6,287) x 70.9 (1,801) x 80.0 (2,032)
Weight - lbs (kg)	Steel: 12,583 - 12,936 (5,707 - 5,867) Aluminum: 10,921 - 11,274 (4,953 - 5,113)





LEVEL 2 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	207.4 (5,268) x 70.9 (1,801) x 114.1 (2,898)
Weight - lbs (kg)	Steel: 12,921 - 13,658 (5,860 - 6,194) Aluminum: 11,066 - 11,565 (5,019 - 5,245)

LEVEL 3 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	232.0 (5,893) x 76.9 (1,953) x 129.2 (3,282)
Weight - lbs (kg)	15,950 - 16,303 (7,234 - 7,394)

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

SPEC SHEET

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No. 10000038081
Rev. B 10/02/19

APPENDIX C. SEQR SHORT ENVIRONMENTAL ASSESSMENT FORM

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:

Plug Power Innovation Center

Project Location (describe, and attach a location map):

1025 John Street, West Henrietta, NY 14586

Brief Description of Proposed Action:

Plug Power is proposing to construct a new fuel cell manufacturing line at 1025 John Street in West Henrietta, New York (Plug Power Innovation Center). The building in which the new operations will be housed is currently vacant and there are no existing operations apart from heating, ventilation and air conditioning (HVAC) equipment and a cooling tower. The new fuel cell manufacturing line at the Plug Power Innovation Center will consist of coating/ink preparation, coating activities, and membrane electrode assembly (MEA). The facility will also consist of supporting units or activities such as one cooling tower, autogenous fiber laser welding, two research and development laboratories, one emergency generator and other natural-gas fired combustion equipment.

Name of Applicant or Sponsor:	Telephone: 518-441-2712
Plug Power Inc.	E-Mail: doconnell@plugpower.com

Address:

1025 John St.

City/PO:	State:	Zip Code:
West Henrietta	NY	14586

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: New York State Department of Environmental Conservation (NYSDEC)	☐	☑

3. a. Total acreage of the site of the proposed action? 3 acres
   b. Total acreage to be physically disturbed? 0 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 12.5 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☑ Rural (non-agriculture) ☑ Industrial ☑ Commercial ☑ Residential (suburban)
   ☐ Forest ☑ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES
If Yes, identify: _____	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO ☑	YES ☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑
10. Will the proposed action connect to an existing public/private water supply?	NO	YES
If No, describe method for providing potable water: _____ _____	☐	☑
11. Will the proposed action connect to existing wastewater utilities?	NO	YES
If No, describe method for providing wastewater treatment: _____ _____	☐	☑
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO ☑	YES ☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO ☐	YES ☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: _____ _____		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment: _____ _____		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe: _____ _____		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe: _____ _____		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: _____ Date: _____

Signature: _____ Title: _____

PRINT FORM

EAF Mapper Summary Report

Tuesday, December 14, 2021 8:54 PM

Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No