

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Geneva Energy, LLC  
Attn: Chris Head  
1705 Cottage Grove Avenue  
Ford Heights, Illinois 60411

Application No.: 10020016                      I.D. No.: 031801AAE  
Applicant's Designation: BIOMASS TRIAL      Date Received: February 8, 2010  
Subject: Trial Use of Wood Biomass Fuels  
Date Issued: February 24, 2010  
Location: 1705 Cottage Grove Avenue, Ford Heights

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission unit(s) and/or air pollution control equipment consisting of the trial use of supplemental wood biomass fuels in the tire-fired boiler (the affected boiler), as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1.0 Unit Specific Conditions

1.1 Evaluation of Wood Biomass Fuels

1.1.1 Description

Geneva Energy LLC has applied for a permit for trial use of various wood biomass fuels as supplemental fuels in its existing tire-fired boiler (the affected boiler), so that operational evaluations of the supplemental use of such fuels may be conducted. Separate evaluations of different wood biomass fuels would be conducted. These evaluations are expected to take approximately 150 hours. During these evaluations, up to 1000 tons of clean wood fuel would be used with the tires burned in the boiler.

The existing air pollution control train for the affected boiler would be operated during the trial use of biomass fuel. This control consists of a selective non-catalytic reduction (SCNR) system, a fabric filter (baghouse) and a lime scrubber with two demisting sections. These devices control the emissions of nitrogen oxides (NO<sub>x</sub>), particulate matter (PM) and sulfur dioxide (SO<sub>2</sub>) and other acid gases from the boiler.

The emissions of carbon monoxide (CO) and volatile organic material (VOM) from the boiler are controlled by good combustion practices.

1.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Boiler	Stoker Boiler, Nominal Capacity 240 mmBtu/hour	Baghouse, SNCR System, Lime Scrubber and Good Combustion Practices

1.1.3 General Provisions

- a. The wood fuels allowed to be used pursuant to this permit are:
  - i. Shredded salvaged wood supplied by Heartland Recycling LLC of Forest View, Illinois and Republic Services of Crestwood, Illinois.
  - ii. Shredded logs and branches with a diameter greater than two inches (prior to shredding) supplied by Alguire's Tree Service, Inc. of Sauk Village, Illinois.
- b. Other than to allow limited use of these wood fuels in the affected boiler (which are not allowed by Condition 2.1.6-2(a) of Permit 05040020), this permit does not affect the requirements of Permit 05040020, which shall continue to apply when wood fuel is being used to supplement the tire fuel for the affected boiler.
- c.
  - i. This Permit does not authorize acceptance of wood fuel that would qualify as acceptance of waste under the provisions of the Environmental Protection Act or implementing rules or acceptance of wood fuel by the Permittee that would qualify as hazardous waste under the provisions of the federal Resource Conservation and Recovery Act, the Environmental Protection Act, or 35 IAC Part 721, including wood fuel that would qualify as hazardous waste based on its composition or characteristics.
  - ii. This Permit does not authorize the Permittee to process wood fuel (e.g., grind, shape, form) in order to prepare it for use as fuel at the source.

- iii. This Permit does not authorize modification of the affected boiler to increase its capacity, measured in terms of both steam production and fuel heat input to the affected boiler.

1.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based upon this project not constituting a major modification subject to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, or Major Stationary Source Construction and Modification, 35 IAC Part 203, because it is not accompanied by significant increases in emissions of regulated pollutants from the source.
- b. The Illinois EPA has determined that this project, as described in the application, will not constitute a modification of the affected boiler under the federal New Source Performance Standards (NSPS), 40 CFR 60, as the project will not entail a modification pursuant to 40 CFR 60.14(e)(4). This is because this project relies on the existing capability of the affected boiler and does not necessitate any physical changes to the affected boiler to enable the firing of wood fuel.
- c. This permit is issued based upon the use of wood fuels not being subject to local siting approval pursuant to Section 39.2 of the Environmental Protection Act, because the activities engaged in by the Permittee with respect to wood fuel will not entail the transfer, storage or treatment of waste by the Permittee, so as to constitute operation of a pollution control facility, as defined by Section 3.330 of the Environmental Protection Act.

1.1.5 Operational Restrictions and Work Practices

- a. Wood fuel shall be clean, that is, free of contamination and foreign matter.
  - i. For this purpose, contamination means a non-wood material or substance that is not naturally present in the wood material and that has been applied to the surface or absorbed into the wood material or is otherwise present with a wood material. Examples of contaminated wood include particle board and plywood (adhesives), wood that is painted or preservative treated and wood chips that have been used as animal bedding.

- ii. For this purpose, foreign matter means non-wood objects that are commingled with a wood material. Examples of foreign materials include garbage, litter, metal and plastic objects, stone, brick, cardboard, and paper.
- b. i. Prior to accepting wood fuel from a supplier the Permittee shall obtain a written certification from the supplier that the feedstock(s) for the wood fuel for the source, i.e., Geneva Energy, are handled as follows:
  - A. For feedstocks that constitute virgin material, the stream or lots of such feedstock would be subject to an appropriate quality control program to ensure that contamination and foreign matter are not present. If incidental levels of contamination or foreign matter are identified as a part of this program, the contaminated material or foreign matter would be removed before such feedstock is used in the wood fuel for the source. If more than incidental levels of contamination or foreign matter are identified, that lot or stream of feedstock would not be used. For this purpose, a virgin material means a wood material that is directly collected or harvested at the point of origin. Materials that are recovered or recycled from mixed streams of materials or wastes are not virgin materials.
  - B. If the feedstock for the wood fuel for the source would potentially include streams that are not virgin material, for each potential stream or lot of such feedstock:
    - I. If contamination or foreign matter is present in such a form or to such an extent that it cannot be readily removed, that stream or lot of potential feedstock would not be used in the fuel for the source.
    - II. Each potential stream or lot of such feedstock would be inspected and/or sorted in accordance with Option A, B or C, below. This

activity would be performed while the material is in a form that enables effective inspection and sorting of material prior to mixing with other potential feedstock, or fine shredding of the material.

Option A. If contamination or foreign material should not be present in the feedstock, the feedstock would be inspected prior to inclusion in the wood fuel for the source to determine whether any contamination or foreign matter is present, with appropriate sorting to remove any contaminated material or foreign matter if it is present.

Option B. If only incidental contamination or foreign matter should be present, feedstock would be sorted as a routine matter to remove any contaminated material or foreign matter.

Option C: Feedstock would be sorted as a routine matter to separate the acceptable fuel material from contaminated material and foreign matter, using a positive sort (i.e., acceptable wood fuel would be selected from the mixture of wood and other materials).

- ii. The Permittee shall take reasonable steps to ensure the accuracy of the supplier's certification. At a minimum, these steps shall include either: (1) inspection and audit of the supplier's facilities and operations, or (2) appropriate contractual agreements with a supplier including meaningful penalty provisions for noncompliance.
- c. i. The Permittee shall only accept shipments of wood fuel in which:
  - A. The wood fuel is clean, that is, the fuel as unloaded at the source is free of contamination and foreign matter, as confirmed by visual inspection of each

shipment of wood fuel at the source prior to its acceptance; and

- B. The wood fuel is ready for use as fuel as delivered to the plant, without the need for further processing by the Permittee.
  - ii. The Permittee shall carry out the acceptance of wood fuel in a manner that ensures that wood fuel accepted at the source is free of contamination and foreign matter and satisfies applicable legal criteria for the Permittee to accept such material, including the applicable requirements of this permit.
- d.
  - i. The Permittee shall store and otherwise manage wood fuel so that accepted wood fuel is not degraded or otherwise damaged such that the wood fuel can no longer be used as fuel.
  - ii. The Permittee shall handle wood fuel in accordance with good air pollution control practices to minimize PM emissions.
- e. The amount of wood fuel accepted at the source shall not exceed 1000 tons.
- f. The wood fuel fed to the affected boiler shall not constitute more than 50 percent of the total solid fuel input into the affected boiler, on a heat input basis, daily average.

1.1.6 Emission Limitations

- a. This permit is issued based on negligible emissions of particulate matter (PM) from the handling of wood fuel at the source. For this purpose, PM emissions shall not exceed 0.10 pounds/hour and 0.44 tons/year.
- b. This permit is issued based on the firing of wood fuel in the affected boiler, as addressed by this permit, contributing to at most minimal increases in the emissions of regulated air pollutants from the affected boiler.

1.1.7 Ash Sampling and Analysis Requirements

- a.
  - i. The Permittee shall take representative samples of the fly ash from the affected boiler collected by the associated baghouse and have them analyzed for metals (i.e.,

arsenic, cadmium, chromium, copper, lead, mercury and nickel) content, by weight, by ultimate analysis using standard methods accepted by USEPA.

- ii. This sampling shall be conducted for the following operating scenarios. The Permittee shall take appropriate measures to ensure that the ash sample is representative of the operating scenario.
  - A. Burning tires only (without any wood fuel) to provide baseline data.
  - B. Burning of each class of wood fuel, e.g., during burning of shredded salvaged wood fuel.
- b. The Permittee may either analyze individual grab samples or composite samples collected over a period of operation. If grab samples are analyzed, samples shall be taken that address the greatest proportion of wood fuel in the fuel mix. If composite samples are analyzed, samples shall be taken at a regular frequency during the period of operation represented by sampling.
- c. The Permittee shall keep records for the sampling and analysis conducted pursuant to this condition, including the results of the analysis, identification of the analysis methodology, and documentation for the collection of samples, including the fuel mix and operating rate of the boiler associated with the sample.

#### 1.1.8 Inspection Requirements

- a. For salvaged wood fuel, the Permittee shall inspect all proposed wood fuel feedstock at the supplier prior to shredding and shipping to the source, i.e., Geneva Energy. The Permittee shall verify that the feedstock is clean wood that is free of contaminants and foreign material. The Permittee shall keep records documenting these inspections.
- b. The Permittee shall contact the Illinois EPA Air Regional Office in Des Plaines at least 24 hours in advance of these inspections to enable Illinois EPA personnel to also inspect the proposed wood fuel material at the supplier.

#### 1.1.9 Recordkeeping Requirements

- a. The Permittee shall maintain a file containing the following for each supplier of wood fuel to the source: (1) the type(s) of wood fuel supplied; (2) the origin and description of wood fuel; (3) copies of relevant portions of the contracts, agreements or other material developed by the supplier and the Permittee identifying the applicable requirements for the type(s) of wood fuel that are provided to the source; and (4) the written certification from the supplier to the Permittee as required by Condition 1.1.5(b)(i).
- b. The Permittee shall maintain records for the type and amount of wood fuel accepted (tons, by type).
- c. The Permittee shall maintain logs (or other similar records) for this project as related to the requirements for acceptance and use of wood fuel, including records for: each shipment of wood fuel accepted at the source; the periods when wood fuel is fired, with firing rate (i.e., the amounts of wood fuel and tires fired in the affected boiler); and amount of wood fuel fired on a daily basis, as a percentage by weight of the total amount of solid-fuel fired, with supporting information and calculations.
- d. The Permittee shall keep records for any measurements of emissions conducted during this project.
- e. The Permittee shall maintain the records required by this permit in accordance with the provisions of Permit 05040020 that address retention and availability of records.

1.1.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA on the day that it initially accepts wood fuel at the source for use in the affected boiler.
- b. Prior to accepting any wood fuel at the source, the Permittee shall provide the Illinois EPA with a copy of the schedule for the project that includes the periods when the Permittee plans to operate the affected boiler with wood fuel. For this purpose, the copy of the schedule and any revisions to the schedule shall be submitted by facsimile to the Illinois EPA's Regional Office in Des Plaines and to Bradley Frost, Community Relations Coordinator,

Illinois Environmental Protection Agency, 1021 North Grand Avenue East, Post Office Box 19276, Springfield, Illinois, 62794-9276, Facsimile 217-524-5023.

- c. The Permittee shall submit a project report to the Illinois EPA within 10 days of completion of this project or May 31, 2010, whichever is earlier. This report shall include an overall description of the project and for each mode of evaluation, a description of the operation that was evaluated, a chronology of the evaluation with any significant events, a summary of monitored emissions and opacity data, any deviation from the evaluation protocol and explanation for that deviation, results of ash sampling and analysis required by Condition 1.1.7, any specific findings resulting from the evaluations, and the overall conclusions of the evaluations.
- d. The Permittee shall notify the Illinois EPA of any deviation from the requirements of this permit in a report submitted no later than 10 days after the deviation or 5 days after this project is concluded, whichever occurs first. This report shall include at least the following information for each deviation: the date, time and duration of the deviation, a description of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences during the remainder of the project.
- e. Unless otherwise instructed in writing by the Illinois EPA, two copies of notifications and reports required by this permit shall be sent to the Illinois EPA, Air Compliance Section in Springfield and one copy shall be sent to the Illinois EPA, Air Regional Office in Des Plaines.

Illinois Environmental Protection Agency  
Bureau of Air Compliance Section (MC 40)  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
9511 West Harrison  
Des Plaines, Illinois 60016

Facsimile 847-294-4018

1.1.11 Authorization for Operation

Operation of the affected boiler for evaluation of wood fuels, as addressed by this Construction Permit, is authorized until May 31, 2010. This supersedes Standard Condition 6.

If you have any questions on this permit, please call Bob Smet at 217/782-2113.

Edwin C. Bakowski, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

Date Signed: \_\_\_\_\_

ECB:RPS:jws

cc: Illinois EPA, Region 1