

Illinois Environmental Protection Agency  
Bureau of Air, Permit Section  
1021 N. Grand Avenue East  
P.O. Box 19506  
Springfield, Illinois 62794-9506

Project Summary  
Proposed Construction Permit  
Green Era 83<sup>rd</sup> Street, LLC  
Chicago, Cook County, Illinois

Site Identification No.: 031600TQW  
Application No.: 21060012

Schedule

Public Comment Period Begins: October 3, 2022  
Public Comment Period Closes: December 19, 2022

Illinois EPA Contacts

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## **I. INTRODUCTION**

Green Era 83<sup>rd</sup> Street, LLC (Green Era) has applied for a Construction Permit for its plant located at 650 W. 83<sup>rd</sup> Street in Chicago. This plant requires an air pollution control construction permit because it is a source of emissions. The Illinois EPA has prepared a draft of the permit that it would propose to issue for the plant. However, before issuing the permit, the Illinois EPA is holding a public comment period to receive comments on this proposed action and the terms and conditions of the draft permit that it would propose to issue.

This plant is located in an area of Environmental Justice concern.

## **II. SOURCE DESCRIPTION**

Green Era proposes to construct a Liquid and Solid Food Waste Recycling Facility. The proposed facility will produce a pipeline quality biomethane gas from liquid and solid food wastes to be injected into natural gas interstate pipeline by use of anaerobic digesters and biogas treatment system. The emission units at this plant that require a construction permit are shown in Table 1, below.

**Table 1. Listing of Non-Exempt Emission Units Located at the Source.**

| <b>Emission Unit and Description</b>  | <b>Construction Date (and Date Last Modified)</b> |
|---|---|
| One (1) 320,000 Gallon Biomass Equalization Tank (T-100)  | TBD   |
| One (1) 1,640,000 Gallon Anaerobic Digester Tank (T-105) generating a maximum of 500 scfm Biogas  | TBD   |
| One (1) Biogas Handling and Processing System with two (2) potential operating scenarios:<br>Biogas Upgrade (typical) operating scenario controlled by one (1) Thermal Oxidizer (F-330) handling 155-scfm tail gas (and with a maximum capacity of 360-scfm) and one (1) Flare (F-370) handling 226-scfm biomethane (and with a maximum capacity of 800 scfm); or<br>Biogas No-Upgrade (contingent) operating scenario controlled by one (1) Flare (F-370) handling 500-scfm biogas (and with a maximum capacity of 800 scfm) | TBD   |

| Emission Unit and Description  | Construction Date (and Date Last Modified) |
|--|--|
| Process Building controlled by an Ionizer Canon and Carbon Guard Bed System for Odor Control and that contains food waste processing equipment consisting of:<br>Two (2) 30,000 Gallon Liquid Food/Wash Water Tanks (T-050A & T-050B);<br>One (1) 30,000 Gallon Screened Digestate Tank (T-205);<br>Two (2) 14,000 Gallon Polymer Tanks (T-210A & T-210C);<br>One (1) 2,000 Gallon Polymer Tank (T-210B)<br>One (1) 200 Gallon Floc Tank (T-211);<br>Two (2) 30,000 Gallon Filtrate Tanks (T-250A & T-250B);<br>One (1) 30,000 Gallon Spare Tank (T-251);<br>One (1) 90 Yard <sup>3</sup> Live-Bottom Receiving Bunker (H-062);<br>One (1) Separation Mill (S-063);<br>One (1) 5,500 Gallon Grit Separation Tank (T-065A);<br>One (1) In-Line Solids Removal Screen Press (S-205);<br>One (1) Belt Press (Y-211) | TBD  |
| Two (2) 40 Yard <sup>3</sup> Non-Digestible Waste Trash Compactors   | TBD  |

These units are sources of emissions because the handling of liquid and solid food waste, anaerobic digestion of these wastes, and the handling and treatment and combustion of biogas generated at this facility will result in emissions of Carbon Monoxide (CO), Nitrogen Oxides (NO<sub>x</sub>), Particulate Matter (PM), Sulfur Dioxide(SO<sub>2</sub>), and Volatile Organic Material (VOM).

The following table lists annual Potential to Emit (PTE) of pollutants to be emitted from this source, as limited by the proposed Construction permit:

**Table 2. Potential Emissions of the Source (as limited by permit).**

| <u>Pollutant</u>                   | <u>PTE as limited by permit (Tons/Year)</u> |
|------------------------------------|---|
| Carbon Monoxide (CO)               | 45.10                                       |
| Nitrogen Oxides (NO <sub>x</sub> ) | 10.56                                       |
| Particulate Matter (PM)            | 0.44  |
| Sulfur Dioxide (SO <sub>2</sub> )  | 59.85                                       |
| Volatile Organic Material (VOM)    | 20.36                                       |

Because this source has not yet been constructed, there have been no reported emissions.

This source also contains emission units and activities that are exempt from permitting under 35 Ill. Adm. Code 201.146 and the emissions from such units are not limited by the conditions of the draft permit. These emission units include:

Natural gas fired boiler with the heat input capacity of less than 10 mmBtu/hr and gas fired engine generator with capacity less than 1,118kW (1,500 hp), pursuant to 35 Ill. Adm. Code 201.146(d) and (i), respectively.

In cases where the potential emissions of exempt emission units may contribute to the source exceeding major source thresholds (for example, if the emission limits in the draft construction permit were 90% or more of the applicable major source thresholds and the exempt units' PTE were 5% or more of the threshold) the Illinois EPA would have established limits on such emission units in the draft construction permit that would normally be exempt from permitting. The permitting exemptions in 35 Ill. Adm. Code 201.146 do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements.

### **III. GENERAL DISCUSSION**

Construction permits are federally enforceable, that is, the terms and conditions of the permits can be enforced by the United States Environmental Protection Agency (USEPA) under federal law, as well as by Illinois government and the public under state law. These permits can establish federally enforceable limitations on the operation and emissions of a source that restrict the potential emissions of the source.

The source would be allowed to construct this plant under this proposed construction permit because the actual emissions of the plant will be below the levels at which the plant would be considered a major source under Titles I, III, and V of the federal Clean Air Act. The plant's potential emissions in the absence of limits established in the proposed construction permit would be such that the plant would not be considered a major source under Title V of the federal Clean Air Act and as a result the source will be required to apply for a Lifetime Operating Permit after construction and the performance testing required by the draft construction permit is complete.

The proposed construction permit proposes to allow operation of the equipment listed in Table 1 above for a period of twelve (12) months from the date of initial startup of any of the equipment listed in the construction permit in order to allow performance testing and the compilation of the results of such testing.

The potential emissions of the plant to below the major-source-thresholds of 250 tons for CO, PM, and SO<sub>2</sub>, and 100 tons for NO<sub>x</sub> and VOM. The potential emissions of other pollutants (e.g. Hazardous Air Pollutants) from the plant are also small enough that no restrictions are needed to avoid being a major source of these pollutants.

### **IV. APPLICABLE EMISSION STANDARDS**

All emission units in Illinois must comply with state emission standards adopted by the Illinois Pollution Control Board (Board). These emission standards represent the basic requirements for sources in Illinois. The Board has specific standards for units emitting sulfur under 35 Ill. Adm. Code Part 214. The Thermal Oxidizer (F-330) and Flare (F-370) associated with the Biogas Handling and Processing System are subject to 35 Ill. Adm. Code Part 214 Subpart K (Process Emission Sources), which limits the emissions of SO<sub>2</sub> from any process emission unit to 2,000 parts per million (ppm). The Board also has specific standards for units emitting VOM in the greater Chicago area under 35 Ill. Adm. Code Part 218. The Biogas Handling and Processing System is subject to 35 Ill. Adm. Code Part 218 Subpart G (Use of Organic Material), which limits VOM emissions from the use of liquid organic materials to eight pound per hour or requires an 85% reduction in uncontrolled VOM emissions.

The application proposes that the plant will comply with applicable state and federal emission standards.

## **V. CONTENTS OF THE PERMIT**

The permit that the Illinois EPA is proposing to issue will identify the specific emission standards that apply to the emission units at the plant. As explained, the Thermal Oxidizer (F-330) and Flare (F-370) associated with the Biogas Handling and Processing System are subject to 35 Ill. Adm. Code Part 214, Subpart K, which limits the emissions of SO<sub>2</sub> from any process emission unit to 2,000 ppm. The Biogas Handling and Processing System is subject to 35 Ill. Adm. Code Part 218 Subpart G, which limits VOM emissions from the use of liquid organic materials to eight pound per hour or requires an 85% reduction in uncontrolled VOM emissions

The permit would also contain limitations and requirements to assure that this plant is constructed, tested, and operated as a non-major source. The permit will limit the operation and annual emissions of the plant to below the major-source-thresholds of 100 tons/yr for CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, and VOM.

The permit will set limitations for the amount of biomethane and biogas to be combusted in the flare and the amount of tailgas to be combusted in the thermal oxidizer.

The permit conditions would also require appropriate compliance procedures, including inspection practices as well as recordkeeping and reporting requirements. The source must carry out these procedures on an on-going basis to demonstrate that the plant is being operated within the limitations set by the permit and the plant's emissions are being properly controlled.

## **VI. REQUEST FOR COMMENTS**

It is the Illinois EPA's preliminary determination that the source has met the requirements for issuance of it permit. The Illinois EPA is therefore proposing to issue the Construction Permit.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. Because substantial public interest has already been shown in this matter, the Illinois EPA will be holding a public hearing in accordance with 35 Ill. Adm. Code Part 166.