

## BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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June 11, 2010

Florida Department of Environmental Protection  
Division of Air Resource Management,  
Bureau of Air Regulation  
2600 Blair Stone Road, MS #5505  
Tallahassee, Florida 32399-2400

**Re: DEP File No. 1110138-001-AC Geoplasma St. Lucie Plasma Gasification  
Project Draft Permit To Construct**

Dear Sirs:

On behalf of the Blue Ridge Environmental Defense League, I write to provide comments on the draft air pollution construction permit for the St. Lucie Geoplasma Gasification Project. The Blue Ridge Environmental Defense League is a regional environmental organization working with communities across the southeast to prevent pollution and protect public health. Our interest in the St. Lucie Geoplasma proposal involves both the emissions impacts to the local community and the loss of resources resulting from incineration.

As noted in the Department's public notice, St. Lucie represents the first large scale municipal solid waste plasma arc gasification facility in the United States. The maximum daily capacity is 686 tons composed of 601 tons of municipal solid waste, 59 tons of tires with steel belts and 26 tons of coke used in the plasma arc process. While not large compared with current operational incinerators, the proposed St. Lucie incinerator is still much larger than any existing plasma arc facility in the world. For that reason alone regulators should use precaution when issuing permits.

This draft permit is based on the federal requirements under New Source performance Standards, 40 Code of Federal Regulations, Part 60, Subpart Eb-Standards of performance for Large Municipal Waste Combustors under Section 129 of the Clean Air Act. This regulation applies to any facility burning more than 250 tons of municipal solid waste per day.

**Recommendations:**

We recommend that the Department clarify how the permitting category was determined, amend the waste types under "Authorized Wastes", include the process for adopting a new waste separation plan with public participation, reduce the allowable excess emissions from malfunctions and provide additional opportunity for the public to comment.

## **Permitting:**

The St. Lucie Geoplasma incinerator is being permitted under EPA rules for Large Municipal Waste Combustors. This was an apparent result of consultations between Geoplasma, the Department and the EPA. As a result, DEP has not required the applicant to demonstrate case-by-case maximum achievable control technology (MACT). Given the unique nature of the plasma arc process and the broad range of the permitted waste stream, it appears that a MACT determination is appropriate and the question remains as to how this decision was reached and if it provides the most effective level of protection.

## **Permitted Wastes and Waste Separation Plans:**

Part 60, Subpart Eb under the 60.51b Definitions section includes the following:

*Municipal solid waste or municipal-type solid waste or MSW* means household, commercial/retail, and/or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes material discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities, and material discarded by other similar establishments or facilities.

**Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation, and demolition wastes (which includes but is not limited to railroad ties and telephone poles); clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles (including motor vehicle parts or vehicle fluff).**

Household, commercial/retail, and institutional wastes include:

- (1) Yard waste;
- (2) Refuse-derived fuel; and
- (3) Motor vehicle maintenance materials limited to vehicle batteries and tires except as specified in §60.50b(g).

The Authorized Wastes in the draft permit reference the 60.51b definition, but then goes on to add these types of permitted wastes:

- a. Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
- b. Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;

**c. Wood pallets, clean wood, and land clearing debris;**

d. Packaging materials and containers;

e. Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or

f. Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

And goes on to include, with some limitations, an even broader waste stream:

“Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and gasified at the facility shall not exceed 5%, by weight, of the facility’s total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with Specific Condition 14 of this subsection.”

**g. Construction and demolition debris;**

h. Oil spill debris from aquatic, coastal, estuarine or river environments, with such items or materials including but are not limited to rags, wipes, and absorbents;

i. Items suitable for human, plant or domesticated animal use, consumption or application where the item’s shelf-life has expired or the generator wishes to remove the items from the market, with such items or materials to include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances; or

j. Consumer-packaged products intended for human or domesticated animal use or application but not consumption, with such items or materials to include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents;

k. Waste materials that: (i) are generated in the manufacture of items in categories i. or j., and are functionally or commercially useless (expired, rejected or spent); or (ii) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.

l. Waste materials that contain oil from: (i) the routine cleanup of industrial or commercial establishments and machinery; or (ii) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.

m. **Used oil** and used oil filters. Used oil containing a polychlorinated biphenyls (PCB) concentration equal or greater than 50 ppm shall not be burned, pursuant to the limitations of 40 CFR 761.20(e); or

n. Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW.

[Rules 62-4.070(1) and 62-4.070(3) F.A.C., and 40 CFR 60.51b.]

Under Prohibited Wastes the draft lists the following:

Prohibited Fuels: The facility shall not gasify:

a. Those materials that are prohibited by state or federal law;

b. Those materials that are prohibited by this permit;

c. Lead acid batteries;

d. Hazardous waste;

e. Nuclear waste;

- f. Radioactive waste;
- g. Sewage sludge;
- h. Explosives; and
- i. Beryllium containing waste, as defined in 40 CFR 61, Subpart C.

and wastes that should not *knowingly* be burned include:

“Further, the facility shall not knowingly burn:

- j. Nickel-cadmium batteries pursuant to Section 403.7192 (3);
- k. Mercury containing devices and lamps pursuant to Sections 403.7186(2), and (3);
- l. Untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
- m. Segregated loads of biological waste; and
- n. CCA treated wood.”

While the amount of non-MSW materials permitted is small (5%), the permit does not require adequate waste screening to prevent incineration of materials either excluded under 60.51b or listed as excluded in this permit. In addition, the items listed that cannot *knowingly* be burned represent a loophole. It is difficult to imagine how “segregated loads of biological waste” could be overlooked. The waste types list under “Authorized Feedstocks” should be amended to conform to the definition in 60.51b.

The draft permit includes this reference a materials separations plan:

Waste Operating Plan: Thirty days prior to operation of the Geoplasma facility, the permittee must submit an updated solid waste operating plan to the SED waste program. [Rule 62-4.070(3) F.A.C.]

If the existing recycling operations at the St. Lucie County Sanitary Landfill are altered by Geoplasma’s operations, a new or amended plan should be included with this permit. There is no reference to a public notice in the draft permit. As defined in 60.51b:

*Materials separation plan* means a plan that identifies both a goal and an approach to separate certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling. A materials separation plan may include elements such as dropoff facilities, buy-back or deposit-return incentives, curbside pickup programs, or centralized mechanical separation systems. A materials separation plan may include different goals or approaches for different subareas in the service area, and may include no materials separation activities for certain subareas or, if warranted, an entire service area.

#### **§ 60.57b Siting requirements.**

(a) The owner or operator of an affected facility shall prepare a materials separation plan, as defined in §60.51b, for the affected facility and its service area, and shall comply with the requirements specified in paragraphs (a)(1) through (a)(10) of this section. The initial application is defined as representing a good faith submittal as determined by EPA.

However, the Permit Application references the materials separation plan in Section 4.2.2:

“Operator training standards must be adhered to in accordance with 40 CFR 60.54b and a **materials separation plan must be developed in accordance with 40 CFR 60.57b.**”

Development of a waste separation plan should be included as a permit condition.

On a related note, the projected “byproduct” of the plasma arc process is 57,900 tons of vitrified material for use as aggregate. Under Florida statutes, burning waste to produce electricity and sand counts as “recycling”. As the permit application notes on page 21, “*However, any solid waste used for the production of renewable energy shall count toward the long term recycling goal as set forth in Florida Statute 403.7032.*”

**Emissions:**

As noted previously, the applicable federal regulation which the State of Florida stipulates for operation of the facility is 40 CFR Part 60 Subpart Eb, which is the standard of performance for municipal waste combustor steam generating units (Sections 60.50b through 60.59b). Plasma arc gasifiers and multi-stage thermal oxidizers utilized in the St. Lucie incinerator are subject to the New Source Performance Standards under 40 CFR 60. With this standard in place, the annual air pollution as determined by Florida DEP is listed in Table 1.<sup>1</sup>

**Table 1. Annual Air Pollution from St. Lucie Geoplasma**

<b>Pollutant</b>	<b>Pounds per year</b>
Carbon monoxide	92,600
Nitrogen oxides	100,000
Particulates	76,000
PM-10	75,200
Sulfur dioxide	35,200
Volatile organic compounds	68,200
Hydrochloric acid	37,800
Lead	700
Mercury	10.2
<b>Total</b>	<b>410,510</b>

Similar to most incinerators, the St. Lucie Geoplasma facility will have a bypass stack which will be used during emergencies; that is, in case of a failure of the thermal oxidizers or a sudden increase in synthetic gas production.

The draft permit allows emissions in ‘unavoidable’ malfunction events:

12. Excess Emissions: Except as required by specific conditions of this permit dealing with excess emissions with regard to individual emission units, the following conditions apply to excess emissions at the Geoplasma facility.

a. Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any

24 hour period unless specifically authorized by the Department for longer duration. **A malfunction means any unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner.**

The excess emissions permit condition allowing up to two hours of uncontrolled emissions is too flexible. Recently promulgated rules for medical waste incinerators will consider all bypass events as permit violations.

Pollution from mass burn incinerators and starved air gasification units differ by the amount of pollution emitted, not by the type. In other words, both emit the same pollutants into the atmosphere, but in different amounts. The levels of oxygen and nitrogen in the combustion process affect the levels of some air pollutants. For example, EPA data show that gasification units emit more nitrogen oxides and dioxins than conventional incinerators, and equal amounts of mercury. Emissions of some pollutants are largely unchanged; in both types of combustion heavy metals are atomized and released into the atmosphere in elemental form. Dioxin emissions from gasification units are 83% higher than mass burn incinerators.<sup>ii</sup>

The abbreviated (14 days) opportunity to provide comments and the apparent lack of any public hearing is a serious barrier to public participation. Additional outreach by the Department on a project of this significance is in order and we urge you to keep the draft permit open for additional comments.

Sincerely,

David Mickey  
Blue Ridge Environmental Defense League

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<sup>i</sup> Technical Evaluation and Preliminary Determination, Section 3.4 Gasification Process Description, Page 13, St. Lucie Plasma Gasification Project, Florida DEP File No. 1110138-001-AC, May 25, 2010

<sup>ii</sup> US Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Volume 1, Fifth Edition, AP-42