

CITY OF LAKELAND, FLORIDA
COMBUSTION TURBINE PROJECT

AMBIENT AIR QUALITY IMPACT ANALYSIS WORKPLAN

FILE 16587.32.0402

See p. 3-1 for question (9)

105003

*CRSERO
POWER plant*

APRIL 1990

STEVEN M. DAY

Black & Veatch
Engineers-Architects

1500 Meadow Lake Parkway
Kansas City, Missouri 64114
(913) 339-2000, (913) 339-2880

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1.0 INTRODUCTION

The City of Lakeland Electric and Water Utilities proposes to construct and operate a simple or combined cycle combustion turbine generator at the existing Charles Larsen Power Plant located in Lakeland, Florida. The combustion turbine will be capable of generating in the range of 60 - 120 MW while operating in simple cycle, and 90 - 180 MW if facilities are added for combined cycle operation. While in combined cycle, a single heat recovery steam generator (HRSG) will be used to repower an existing steam turbine generator. No expansion in steam capacity at the site is planned, and thus the facility is not required to be licensed under the Electrical Power Plant Siting Act which requires an increase in steam capacity before coverage is applied. *Same as V.P.*

This Workplan describes the air quality applicability and modeling methodology for air quality permitting of the installation and operation of both the simple and combined cycle systems. After Florida Department of Environmental Regulation (FDER) review and approval, this Workplan will provide the basis of a mutually agreed upon procedure to be followed for the Prevention of Significant Deterioration (PSD) permitting process.

2.0 PROJECT DESCRIPTION

The Lakeland Combustion Turbine Project is located at the existing City of Lakeland Charles Larsen Plant site in Lakeland, Florida. The site is located on the south side of Lake Parker as shown in Figure 2-1.

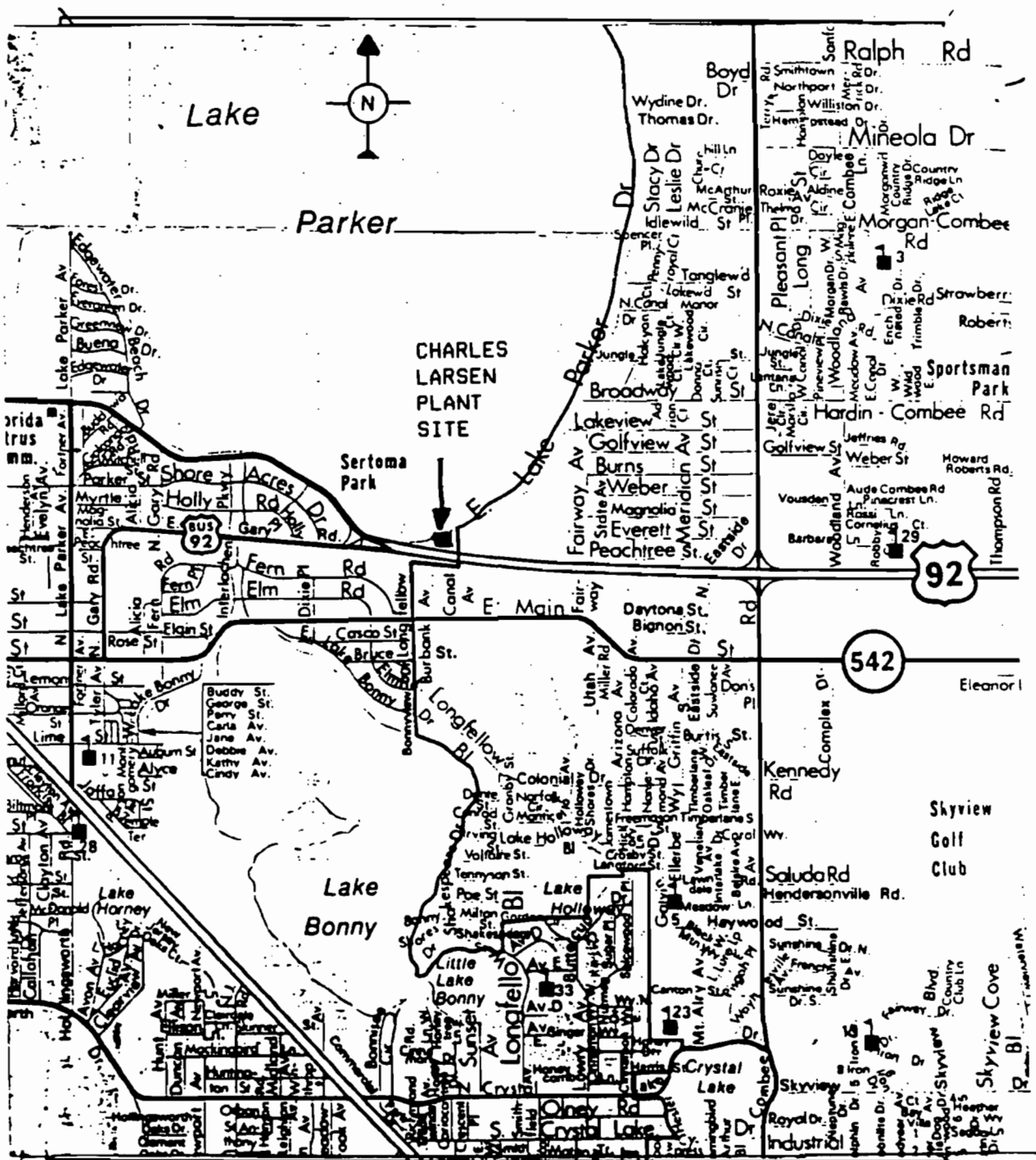
The Project will consist of a new combustion turbine generator (CTG) with the concurrent or future addition of an HRSG. Steam produced in the HRSG will be directed to an existing steam turbine. During periods when the HRSG is not operating, the combustion turbine will operate in a simple cycle mode and exhaust to a bypass stack. The new CTG will be natural gas or No. 2 fuel oil (distillate) fired.

Nitrogen oxide (NO_x) emissions from the CTG will be controlled at a level to be established by the BACT analysis.

Plant cooling will be accomplished using the existing once-through cooling system. Makeup water for the HRSG boiler and NO_x control water injection for the combustion turbines will be supplied from the Larsen Plant demineralized water supply. Wastewater will be routed to the existing wastewater system.

CTG stack
Bypass stack Lt.

FIGURE 2-1. LOCATION OF CHARLES LARSEN PLANT SITE



3.0 SOURCE CHARACTERIZATION

This section discusses the applicability of federal, state and local air quality regulations, good engineering practice (GEP) stack height determination, stack parameters and building downwash, source emission rates, and the current air quality status at the Lakeland site. Best engineering estimates and plant conceptual design information will be used to establish the modeling parameters. Any significant revisions will be incorporated into the ambient air quality impact analysis, with FDER notification and approval if appropriate.

3.1 APPLICABILITY OF REGULATIONS

The proposed Lakeland Combustion Turbine Project will be subject to PSD regulations because the installation of the combustion turbine ^{17-2.500(2)(d)} ~~constitutes a major modification to an existing major stationary source and~~ _{4.} the plant will be located in an area designated as "attainment" for applicable pollutants. In addition, the requirements of the Florida Air Pollution and Permit Rules and Regulations and New Source Performance Standards (NSPS) Subpart GG will be applicable. ✓

3.2 GEP STACK HEIGHT DETERMINATION

A GEP stack height analysis will be conducted for the existing and proposed buildings and structures at the Larsen Power Plant. Pollutant dispersion from stacks built to the maximum GEP height are not influenced by surrounding building turbulence. If stacks are built lower than GEP, special air quality modeling techniques such as downwash and cavity analyses are required to demonstrate compliance with air quality standards.

EPA's Guideline For Determination of Good Engineering Practice Stack Height (1985) will be used as a basis for this GEP analysis. The dominant structure influencing the proposed combustion turbine stacks is the existing turbine generator building. As appropriate, building downwash will be considered in the modeling analyses.

041090
LAKEWP

Q. Please give building dimensions and appropriate wind direction specific building dimensions 3-1

Top of building is 65m
GEP will be much greater
Check 17-2.27D to see if what Steve Day says is true
SD says they will be less than GEP (Think is about 440ft).

3.3 STACK PARAMETERS AND BUILDING DOWNWASH CONSIDERATIONS

Stack parameters for both natural gas and fuel oil firing will be developed for both simple and combined cycle operation. All calculations will be based on conceptual design information and manufacturer performance data. Stack parameters and emission rates will be calculated for International Standards Organization (ISO) conditions. ISO conditions are defined as 59 F ambient dry bulb temperature, sea level (14.7 psia) pressure, and 60 percent relative humidity. ✓

If the proposed exhaust stacks are less than the calculated GEP height, the building downwash option of the Industrial Source Complex Short Term (ISCST) model will be used. OK

3.4 COMBUSTION SOURCE EMISSIONS

Estimated maximum hourly emissions for the combustion turbine when firing either natural gas or fuel oil will be provided for both simple and combined cycle operation. Duct burning is not proposed for the project. All estimates will be based on a design fuel burn rate assuming an ambient temperature of 20°F and the lower heating value (LHV) of the fuels. (These assumptions are representative of the facility's maximum generation capability.)

Is this OK? — The NO_x emission rate for natural gas or fuel oil firing will be based on operations with low NO_x burner technology and water injection. NO_x emissions from the combustion turbine will be controlled at a level to be determined by the BACT analysis.

The sulfur dioxide (SO₂) emission rate with natural gas and low sulfur No. 2 fuel oil will be determined prior to initial modeling.

The emission rates of carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM) will be based on manufacturer performance data.

Table 3-1 shows the PSD de minimis emission levels for both PSD criteria and non-criteria pollutants. A pollutant is considered applicable if the annual emissions from either natural gas or fuel oil firing exceed

TABLE 3-1. PSD SIGNIFICANT EMISSION RATES AND POLLUTANT APPLICABILITY

<u>Pollutant</u>	<u>PSD De Minimis Emission Rate tons/year</u>	<u>PSD Applicability yes/no</u>
CO	100	(later)
NO _x	40	yes
SO ₂	40	yes
PM	25	yes
PM ₁₀	15	yes
O ₃ (VOCs)	40	(later)
Pb	0.6	(later)
Asbestos	0.007	(later)
Beryllium	0.0004	(later)
Mercury	0.1	(later)
Vinyl chloride	1.0	(later)
Fluorides	3	(later)
Sulfuric acid mist	7	yes
Total reduced sulfur (including H ₂ S)	10	(later)
Reduced sulfur (including H ₂ S)	10	(later)
Hydrogen sulfide	10	(later)
Toxics	?	?

Address whatever shows
up for oil and gas

the corresponding de minimis level. As shown in the table, the maximum potential annual emissions for SO₂, NO_x, PM, PM₁₀, and sulfuric acid mist exceed the criteria. These pollutants will require additional PSD review. PSD review requires a BACT analysis, an ambient air quality impact analysis, and additional impact analysis as appropriate.

3.5 CURRENT AIR QUALITY STATUS

The Charles Larsen Power Plant is located in an area which is designated as an attainment area for all applicable criteria pollutants. However, the Hillsborough County ozone nonattainment area is located approximately 7 kilometers to the west of the site.

No problem if VOC \leq 40 tpy

4.0 MODELING METHODOLOGY

This section discusses the proposed modeling methodology for determining ambient air quality impacts for *SO₂, NO_x, PM, and PM₁₀* resulting from the proposed combustion turbine addition. Section 5.0 will incorporate this methodology to define the magnitude and extent of the ambient air quality impacts.

Sulfuric acid mist

4.1 MODEL SELECTION AND DESCRIPTION

For most air quality modeling assessments, it is desirable to use both screening-level and refined dispersion modeling techniques. The screening-level modeling identifies the constraining operational parameters which will result in the highest predicted ground-level pollutant concentrations. The refined dispersion modeling identifies the maximum and highest, second-highest ambient pollutant impact concentrations, the location of these impacts, and the area which will be significantly impacted by the source.

The EPA approved SCREEN model assumes worst case meteorological conditions to predict maximum 1-hour pollutant impacts. The project expects to combust natural gas as the primary fuel with low sulfur No. 2 fuel oil as the backup fuel. The screening modeling will determine which fuel combustion process results in the highest ground-level pollutant concentrations for both simple and combined cycle operation. The resulting combustion process will be used in the refined modeling. To conservatively estimate the ambient pollutant impacts, it is assumed that the constraining combustion process will be operated 8,760 hours per year.

The terrain surrounding the plant is relatively flat. Following the recommended EPA guidance for refined models, the Industrial Source Complex Short Term (ISCST) dispersion model will be used with five years of hourly meteorological data to predict highest and highest, second-highest ambient pollutant impacts at receptor locations surrounding the plant site. The model is designed to predict ambient impacts for several averaging periods and from a variety of industrial sources. In addition, the model has the

ability to evaluate external parameters such as rural or urban environments, and building downwash and cavity impacts.

All recommended EPA default options will be utilized. The following is a listing of the options selected for the modeling:

- | | | | |
|---|--|---|-----------|
| o | Rural-urban option | : | rural ✓ |
| o | Wind profile exponents | : | default ✓ |
| o | Vertical potential temperature gradient values | : | default ✓ |
| o | Final plume rise only | : | yes ✓ |
| o | Adjust stack heights for downwash | : | yes ✓ |
| o | Buoyancy induced dispersion (BID) | : | yes ✓ |
| o | Calm processing option | : | yes ✓ |
| o | Above ground receptors used | : | no ✓ |

For unstable through stable atmospheric conditions, the wind profile exponents are 0.07, 0.07, 0.10, 0.15, 0.35, and 0.55, respectively. ✓

4.2 RECEPTOR LOCATIONS

Receptor locations must be selected with adequate density to ensure that the highest, second-highest predicted concentrations are determined. Because of the potential downwash conditions, the 1-, 3-, and 8-hour pollutant impacts are expected to occur within 1,000 meters of the plant. The 24-hour and annual average impacts will also be influenced by downwash conditions, but may occur at greater distances from the source.

Initial modeling for the HRSG and bypass stacks will be performed with receptors placed along the 36 standard radial directions surrounding the proposed source at the following downwind distances: 100 meter intervals from 100 to 1,000 meters, 250 meter intervals from 1,250 to 3,000 meters, and 1,000 meter intervals from 4,000 to 10,000 meters. Furthermore, discrete receptors will be placed along the boundaries that restrict public access. Additional modeling may be necessary with receptors placed at 100 meter intervals about the highest, second-highest impact receptor from the initial modeling results.

4.3 METEOROLOGICAL DATA

The ISCST model is generally used with a complete year of sequential hourly surface meteorological data and twice-daily mixing depths. The surface data and mixing depths are selected from locations most representative of the general area being modeled. A representative location corresponds to the station closest to the location being modeled which is in the same climatic regime.

Five years ¹⁹⁸²⁻¹⁹⁸⁶ (1981-1985) of surface and upper air meteorological data will be used for the air quality impact analysis. These data have been obtained from FDER. The hourly surface and upper air data are from the ~~Orlando and Tampa, Florida NWS~~ reporting stations, respectively. The data were selected as the most representative of meteorological conditions at the City of Lakeland Larsen Power Plant. The data were preprocessed into the "CRSTER" format and all five years will be used in the modeling.

Tampa
Tampa
instead
8/1/90

Orlando sfc | Check w/ TGR to see if OK
Tampa UA

5.0 PRELIMINARY AIR QUALITY IMPACT ANALYSIS

A preliminary air quality impact analysis will be performed using the proposed modeling methodology discussed in Section 4.0. The analysis will determine which pollutants emitted from the combustion turbine project will have the potential to impact ambient air quality above PSD ambient air quality "significance levels". In addition, if significant impacts are determined, a "significant impact area" must be defined, preconstruction monitoring requirements need to be examined, and a ambient air quality standard (AAQS) and PSD increment consumption analysis outline must be developed.

5.1 SCREENING-LEVEL MODELING RESULTS

Ambient air impacts for both the simple and combined cycle operation firing natural gas and fuel oil will be evaluated using EPA's SCREEN screening-level model. The purpose of the screening modeling is to determine which fuel combustion process results in the highest ground-level ambient air quality impacts. Building downwash will be considered as appropriate in the screening analysis.

The results of the screening modeling are expected to show that fuel oil combustion will result in a much higher 1-hour average predicted ground-level pollutant concentrations for both the HRSG (combined cycle operation) and bypass (simple cycle operation) scenarios. If this is the case, only fuel oil combustion will be evaluated further. *OK*

5.2 REFINED MODELING RESULTS

The ISCST dispersion model will be used to evaluate potential pollutant impacts for fuel oil combustion emissions for simple and combined cycle operation. The two operating scenarios will be modeled with five years ~~(1981-1985)~~ ^{1982-1986 TPA/TBA} of meteorological data and the projected SO₂ emission rate. The standard EPA default options listed in Section 4.1 will be used throughout the analysis. Maximum concentrations for NO₂, TSP, PM, and PM₁₀ will be determined by calculating a ratio of SO₂ emissions to the pollutant in question.

Source impacts will be determined for the 3-, 24-hour, and annual averaging periods for the respective pollutants. This modeling is expected to show that the impacts are below the de minimis significant ambient air quality impact levels for each pollutant and averaging period. If this is the case, no further air quality impact analysis will be required.

5.3 PRECONSTRUCTION MONITORING REQUIREMENTS

Pollutant emissions from the project are not expected to result in ambient impacts above PSD de minimis monitoring levels. If this is demonstrated by refined modeling, ambient monitoring will not be required.

5.4 SIGNIFICANT IMPACT AREA DETERMINATION

For each PSD applicable pollutant, the extent of the significant impact area must be defined. The radii of significant impacts are determined by extending the receptor array outward until the predicted maximum concentration at the farthest receptor is less than the appropriate ambient significance level.

The highest, second-highest impacts from the refined modeling are expected to show that none of the applicable pollutants will have impacts above de minimis levels. If this is the case, there will not be a significant impact area for the project.

5.5 AAQS AND PSD INCREMENT COMPLIANCE DETERMINATION

Criteria pollutants with ambient air quality impacts above de minimis levels must demonstrate compliance with AAQS and PSD increment consumption. No compliance determination should be required for the project since all refined modeling impacts are expected to be below de minimis levels.

6.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Table 3-1 of this Workplan indicated that the project's emissions of NO_x, SO₂, PM, PM₁₀, and sulfuric acid mist are expected to be subject to the provisions of the PSD program. Consequently, this discussion of the appropriate Best Available Control Technology (BACT) for the project will address control technology/practices for these pollutants. Other pollutants will be included as appropriate after the fuel and turbine characteristics are finalized. A formal BACT document with complete technological, economic, environmental, and energy considerations for both simple and combined cycle operation will be included with the PSD permit application.

7.0 ADDITIONAL AMBIENT AIR QUALITY IMPACT ANALYSIS

7.1 VISIBILITY

The nearest PSD Class I area is the Chassahowitzka National Wildlife Refuge, located approximately 90 kilometers northwest of the site. A screening level visibility analysis will be performed per EPA's Workbook for Plume Visual Impact Screening Level Analysis (1988). The analysis is expected to show that the proposed facility will have no significant effect on visibility at the Class I area. ✓

7.2 SOILS AND VEGETATION

Ambient air quality standards have been established to protect public health and welfare from any adverse effects of air pollutants. It is not expected that the estimated effects of the proposed project will significantly add to the background pollutant concentrations. Therefore, no adverse effects on soils and terrestrial vegetation is expected. ✓

7.3 GROWTH

The addition of the combustion turbine unit at the Charles Larsen Power Plant is not expected to induce any secondary growth in the surrounding area. ✓

From Title 500-2

Lakeland

Table 1. Significant and Net Emission Rates (Tons per Year)

Fuel oil

Pollutant	Significant Emission Rates	Existing Emissions	Proposed Maximum Emissions*	Net Emissions	Applicable Pollutant (Yes / No)
Carbon Monoxide	100		237		Yes
Nitrogen Dioxide	40		732		Yes
Sulfur Dioxide	40		920		Yes
Particulate Matter (PM)	25		66		Yes
Particulate Matter (PM ₁₀)	15		66		Yes
Ozone (VOC)	40		20		no
Lead	0.6		.12		no
Asbestos	0.007		0		no
Beryllium	0.0004		.01		yes
Mercury	0.1		.01		no
Vinyl Chloride	1.0		0.0		no
Fluorides	3		0.0		no
Sulfuric Acid Mist	7		27.6		yes
Total Reduced Sulfur	10		<<10		no
Reduced Sulfur Compounds	10		<<10		no

* Assumes _____ percent capacity factor.

Assumption: All PM₁₅ PM₁₀

10.2.150
p. 30
Def. 10.2.150

Table 2. Significant Impact Analysis

Pollutant	Averaging Time	Maximum Predicted Conc. (ug/m ³)	Sign. Impact Level (ug/m ³)	Significant Pollutant (Yes / No)
Carbon Monoxide	1-Hour		2000	9.4
Carbon Monoxide	8-Hour		500	2.7
Nitrogen Dioxide	Annual		1	0.2
Sulfur Dioxide	3-Hour		25	19.2
Sulfur Dioxide	24-Hour		5	4.7
Sulfur Dioxide	Annual		1	0.2
Particulate Matter (PM) ₁₀	24-Hour		5	0.3
Particulate Matter (PM) _{2.5}	Annual		1	0.1

Table 500-3

Table 3. Maximum Air Quality Impacts for Comparison to the de minimus Ambient Levels

Pollutant and Averaging Time	Predicted Impact (ug/m ³)	De minimus Ambient Impact Level (ug/m ³)
CO (8-hour)	2.7	575
NO ₂ (Annual)	0.2	14
PM (24-hour)	0.3	10
SO ₂ (24-hour)	4.7	13
Pb (3-month)		0.1
Be (24-hour)	.0004	0.0005
Hg (24-hour)		0.25
Fl (24-hour)		0.25
VOC (Tons per Year)	TPY	100 TPY
PVC (24-hour)		15
TRS (1-hour)		10
RSC (1-hour)		10
Hydrogen Sulfide (1-hour)		0.04

H₂SO₄ mist \Rightarrow .13 ug/m³ 24-hr avg

17-2,300(3)

Table 4. Comparison of Total Impacts with the AAQS

Pollutant and Averaging Time	Maximum Predicted Impact (ug/m ³)	Existing Background (ug/m ³)	Maximum Total Impact (ug/m ³)	Florida AAQS (ug/m ³)
CO (1-hour)				40000
CO (8-hour)				10000
NO ₂ (Annual)				60
Pb (3-month)				1.5
SO ₂ (3-hour)				1300
SO ₂ (24-hour)				260
SO ₂ (Annual)				60
PM (24-hour)				150
PM (Annual)				60
PM ₁₀ (24-hour)				150
PM ₁₀ (Annual)				50
VOC (1-hour)				235

17-2,310(2)

Table 5. PSD Class II Increment Analysis.

Pollutant and Averaging Time	Maximum Predicted Impact (ug/m ³)	Increment (ug/m ³)
SO ₂ (3-hour)		512
SO ₂ (24-hour)		91
SO ₂ (Annual)		20
PM (24-hour)		37
PM (Annual)		19
NO _x (Annual)		25

Table 6. PSD Class I Increment Analysis.

Pollutant and Averaging Time	Maximum Predicted Impact (ug/m ³)	Increment (ug/m ³)
SO ₂ (3-hour)		25
SO ₂ (24-hour)		5
SO ₂ (Annual)		2
PM (24-hour)		10
PM (Annual)		5
NO _x (Annual) ^c		2.5

PM₁₀ (24-hour) ^b

8

PM₁₀ (Annual) ^b

4

^b Proposed Increments

^c State of Florida has not yet adopted PSD increments for NO₂ concentrations

APPLICATION RECEIVED - DECEMBER 17, 1990

BEST AVAILABLE COPY

TYPE - CONSTRUCTION

CONSULTANT - BLACK & VETCH, DONALD SCHULTZ - PROJECT MGR.
(913) 339-2028

CITY OF LAKELAND - ALFRED DODD, ENGR. MGR.
(813) 499-6461

FUEL - GAS

% SULFUR (GR/MMCF)	2000
DENSITY (APPLICATION)	0.04
HEAT CAPACITY (BTU/HR)	22090
BTU/CF	928
DENSITY (CALCULATED)	0.042009

#2 FUEL - OIL

% SULFUR (BY WT)	0.2
DENSITY (APPLICATION)	7.05
HEAT CAPACITY (BTU/HR)	18010
BTU/GAL	127000
DENSITY (CALCULATED)	7.051637
HEAT RATE (MMBTU/HR)	1038
FUEL CONSUMTION (LBS/HR)	57634.64
SULFUR DIOXIDE (TONS/YR)	1009.759

FACILITY DESCRIPTION

SIMPLE CYCLE (MW)	80
COMBINED CYCLE (MW)	120
NEW CT & HRS6/EXIST ST	
BYPASS STACK HT. (FT)	100
PROPOSED STACK HT. (FT)	155
GEP PROPOSED STACK HT. (FT)	232
PROPOSED STACK DIA. (FT)	19

EMISSION CONTROL

USE OF NATURAL GAS WITH #2 FUEL OIL AS A BACKUP
USE OF LOW NOX BURNERS WITH WATER INJECTION TO REDUCE NOX

EMISSION INFORMATION (ACTUAL T/YR)

	GAS	OIL	PSD LEVEL
SO2	2.6	920	40
NOX	435	732	40
CO	232	237	100
PM	22	66	25
PM10	22	66	15
VOC	9	20	40
H2SO4	0.08	27.6	7



December 13, 1990

Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. C. H. Fancy, Chief, Bureau of Air Regulation

Gentlemen:

Enclosed is an original and two copies of the City of Lakeland
Combustion Turbine Project application for construction permit.

Each bound application prepared by our consultant - Black and
Veatch, contains a copy of FDER Form 17-1.202 (1), the Ambient Air
Quality Impact Assessment and the BACT Analysis. In addition,
computer printouts and a diskette of all the air modeling computer
runs supporting the application are enclosed.

Attached you will find a letter of authorization for the
undersigned and the required \$5,000 application fee.

If you have any questions please call our Manager of Environmental
Affairs, Mr. G.-A. "Bill" Rodriguez at (813)/499-6589 or
Mr. Steve Day at Black & Veatch (913/339-2820).

Very truly yours,

Alfred M. Dodd

Alfred M. Dodd, P.E.
E & W Engineering Manager
City of Lakeland
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050
(813) 499-6461

Enclosure

cc: G. A. Rodriguez
Steve Day
File LPE-01-89

*P. Lums
C. Andrews
C. McAdams*

*G. Hall, EPM
C. Shaw, WPS
B. Thomas, S. D. C.*

RECEIVED
DER-MAIL ROOM
1990 DEC 17 AM 8:56



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

APR - 4 1991

RECEIVED
APR 8 1991
DER-BAQM

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: City of Lakeland (PSD-FL-166)

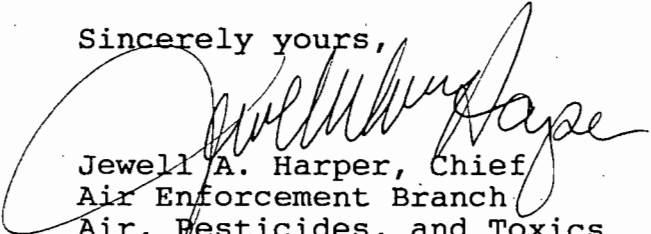
Dear Mr. Fancy:

This is to acknowledge receipt of the Prevention of Significant Deterioration (PSD) preliminary determination and draft permit for the modification to the above referenced source, by letter dated March 15, 1991.

The proposed project consists of the addition of one GE "quiet combustor" combined cycle gas turbine with NO_x emissions limits of 25 ppm when firing natural gas and 42 ppm when firing fuel oil. In addition, the fuel oil use is limited to 25%. We have reviewed the package as requested and have no adverse comments.

Thank you for the opportunity to review and comment on this package. If you have any questions or comments on this package, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,


Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

cc: P. Lewis
B. Andrews
C. Holladay ✓
B. Thomas, Sr. Dist.
C. Shaw, NE 3



April 3, 1991

APR 8 1991
DER-BAQM

Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Barry Andrews

We have reviewed FDER's Technical Evaluation and Preliminary Determination and proposed permit conditions dated March 15, 1991 for the 120 MW combined cycle gas turbine.

Our comments have been incorporated into the enclosed version of these documents. These comments are intended to clarify areas and propose minor changes in specific permit conditions. The main comments can be summarized as:

- Raising the annual capacity factor for fuel oil firing to one third. This will allow the potential capability of firing oil for four months of the year. Four months of oil firing would be sufficient to cover foreseeable interruptions to Lakeland's natural gas supply.

The potential annual emission rates and fuel consumption have been adjusted to reflect the one third capacity factor.

- An initial compliance test shall be performed using both fuels. Annual NO_x compliance tests would be for those fuels that were used more than 170 hours during the preceding 12 month period. Orlando Utilities Commission (OUC) has a similar condition (11) in their PSD permit (PSD-FL-130) for the Indian River Generating Station.

- It is also proposed that CO, particulate, VOC, sulfuric acid mist, and beryllium emissions only be tabulated for PSD and inventory purposes. This proposal is also consistent with OUC Indian River PSD permit (Condition 7). Therefore, Method 5 has been deleted as a test method for particulate emissions.

- Daily testing of fuel characteristics is proposed to be changed to one test for each fuel oil shipment.

Mr. Barry Andrews
Page 2
April 3, 1991

- ° Potential annual CO emissions will exceed 100 tpy and therefore requires a BACT determination. The applicant's proposed BACT determination for CO was included in the application.

We will be scheduling a meeting soon to discuss these comments with you.

LEGAL NOTICE REQUIREMENT:

In accordance with DER Rule 17-103.150, we have published a legal notice in the local Lakeland Ledger newspaper and have included a copy of the notice herewith.

If you have any questions please call me at (813) 499-6461, Bill Rodriguez at (813) 499-6589, or Steve Day - B & V - (913) 339-2880.

Sincerely,



Alfred M. Dodd, P.E.
E & W Engineer Manager

Enclosures

cc: Steve Day - Black & Veatch
G. A. "Bill" Rodriguez

P. Lewis

B. Andrews

C. Holladay

B. Thomas, SW Dist.

C. Hauer, DES

advantage over other regional banking centers like the Cayman Islands and the Bahamas.

5340345. Sheriff Lawrence W. Crow, Jr. reserves the right to accept or reject any or all bids, to waive any informalities in any bid, and to accept the bid that in his judgement will be a responsible bid in the best interest of Polk County.
/s/ Sheriff Lawrence W. Crow, Jr.
C-67 — 41 thru 47; 1991

5340345. Sheriff Lawrence W. Crow, Jr. reserves the right to accept or reject any or all bids.
/s/ Lawrence W. Crow, Jr.
Sheriff
C-67 — 41 thru 47; 1991

BEST AVAILABLE COPY

Your Budget Images!!



687-7088

67

Building Official - City of Auburndale, FL Salary \$24,498 - \$34,996. Responsible for the enforcement of building, electrical, plumbing, mechanical, zoning codes and other related ordinances; conducts inspections; supervises the Code Enforcement Division. Requires H.S. grad or GED with course work in building, construction or engineering. Ten (10) years experience as an inspector, contractor, superintendent of construction, architect, engineer, or any combination, five (5) years at a supervisory level. Certification by CABO, BOAF, or the State of FL as a Building Official, or the ability to obtain within one year.
C-122 — 43; 1991

NOTICE OF VACANCY ON BOARD OF LAKELAND REGIONAL HEALTH SYSTEMS, INC.
Pursuant to the Bylaws of Lakeland Regional Health Systems, Inc., notice is hereby given of expiration of the terms of office for five (5) of the directors of Lakeland Regional Medical Center, Inc. Their terms of office will expire September 30, 1991. Any individual wishing to be considered for service on the Board of Directors should notify, in writing, the Office of President of Lakeland Regional Medical Center, Inc., Jack T. Stephens, P.O. Box 448, Lakeland, Florida 33804, within thirty (30) days of the publication of this notice. The term of office will be for three (3) years, expiring on September 30, 1994.
C-115 — 43; 1991

PUBLIC AUCTION NOTICE
MAY 9, 1991
9:00 AM.
WEBB'S TOWING AND RECOVERY
2005 GARY ROAD, U.S. 92 EAST
LAKELAND, FLORIDA 33801-2444
(813) 687-0304
FAX: 688-0926
1. 70 OLDSMOBILE, 4 DOOR, VIN 386690M227400
2. 80 DODGE, 4 DOOR, VIN ZL44AAD232941
3. 78 PONTIAC, FIREBIRD, 2187A8N139480
4. 81 PLYMOUTH HORIZON, VIN 1P38L14AXBD225952
5. 75 CHEVY IMPALA, VIN 1L57H51192084
6. 78 BUICK REGAL, VIN 4M47A8H246445
7. 75 CHEVY, 4 DOOR, VIN 1L69H5J247961
C-121 — 43; 1991

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Gives Notice of Intended Agency Action
The District gives notice of its intent to issue a permit to the following applicant(s) on April 9, 1991:

CARL BOOZER, P.O. BOX 711, WINTER HAVEN, FL 33882-0711, application #2105-0118AUVN. The applicant proposes to withdraw 0.15 MGD of GROUND WATER FROM THE FLORIDIAN AQUIFER via ONE EXISTING WELL TWO PROPOSED WELLS for CITRUS to serve 110.0 acres in Polk County located in the
NE 1/4 OF NE 1/4 OF SW 1/4 OF SW 1/4 of Section 19, Township 27 SOUTH, Range 27 East;
NE 1/4 OF SE 1/4 OF SW 1/4 OF NW 1/4 of Section 19, Township 27 SOUTH, Range 27 East;
NW 1/4 OF SE 1/4 OF SW 1/4 OF SW 1/4 of Section 19, Township 27 SOUTH, Range 27 East;
The file(s) containing each of the above-listed application(s) are available for inspection Monday through Friday except for legal holidays, 8:00 a.m. to 5:00 p.m. at the St. Johns River Water Management District, Highway 100 West, Palatka, Florida.

The District will take action on each permit application listed above unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of section 120.57, F.S., and section 40C.1.511, F.A.C. A person whose substantial interests are affected by any of the Districts proposed permitting decisions identified above may petition for an administrative hearing in accordance with section 120.57, F.S. Petitions must comply with the requirements of Florida Administrative Code Rules 40C.1.111 and 40C.1.521 and be filed with (received by) the District Clerk, P.O. Box 1429, Palatka, Florida 32978-1429. Petitions for administrative hearing on the above application(s) must be filed within fourteen (14) days of publication of this notice or within fourteen (14) days of actual receipt of this intent, whichever first occurs. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under section 120.57, F.S., concerning the subject permit application. Petitions which are not filed in accordance with the above provisions are subject to dismissal.
C-123 — 43; 1991

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to City of Lakeland - Charles Larsen Plant, 2002 E. Road 92, Lakeland, Polk County, Florida 33801, to construct and operate a 120 MW combined cycle gas turbine system. A determination of Best Available Control Technology (BACT) was required. The Class I particulate matter PSD increment consumed is 0.012 vs. 10 allowable 24-hour average and 0.001 vs. 5 allowable annual average, in micrograms per cubic meter. The Class I sulfur dioxide PSD increment consumed is 0.93 vs. 25 allowable 3-hour average, 0.20 vs. 5 allowable 24-hour average, and 0.015 vs. 2 allowable annual average, in micrograms per cubic meter. The Class I nitrogen dioxide increment consumed is 0.011 vs. 2.5 allowable annual average, in micrograms per cubic meter. The maximum predicted increases in ambient concentrations for the above three pollutants for all averaging times are less than significant in the Class II area surrounding the plant, thus no increment consumption was calculated. The Department is issuing this intent to issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

- The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- A statement of how and when each petitioner received notice of the Department's action or proposed action;
- A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- A statement of the material facts disputed by Petitioner, if any;
- A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28.5.207, F.A.C.

The application is available for public inspection during business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at: Department of Environmental Regulation Bureau of Air Regulation 2600 Blair Stone Road Tallahassee, Florida 32399-2400 Department of Environmental Regulation Southwest District 4520 Oak Fair Blvd. Tampa, Florida 33601-7347

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.
C-120 — 43; 1991

LEDGER APRIL 3, 1991



December 11, 1990

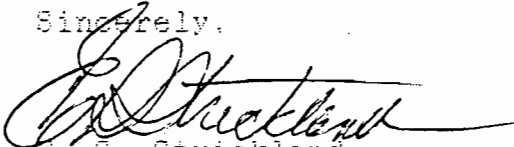
Mr. Dale Twachtman, Secretary
Florida Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399-2400

Dear Sir:

This is to authorize Alfred M. Dodd to act as the authorized representative for the City of Lakeland in dealing with the Florida Department of Environmental Regulation in all matters pertaining to the New Generation Addition Project at Larsen Power Plant.

It is further acknowledged that this letter of authorization shall remain in effect and be applied to all matters requiring authorization until your office is notified of a change of representative.

Sincerely,


G. S. Strickland
City Manager

RGS/JAL/AMD/nl

Lake land Utilities

Files Inputs are lppc1182^{.inp} thru lppc1186.^{.inp}
Outputs are lppc1182.out thru lppc1186.out

	1986	1985	1984	1983	1982
Ann	.00042	.00043	.00032	.00042	.00050
3hr	.03525	.04359	.03195	.03265	.03793
24hr	.00694	.00629	.00485	.00752	.00607
2nd high					
3hr	.03109	.03189	.02568	.03107	.02985
24hr	.00658	.00623	.00462	.00649	.00548

Used Input parameters SER 1.0 g s⁻¹

SH SD SV ST
30.48m 5.79m 28.22ms⁻¹ 783.0°K

Em. Factor SO₂ 29.11
PM 1.89
NO_x 21.04

SO ₂ Ann	0.01	0.013	0.009	0.01	0.015
3hr high	1.03	1.27	0.93	0.95	1.10
3hr hsh	0.91	0.93	0.75	0.90	0.87
24hr high	0.20	0.18	0.14	0.22	0.18
24 hsh	0.20	0.18	0.13	0.19	0.16
PM Ann	0.001	0.001	0.001	0.001	0.001
24hr high	0.013	0.012	0.009	0.014	0.011
24hr hsh	0.012	0.012	0.009	0.012	0.010
NO _x Ann	0.009	0.009	0.007	0.009	0.011

4344 184 Lakeland
Class I

86 run

SO₂ 1 hr is 2.266 at 90 km

3 hr	X .7 = 1.59 ug/m ³	25	1.03
24 hr	X .4 = 0.91 ug/m ³	5	0.20
Ann	X .025 = 0.06 ug/m ³	2	0.01

PM 2.266 X .06 = 0.15 ug/m³

15 lbs/hr	24 hr	0.15 X .4 = 0.06 ug/m ³	10	.01
	Ann	0.15 X .025 = 0.004 ug/m ³	5	.002

NO_x 1 hr is 2.266

Ann	X .025 = 0.06 ug/m ³	2.5	0.009
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$$SER = 29.11 \text{ g s}^{-1}$$

$$SH = 30.48 \text{ m}$$

$$SD = 5.79 \text{ m}$$

$$ST = 783^\circ \text{ K}$$

$$SV = 28.22 \text{ m s}^{-1}$$

96 km is closest 310°