# Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary


January 16, 2010

*Electronically Sent – Received Receipt Requested*

Hillestad@geoplasma.com
Hilburn Hillestad, Ph.D., President
Geoplasma-St. Lucie, LLC (Geoplasma)
171 17th Street, NW, Suite 1550
Atlanta, Georgia 30363

Re: St. Lucie Plasma Gasification Facility
DEP File Number: 1110138-001-AC
Request for Additional Information

Dear Dr. Hillestad:

The Department of Environmental Protection, Bureau of Air Regulation (Department) received your application for an Air Construction Permit on December 17, 2009. The application is to construct a waste-to-energy facility at the St. Lucie County Landfill that will gasify and recover energy from municipal solid waste (MSW) using plasma arc technology to produce 22 megawatts of electricity.

Pursuant to Rule 62-4.055(1), Florida Administrative Code (F.A.C.), the Department reviewed the application and requests submittal of the following additional information. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. Notice of Application: Please publish the attached notice in a newspaper of general circulation in the area of the project. Contact the undersigned for further details.

2. Applicable Regulations: Please advise whether Geoplasma has received guidance from the U.S. Environmental Protection Agency (EPA) regarding the applicability of 40 Code of Federal Regulations (CFR), Part 60, Subpart Eb – Standards of Performance for Large Municipal Waste Combustors (MWC). Otherwise provide the applicability rationale so that it can be forwarded to EPA Region for their review and input. The Department has already contacted EPA Region 4 to make them aware that such a determination request may be forthcoming. [40 CFR 60, Subpart Eb]

3. Case-by-Case Maximum Achievable Control Technology (MACT) Determination: According to the application, the facility will emit more than 10 tons per year (TPY) of hydrogen chloride (HCl) which is classified as a hazardous air pollutant (HAP). Therefore the facility will be a major source of HAP. If Subpart Eb does not apply, it will be necessary for Geoplasma to submit a case-by-case MACT proposal. It would be reasonable to develop MACT emission limits for the same pollutants governed by Subpart Eb. [Rule 62-204.800(11)(d)2., F.A.C.; 40 CFR 63, Subpart B]

4. Process Rates: Please indicate which maximum process rates and averaging times are proposed for use with mass emission limits to limit the potential to emit (PTE). The possible parameters are heat input rate to the thermal oxidizer, MSW input or steam production.
[Rules 62-4.070 (Reasonable Assurance) and 62-210.200 (Definitions – PTE), F.A.C.]

5. Material Handling and Storage Best Management Practices (BMP) Plan: Please provide a BMP plan including a clearer description of the material handling and storage system (including pictures and diagrams) that supplement those already in place for the St. Lucie County MSW Landfill. Include descriptions of the storage pile management system and reasonable precautions to avoid fugitive emissions, odors and spontaneous combustion such as by minimizing drop distances, misting of material if needed, etc. Also indicate whether dust collectors will be utilized at the drop and transfer points of the fuel handling and storage system. [Rule 62-4.070, F.A.C. Reasonable Assurance]

6. Opportunity Waste Streams: What specific opportunity waste streams or categories of such streams other than the mentioned tires and sludge, are envisioned for the project.
[Rule 62-4.070, F.A.C. Reasonable Assurance]

7. Ammonia ($NH_3$) Slip: For the selective catalytic reduction (SCR) system used to control $NO_X$ emissions from the thermal oxidizer, provide the proposed $NH_3$ slip rate in parts per million by volume, dry (ppmvd) corrected to 7 percent oxygen ($O_2$)? [Rule 62-4.070, F.A.C. Reasonable Assurance]

8. Mass Emissions Rates: Please provide the proposed averaging times for the concentration and mass-based emission rates for criteria pollutants and HAP.
[Rules 62-4.070 and 62-210.200 (Definitions-PTE), F.A.C. Reasonable Assurance]

9. HCl Emissions: Please provide detailed calculations or vendor source data supporting the estimated HCl emission estimate. The HCl emission estimate appears somewhat high given the battery of pollution control equipment proposed including limestone-based-flue gas desulfurization (FGD) and activated carbon injection (ACI). [Rule 62-4.070, F.A.C. Reasonable Assurance]

10. Methods of Compliance for Emission Limits: Describe the compliance measurement procedures proposed for the project such as continuous emission monitoring systems (CEMS) and period stack testing.
[Rule 62-4.070, F.A.C. Reasonable Assurance]

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C., requires that all applications for a construction permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the application, please include a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C., also requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions, please contact David Read (permit engineer) at 850/414-7268 or me at 850-921-9523.

Sincerely,

A.A. Linero, Program Administrator
Special Projects Section

AAL/dlr

Enclosures

Cc: Leonard Shapiro, Energy Resources Group, Inc.: lshapiro@energyresourcesgrp.com
Leo Cordeiro, St. Lucie County: leoc@stlucieco.gov
Scott H. Osbourn, P.E., Golder Associates, Inc: sosbourn@golder.com
Doug Neeley, EPA Region 4: neeley.doug@epa.gov
Heather Abrams, EPA Region 4: abrams.heather@epa.gov
Lennon Anderson, SED: lennon.anderson@dep.state.fl.us.
Elizabeth Walker, Copy for DEP Files: elizabeth.walker@dep.state.fl.us

**NOTICE OF APPLICATION**
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1110138-AC
Geoplasma-St. Lucie, LLC
St. Lucie Plasma Gasification Facility
St. Lucie County

The Department of Environmental Protection (Department) announces receipt of an application for an air construction permit from Geoplasma-St. Lucie, LLC. The application is to construct a waste-to-energy facility at the St. Lucie County Landfill that will gasify and recover energy from municipal solid waste (MSW) using plasma arc technology to produce 22 megawatts of electricity.

The project will be located on a 9 acres parcel within the landfill located off of the Glades Cut-off Road, south of the crossing of Interstate 95 and the Florida Turnpike, approximately 8 miles southwest of Fort Pierce.

The project consists of waste and process materials delivery systems, plasma arc waste gasifier, thermal oxidizer, flare, heat recovery steam generator, a flue gas cleaning system, a steam turbine-electrical generator, auxiliary boiler, firewater pump and ancillary equipment

The application was received on December 17, 2009. The application is under review by the Department to determine whether it is complete. The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the following Department offices:

Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32399-2400
Telephone: 850/414-7268 or 921-9523
Fax: 850/921-9533

Department of Environmental Protection
Southeast District Office – Air Program
400 North Congress Avenue, Suite 200
West Palm Beach, Florida 33401
Phone: 561/681-6600
Fax: 561/681-6790

The application can be accessed at the Department's website at:

www.dep.state.fl.us/Air/emission/construction/geoplasma.htm

**From:** Linero, Alvaro
**Sent:** Friday, January 15, 2010 11:25 AM
**To:** Neeley.Doug@epamail.epa.gov
**Cc:** 'abrams.heather@epa.gov'; 'forney.kathleen@epamail.epa.gov'; 'Worley.Gregg@epamail.epa.gov'; 'Goff.Keith@epamail.epa.gov'; 'Waterson.Sara@epamail.epa.gov'; Kahn, Joseph; Vielhauer, Trina
**Subject:** RE: Geoplasma Air Permit Application (St. Lucie County)

Hi Doug:

Earlier I sent the email regarding a non-PSD project to Gregg's section.

I should have included you (and maybe Keith and Sara) too because there is an important question of NSPS applicability.

The facility will gasify MSW (600 TPD) by using plasma arc technology and will then oxidize the product gas through thermal oxidizers. They will recover heat/steam to make 22 MW of electricity.

See attached figure.

There is a lot of pollution control equipment. The applicant proposes to comply with the MWC 40 CFR 60, Subpart Eb requirements, but we need to know whether it is actually subject to Eb.

Otherwise we may need to conduct a case-by-case MACT determination because emissions of HCl are greater than 10 TPY.

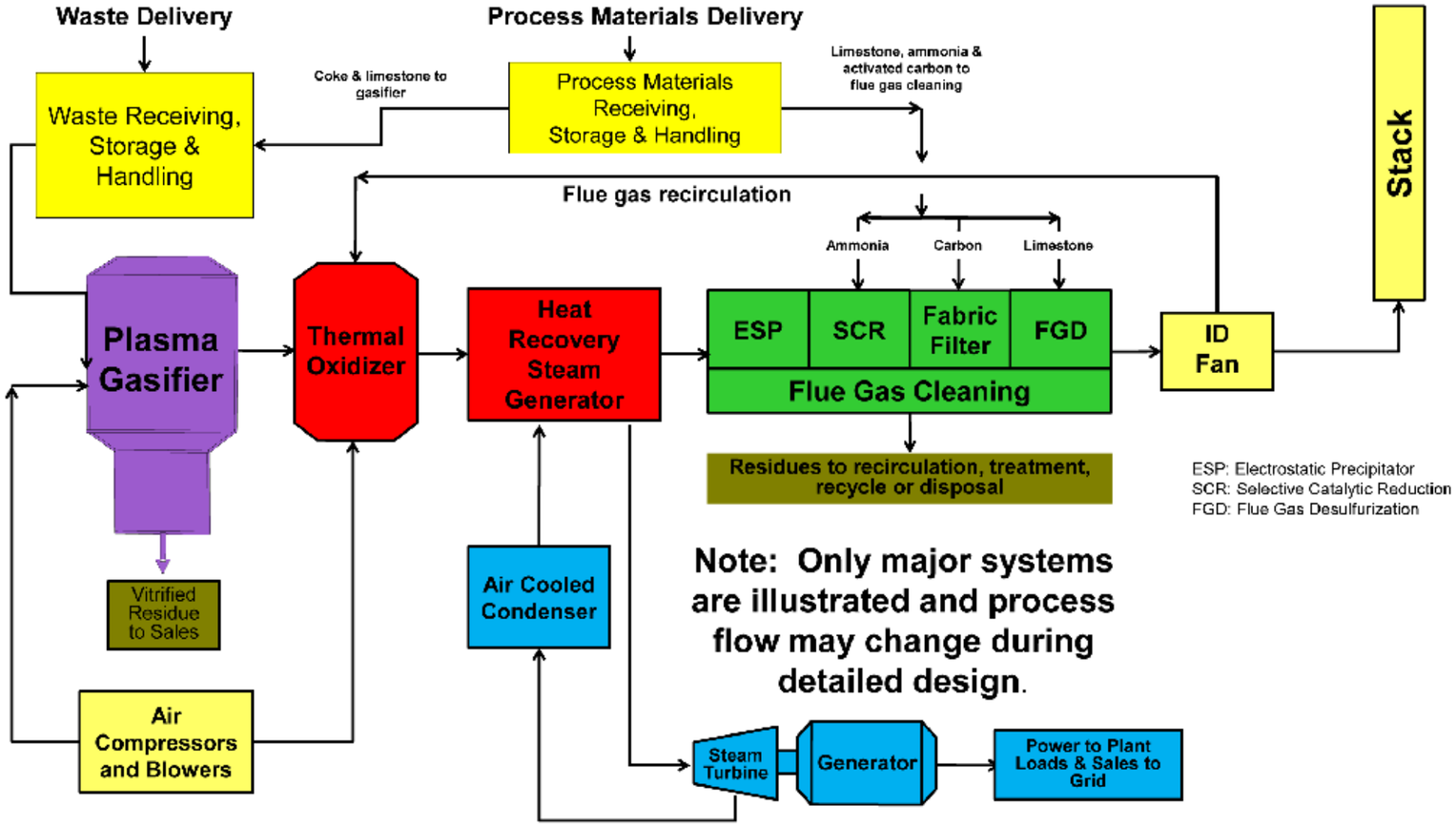
The entire application is available at:

www.dep.state.fl.us/Air/emission/construction/Geoplasma.htm

Is this enough for you to let us know what you think or would you need a letter from us or the applicant?

Thank you,

Al Linero
1-850-921-9523




**LEGEND**

- Plant Input
- Plant Output
- Electricity Generation
- Air Pollution Control
- Process Equipment
- Process Equipment

## NOTES

1. Process assumptions can vary during detail design.
2. Cooling water, utilities process chemicals, ect. not shown.
3. Only major equipment is illustrated.

| REV. | DATE | DES | REVISION DESCRIPTION | GIS | CHK | RVW |
|---|---|---|---|---|---|---|

PROJECT

St. Lucie Plasma Gasification Facility

TITLE

Steam Cycle Process Flow Diagram

Golder Associates Tampa, Florida

| | | | | |
|---|---|---|---|---|
| PROJECT No. 083-89629 | | | FILE No. 083-89629A006 | |
| DESIGN | JG | 12/14/2009 | | REV. 0 |
| GIS | JG | 12/16/2009 | | |
| CHECK | PP | 12/16/2009 | FIGURE 2-5 | |
| REVIEW | SO | 12/16/2009 | | |

F:\PROJECTS\2008 PROJ\083-89629 Geoplasma Environmental Support\A - Site Location\GIS\MXD\083896629A006 Fig 2-5 Steam Cycle.mxd