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BUREAU OF AIR REGULATION

**AIR CONSTRUCTION PERMIT APPLICATION
FOR REPLACEMENT OF
WATER-WALL TUBES OF
FOSSIL FUEL STEAM GENERATING
UNIT NO. 3
PALM BEACH COUNTY, FLORIDA**

Prepared For:

**City of Lake Worth Utilities
117 College Street
Lake Worth, Florida 33461**

Prepared By:

**Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500**

January 2009

0938-7503

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4 Copies – FDEP

1 Copy – City of Lake Worth Utilities

1 Copy – Golder Associates Inc.

APPLICATION FOR AIR PERMIT

LONG FORM



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: City of Lake Worth Utilities	
2. Site Name: Tom G. Smith Power Plant	
3. Facility Identification Number: 0990045	
4. Facility Location... Street Address or Other Locator: 117 College Street City: Lake Worth County: Palm Beach Zip Code: 33461	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Mike Ridge	
2. Application Contact Mailing Address... Organization/Firm: City of Lake Worth Street Address: 1900 2nd Avenue North City: Lake Worth State: FL Zip Code: 33461	
3. Application Contact Telephone Numbers... Telephone: (561) 533-7379 ext. Fax: (561) 540-5304	
4. Application Contact E-mail Address: mridge@lakeworth.org	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 1/22/09	3. PSD Number (if applicable):
2. Project Number(s): 0990045-007-A	4. Siting Number (if applicable):

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit
(Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

This application is for the purpose of getting authorization from FDEP to replace the damaged water-wall tubes of the fossil fuel steam generating unit No. 3 (EU ID 009).

Scope of Application


Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
009	Fossil fuel fired steam generator Unit 3	AC1B	

Application Processing Fee

Check one: Attached - Amount: \$ _____ Not Applicable

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

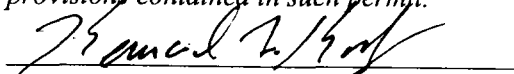

1. Owner/Authorized Representative Name : David Mulvay
2. Owner/Authorized Representative Mailing Address... Organization/Firm: City of Lake Worth Utilities Street Address: 1900 2nd Avenue North City: Lake Worth State: FL Zip Code: 33461
3. Owner/Authorized Representative Telephone Numbers... Telephone: (561) 533-7379 ext. Fax: (561) 533-7387
4. Owner/Authorized Representative E-mail Address: dmulvay@lakeworth.org
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  Signature <u>1-12-09</u> Date

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the “application responsible official” need not be the “primary responsible official.”

1. Application Responsible Official Name:		
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):		
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.		
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.		
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.		
<input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.		
3. Application Responsible Official Mailing Address...		
Organization/Firm:		
Street Address:		
City:	State:	Zip Code:
4. Application Responsible Official Telephone Numbers...		
Telephone:	ext.	Fax:
5. Application Responsible Official E-mail Address:		
6. Application Responsible Official Certification:		
<p>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</p>		
_____ Signature		_____ Date

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. Fax: (352) 336-6603
4. Professional Engineer E-mail Address:
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature _____ Date <u>1/21/09</u> (seal) 

* Attach any exception to certification statement.

**Board of Professional Engineers Certificate of Authorization #00001670.

PART B

**APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT
FOR THE REPLACEMENT OF WATER-WALL TUBES OF FOSSIL FUEL STEAM
GENERATING UNIT 3 (EU ID 009)**

City of Lake Worth Utilities (CLWU) is seeking authorization from the Florida Department of Environmental Protection (FDEP) to replace the water-wall tubes of the fossil fuel steam generating unit No. 3 (EU ID 009) at the Tom G. Smith power plant, which experienced external tube failure in May of 2008. Unit 3 is required by the City of Lake Worth to maintain system security during peak load conditions due to transmission and distribution infrastructure constraints. The facility is currently operating under Title V operating permit No. 0990045-005-AV and operates five diesel engine generators, one fossil fuel steam generator, one simple cycle gas turbine, one combined cycle gas turbine, and other ancillary equipment. The replacement of water-wall tubes will not change any of the FDEP authorized conditions for Unit 3.

The fossil fuel steam generator Unit 3 has a maximum design heat input rate of 325.1 million British thermal units per hour (MMBtu/hr) and can fire both natural gas and No. 6 fuel oil. The unit is rated at a nominal 26.5 megawatts (MW) of electricity generation. There is no hourly operation limitation on the unit.

Particulate matter (PM) emissions from the unit are limited to 0.1 pound per million Btu heat input (lb/MMBtu) during normal operation and 0.3 lb/MMBtu during soot blowing and load change. Soot blowing and load change is limited to a maximum of 3 hours in any 24-hour period. Nitrogen oxides (NO_x) emissions from the unit are limited to 0.5 lb/MMBtu while firing natural gas or No. 6 fuel oil. Maximum sulfur content of the No. 6 fuel oil is limited to 2.25 percent by weight.

Steam boilers contain tubes in which the water is evaporated to steam, also called steam generating tubes. These tubes also form the walls of the boiler and hence are called water-walls or water-wall panels. Steam generating Unit 3 experienced an external tube failure in May 2008 and needs replacement of the damaged tubes in order to operate. The damaged tubes will be replaced by like-kind tubes. The replacement has no effect on emissions, steam production, or electricity generation by the unit.

Based on guidance from FDEP, CLWU has prepared a construction permit application for the authorization of the replacement. Golder Associates Inc. (Golder) was contracted to review the air permit application and submit it to FDEP on behalf of CLWU. The air permit application package

consists of the first six pages of FDEP Form 62-210.900(1), a technical description of the project, and rule applicability for the project. Part II (Facility Information) and III (Emissions Unit Information) of the form have been excluded because there is no change to any of the existing facility or steam generating Unit 3 information.

Rule Applicability

Under Federal and State of Florida Prevention of Significant Deterioration (PSD) review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. The U.S. Environmental Protection Agency (EPA) has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. Therefore, PSD approval authority has been granted to FDEP.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing major source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in Title 40, Part 52.21 of the Code of Federal Regulations (40 CFR 52.21), *Prevention of Significant Deterioration of Air Quality*. The State of Florida has adopted the federal PSD regulations by reference [Rule 62-212.400, Florida Administrative Code (F.A.C.)]. Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

- Control technology review;
- Source impact analysis;
- Air quality analysis (monitoring);
- Source information; and
- Additional impact analyses.

CLWU's Tom G. Smith power plant facility is a major facility under FDEP Rules. An analysis of PSD would be required if replacement or repair of the Unit 3 boiler tubes is considered a "modification" under the FDEP definitions in Rule 62-210.200. Under these rules a modification is defined as:

"Modification" – Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.

As part of this definition "a physical change or change in the method of operation shall not include: 1. Routine maintenance, repair, or replacement" of component parts of an emissions unit.

The physical replacement of boiler tubes, while a physical change, is a recognized maintenance issue for boilers. Indeed, Combustion Engineering "Combustion-Fossil Power Systems" and Babcock and Wilcox "Steam Its Generation and Use" recognize boiler tube leaks as a standard maintenance issue for boilers. In the case of Unit 3, the replacement of tubes is necessary for the unit to become operational. The replacement will be "like-kind" so as to make Unit 3 operational in the same manner as before the failure. No other physical changes will be made.

For steam generating Unit 3, there is no change in the method of operation or the steam generating capacity of the boiler as a result of the replacement of water-wall boiler tubes. Consequently, there will be no change in emissions. The boiler is currently inoperable due to the damaged tubes and the project involves the "like-kind" replacement of the damaged tubes. Based on the fact that there is no net emissions increase, this project is not subject to PSD review.