TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

APPLICANT

New Hope Power Company

8001 U.S. Highway 27 South
South Bay, Florida 33493

Okeelanta Cogeneration Plant
Facility ID No. 0990332

PROJECT

Permit Revision No. 0990332-022-AC

Fuel Management Plan

COUNTY

Palm Beach County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

February 26, 2015

1. GENERAL PROJECT INFORMATION

1.1. Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

1.2. Facility Description and Location

The existing facility is located in Palm Beach County at 8001 U.S. Highway 27 South, South Bay, Florida. The map coordinates are UTM Zone 17, 524.90 kilometer (km) East and 2940.10 km North (Latitude 26° 35’ 00” North / Longitude 80° 45’ 00” West).

This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to Ambient Air Quality Standards (AAQS).

A list of the regulated emission units (EU) at the facility is given in **Table 1** below.

TABLE 1 – LIST OF EMISSION UNITS.

E.U. No.	Brief Description
001	Cogeneration Boiler A (760 MMBtu per hour)
002	Cogeneration Boiler B (760 MMBtu per hour)
003	Cogeneration Boiler C (760 MMBtu per hour)
004	Material handling and storage
005	Miscellaneous support equipment (steam turbine electrical generators, condensers, cooling towers, etc.)
007	Cogeneration Plant - Reciprocating Internal Combustion Engines (5 Engines)

1.3. Facility Regulatory Categories

- Title III: The facility is a potential major source of hazardous air pollutants (HAP).
- Title IV: The facility does not operate any units subject to the acid rain provisions of the Clean Air Act.
- Title V: The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- PSD: The facility is a PSD major source of air pollution with respect to Rule 62-212.400, F.A.C.
- PPSC: The facility is subject to Chapter 62-17, F.A.C., for Power Plant Site Certification because it produces more than 75 MW of steam-generated electrical power.
- NSPS: The facility operates units subject to the New Source Performance Standards in 40 CFR 60, including Subpart Da (boilers).
- NESHAP: The facility operates existing boilers that are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Subpart DDDDD of 40 CFR 63.

1.4. Project Description

The Applicant requested that the limits on chromium, copper and arsenic in the Fuel Management Plan be clarified to be on a "wet" basis. The TV permit is not clear on this issue. On page FM-2 of the Fuel Management Plan, it is stated "Based on the analysis of a composite sample, wood material containing more than 70.7 parts per million (ppm) arsenic or 83.3 ppm chromium or 62.8 ppm copper shall not be burned". However, it is not specified as to whether the concentrations are on a wet or dry basis. Since dry basis is not specified, it could be assumed that the concentrations should be on a wet, as-received basis.

1.5. Application Processing Schedule

Application for an Air Construction Permit was received on December 4, 2015. The Application was deemed complete.

2. PSD APPLICABILITY

2.1. General PSD Applicability

The Department regulates major stationary sources in accordance with Florida's PSD program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal ambient air quality standards (AAQS) or areas designated as "unclassifiable" for these regulated pollutants. Commonly addressed PSD pollutants in the power industry include: carbon monoxide (CO), NO_X, particulate matter (PM), PM with a mean diameter of 10 microns or less (PM_{10}), PM with a mean diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), lead (Pb), fluorides (F), sulfuric acid mist (SAM), and mercury (Hg). According to state and federal rules, six greenhouse gases (GHG), are also subject to PSD review.

Additional PSD pollutants that are more common to certain other industries include: hydrogen sulfide (H_2S), TRS including H_2S, reduced sulfur compounds (RSC) including H_2S, municipal waste combustor (MWC) organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans (dioxin/furan), MWC metals measured as PM; MWC acid gases measured as SO_2 and HCl, and MSW landfill emissions as non-methane organic compounds (NMOC).

As defined in Rule 62-210.200(174), F.A.C., a stationary source is a "major stationary source" (major PSD source) if it emits or has the potential to emit (PTE):

- 250 tons per year (TPY) or more of any PSD pollutant; <u>or</u>
- 100 TPY or more of any PSD pollutant <u>and</u> the facility belongs to one of the 28 listed PSD major facility categories.
- For the special case of greenhouse gases (GHGs), the facility must first be shown to emit or have a PTE of 100,000 tons/year of GHGs as carbon dioxide equivalent (CO_2e) to (possibly) be subject to regulation.[1]

The list given in the citation includes the category of "fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input". This category applies to the Okeelanta Cogeneration Plant before and after the proposed project. The Okeelanta Cogeneration Plant is a major stationary source based on actual emissions of and potential to emit 100 TPY or more of several individual PSD pollutants.

If emissions of GHGs expressed as CO_2e emissions are greater than 100,000 tons/year, then the total (unweighted) GHGs mass emissions are compared with the 100 and 250 tons/year thresholds to determine whether the source is a major stationary source.[2]

For major stationary sources such as the Okeelanta Cogeneration Plant, PSD applicability for modification projects is based on thresholds known as the significant emission rates (SER) as defined in Rule 62-210.200(258), F.A.C. Any

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[1] In making this calculation, the values listed in 40 CFR 98, Subpart A, Table A-1 are used to weight emissions by their respective Global Warming Potential (GWP). For example, the current GWP factors for four of the GHGs are: $CO_2 = 1$; $CH_4 = 25$; $N_2O = 298$ and $SF_6 = 22{,}800$.

[2] This procedure was held to be invalid at the federal level due to a U.S. Supreme Court opinion dated June 23, 2014. Link to Supreme Court Opinion The Department is reviewing the effects of the decision on its own rules. EPA issued guidance regarding implementation of the decision on July 24, 2014. Link to EPA Guidance

"net emissions increase" as defined in Rule 62-210.200(189), F.A.C., of a PSD pollutant from the project that equals or exceeds the respective SER is considered "significant". SER also means any emissions rate or any net emissions increase of a PSD pollutant associated with a major stationary source or major modification which would construct within 10 km of a Class I area and have an impact on such area equal to or greater than 1 gram per cubic meter, 24-hour average.

Although a facility may be "major" (i.e., emits or has the potential to emit 100 or 250 TPY as applicable) for only one PSD pollutant, a project must include BACT controls for any PSD pollutant that exceeds the corresponding SER given in **Table 2**.

TABLE 2 – LIST OF SER BY PSD-POLLUTANT. [1]

Pollutant	SER (tons/year)	Pollutant	SER (tons/year) [4]
CO	100	NO_X	40
$PM/PM_{10}/PM_{2.5}$	25/15/10	Ozone (VOC) [2]	40
$PM_{2.5}$ (NO_X)	40	$PM_{2.5}$ (SO_2)	40
Ozone (NO_X) [2]	40	SAM	7
SO_2	40	Pb	0.6
Hg	0.1	GHGs	> 75,000 (CO_2e) and > 0 (mass) [3]

1. Excluding fluoride and pollutants specific to the Pulp and Paper industry, MWCs, MSW landfills.
2. Ozone (O_3) is regulated by its precursors (VOC and NO_X). PSD for $PM_{2.5}$ can be triggered by its precursors (NO_X and SO_2).
3. Pursuant to 40 CFR 52.21(b)(23)(ii), pollutants with no SER listed at 40 CFR 52.21(b)(23)(i) have a SER of zero (0) tons/year.
4. SER also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 km of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

2.2. PSD Applicability for Project

For this project, there will be zero emissions increases expected and the project is not subject to PSD preconstruction review.

3. DEPARTMENT REVIEW

The Department has reviewed the applicant's analysis and conclusion and is in agreement that the project is not subject to a PSD review.

The Department will modify **Specific Condition 11** of Air Construction Permit No. 0990332-017-AC as follows:

11. Primary Fuel: The primary fuel for the plant shall be biomass, which shall consist of bagasse and authorized wood material. Bagasse is the fibrous vegetative residue remaining after the sugarcane milling process. Authorized wood material is clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter. Each cogeneration boiler shall combust no more than 30% by weight yard waste (yard trash) on a calendar quarter basis that is defined as a municipal solid waste (MSW) in 40 CFR 60.51a. The biomass fuel used at the cogeneration plant shall not contain hazardous substances, hazardous wastes, biomedical wastes, or garbage. The fuel used at the cogeneration plant shall not contain special wastes, except wood, lumber, trees, tree remains, bagasse, cane tops and leaves, and other clean vegetative and cellulose matter. The permittee shall perform a daily visual inspection of any wood material or similar vegetative matter that has been delivered to the plant for use as fuel. Any shipment observed to contain prohibited materials shall not be used as fuel, unless such materials can be readily segregated and removed from the wood material and vegetative matter.

The permittee shall design and implement a management and testing program for the wood material and other materials delivered to the plant for fuel. The program shall be designed to keep painted and chemically treated wood, household garbage, toxic or hazardous non-biomass and non-combustible waste material, from being burned at this plant. The program shall provide for the routine inspection and/or testing of the fuel at the originating wood yard sites as well as at the cogeneration site, to ensure that the quantities of painted or chemically treated wood in the fuel are minimized. Based on the analysis of a composite sample, wood material containing more than 70.7 ppm arsenic or 83.3 ppm chromium or 62.8 ppm copper on a wet, as-received basis

shall not be burned. Fuel scheduled for burning shall be inspected daily. At a minimum, the fuel management program shall include the following sampling and analyses:

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in any increases in emissions.

Tom Cascio is the project engineer responsible for reviewing the application and drafting the permit revision. Additional details of this analysis may be obtained by contacting him by telephone at 850/717-9077 or by e-mail at tom.cascio@dep.state.fl.us in the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.