



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT AMENDMENT

CERTIFIED MAIL

February 1, 1996

Mr. Charles D. Garing, Manager
Charles Larsen Power Plant
City of Lakeland
Department of Electric & Water
501 East Lemon Street
Lakeland, FL 33801-5050

Dear Mr. Garing:

Re: Polk County - Air Permit
DEP File No. 1050003-002-AO
Permit A053-219296
(Larsen Unit No. 8)

Enclosed is an amendment to A053-219296, for the combined-cycle combustion turbine designated Charles Larsen Power Plant Unit No. 8, located at 2002 E. U.S. Hwy 92, Lakeland, Polk County. The Department, pursuant to Florida Administrative Code Rule 62-4.070, hereby amends the permit as follows:

CHANGE SPECIFIC CONDITION NO. 5 FROM:

5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	-	-	2.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
VOC	-	-	9	6.7
CO	-	-	232	79
Mercury (Hg)	-	0.000003 (b)	-	0.003
Lead (Pb)	-	0.000028 (b)	-	0.03
Beryllium	-	0.0000025 (b)	-	0.003
S. Acid Mist	-	-	-	0.0032

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

City of Lakeland
AO53-219296

Specific Condition No. 5 - continued:

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu
[Const. Permit No. AC53-190437 and BACT Determination of 7/26/91].

CHANGE SPECIFIC CONDITION NO. 5 TO:

5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	-	-	8.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
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Beryllium	-	0.0000025 (b)	-	0.003
S.Acid Mist	-	-	0.8	9.13

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu

[Const. Permit No. AC53-190437, BACT Determination of 7/26/91, and amendment request dated October 19, 1995].

CHANGE SPECIFIC CONDITION NO. 13 FROM:

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to August 6. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

- (X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)
- (X) Nitrogen Oxides (NOx)

[Construction Permit No. AC53-190437 and Rules 17-297.340 and 17-297.570, F.A.C.].

City of Lakeland
A053-219296

CHANGE SPECIFIC CONDITION NO. 13 TO:

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to December 31st. The initial compliance test using this new anniversary date shall be conducted beginning in 1996. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

- (X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)
- (X) Nitrogen Oxides (NOx)

[Rules 62-297.340 and 62-297.570, F.A.C.].

CHANGE SPECIFIC CONDITION NO. 19 FROM:

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with 40 CFR 60.335(c)(1) (or 60.335(f)(1) if appropriate approvals are obtained).

[Rule 17-296.800, F.A.C., and 40 CFR 60.335].

CHANGE SPECIFIC CONDITION NO. 19 TO:

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with the requirements of the Method. ISO correction is not required.

[Rule 62-296.800, F.A.C., 40 CFR 60.335, and H. Rhodes memorandum dated November 22, 1995].

A person whose substantial interests are affected by this permit amendment 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 14 days of receipt of these Permits. 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.

City of Lakeland
A053-219296

The Petition shall contain the following information;

- (a) 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) 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 these permits. 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 receipt 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.

This Permit Amendment is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this Permit Amendment will not be effective until further Order of the Department.

When the Order (Permit Amendment) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate procedure, with the Clerk of the

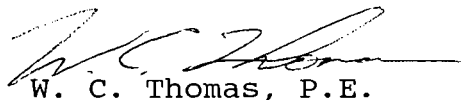
City of Lakeland
A053-219296

Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This Permit Amendment replaces the amendment dated January 18, 1996. This letter must be attached to and becomes a part of Permit No. A053-219296. If you should have any questions, please call Bill Schroeder of my staff at (813)744-6100 extension 104.

Executed in Tampa, Florida.

Sincerely,



W. C. Thomas, P.E.
District Air Program Administrator

WCT/WES

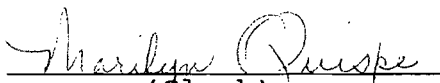
cc: Farzie Shelton, City of Lakeland
Martin Costello, DARM

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT AMENDMENT and all copies were mailed by certified mail before the close of business on
FEB 13 1996 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledge.


(Clerk)

FEB 13 1996
(Date)

Z 142 061 026



**Receipt for
Certified Mail**

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

MR CHARLES D GARING
CITY OF LAKE LAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKE LAND FL 33801-5050

PS Form 3800, March 1993

Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date FEB 13 1996	

Z 142 061 027



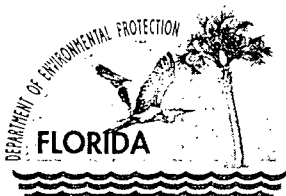
**Receipt for
Certified Mail**

No Insurance Coverage Provided
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(See Reverse)

MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

PS Form 3800, March 1993

Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing (to Whom & Date Delivered)	
Return Receipt Showing (to Whom, Date, and Addressee's Address)	
TOTAL Postage & Fees	\$
Postmark or Date FEB 13 1996	



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT AMENDMENT

CERTIFIED MAIL

January 18, 1996

Mr. Charles D. Garing, Manager
Charles Larsen Power Plant
City of Lakeland
Department of Electric & Water
Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

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"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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A053-219296

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City of Lakeland
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City of Lakeland
AO53-219296

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Z 142 061 133



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

PS Form 3800, March 1993

Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date JAN 24 1996	

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 105 0603 - 062 - AD / 219296 WS

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

4a. Article Number

Z 142 061 133

4b. Service Type

- | | |
|---------------------------------------------------------|-----------------------------------------------|
| <input type="checkbox"/> Registered | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Insured |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD |

7. Date of Delivery

2108 1/25/96

8. Addressee's Address (Only if requested and fee is paid)

5. Received By (Print Name)

15020

6. Signature: (Addressee or Agent)

X

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DR
TAMPA, FLORIDA 33619

RECEIVED

Department of Environmental Protection
SOUTHWEST DISTRICT

air

Z 142 061 132



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

MR CHARLES D GARING
CITY OF LAKE LAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKE LAND FL 33801-5050

PS Form 3800, March 1993

Restricted Delivery Fee	
Return Receipt (Showing to Whom & Date Delivered)	
Return Receipt (Showing to Whom, Date, and Addressee's Address)	
TOTAL Postage & Fees	\$
Postmark or Date JAN 24 1996	

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 1050003-002-A0 219296 WS

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. ☐ Addressee's Address
 - 2. ☐ Restricted Delivery
- Consult postmaster for fee.

MR CHARLES D GARING
CITY OF LAKE LAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKE LAND FL 33801-5050

4a. Article Number Z 142 061 132
4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD
7. Date of Delivery JAN 25 1996
8. Addressee's Address (Only if requested and fee is paid)

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

RECEIVED
JAN 26 1996

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DR
TAMPA, FLORIDA 33619

City of Lakeland
A053-219296

Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This letter must be attached to and becomes a part of Permit No. A053-219296. If you should have any questions, please call Bill Schroeder of my staff at (813)744-6100 extension 104.

Executed in Tampa, Florida.

Sincerely,



W. C. Thomas, P.E.

District Air Program Administrator

WCT/WES

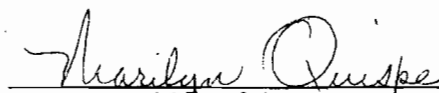
cc: Farzie Shelton, City of Lakeland
Martin Costello, DARM

CERTIFICATE OF SERVICE

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Clerk Stamp

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledge.


(Clerk)

JAN 24 1996
(Date)



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

SEP 22 1995

NOTICE OF PERMIT AMENDMENT

CERTIFIED MAIL

Ms. Farzie Shelton, Environmental Coordinator
City of Lakeland, Dept. of Electric and Water Utilities
501 East Lemon St.
Lakeland, FL 33801-5050

Dear Ms. Shelton:

Re: Larsen Unit 8 - Combined Cycle Gas Turbine
Air Pollution Permit No. A053-219296
DEP Processing No. 273307

On June 29, 1995 the Department received your request to amend the above-referenced permit. The Department hereby amends the above listed permit as follows:

CHANGE VALUES IN THE TABLE IN SPECIFIC CONDITION 5 FROM:

<u>Pollutant</u>	<u>Tons/year</u>	
	<u>Gas</u>	<u>Oil</u>
SO ₂	2.6	307
S. Acid Mist	-	0.0032

CHANGE VALUES IN THE TABLE IN SPECIFIC CONDITION 5 TO:

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Governor

Florida Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619
813-744-6100

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT RE-ISSUANCE

CERTIFIED MAIL

In the Matter of an Application
for permit by:

DER File No.: A053-219296
County: Polk

Mr. Charles D. Garing, Larsen Plant Manager
City of Lakeland, Dept. of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Enclosed is a revised version of Permit Number A053-219296 to operate Unit No. 8 combustion turbine at the Larsen Power Plant, issued pursuant to Section 403, Florida Statutes. This permit is being re-issued with revised permit language based upon your request dated August 13, 1993. Please replace the previously issued version of A053-219296 with this revised version.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

- (a) The name, address, and the 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by petitioner, if any;

- (e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) 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 permit. 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 receipt of this notice, in the Office of General Counsel at the above address of the Department. Failure to petition within the allotted time frame constitutes a waiver of any rights 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Street Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



David R. Zell
Air Permitting Engineer
Phone (813) 744-6100 Ext. 412

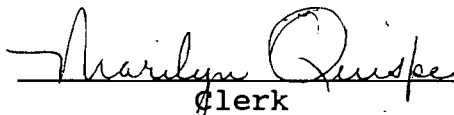
DRZ/
Attachment

cc:
Farzie Shelton, Environmental Coordinator, Lakeland Electric &
Water, City of Lakeland

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on SEP 28 1993 to the listed persons.

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.


clerk

SEP 28 1993
Date



Lawton Chiles
Governor

Florida Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619
813-744-6100

Virginia B. Wetherell
Secretary

PERMITTEE:

City of Lakeland
Dept. of Electric & Water Utilities
501 E. Lemon Street
Lakeland, Florida 33801-5050

PERMIT/CERTIFICATION:

Permit No: A053-219296
County: Polk
Expiration Date: 08/01/98
Project: Combustion Gas Turbine
Larsen Unit No. 8

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of a 120 MW combined cycle combustion gas turbine with a heat recovery steam generator (HRSG) designated as Larsen Unit No. 8. The combustion turbine will fire natural gas as the primary fuel, with No. 2 oil with a maximum sulfur content of 0.2% as a limited auxiliary fuel. The combustion turbine is a GE Model PG7111 (EA) Frame 7 unit equipped with water injection to reduce nitrogen oxides emissions.

The HRSG will be used to power an existing steam turbine.

Location: Charles Larsen Power Plant, 2002 E. U.S 92 in Lakeland

UTM: 409.19 E 3102.75 N **NEDS No:** 0003 **Point ID No:** 08

Replaces Permit No.: AC53-190437

(This permit also replaces the version of A053-219296 previously issued on July 30, 1993).

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

1. A part of this permit is the attached 15 General Conditions. [Rule 17-4.160, F.A.C.].
2. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state or local law. [Rule 17-210.300, F.A.C.].
3. This gas turbine is subject to and shall meet all the applicable requirements of 40 CFR 60 Subpart GG (Standards of Performance for Stationary Gas Turbines, 40 CFR 60.330-335) of the Federal New Source Performance Standards (NSPS).
[Rule 17-296.800, F.A.C. and 40 CFR 60.330].

Emission Limitations

4. Visible emissions shall not exceed 10% opacity.
[Construction Permit No. AC53-190437].
5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	-	-	2.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
VOC	-	-	9	6.7
CO	-	-	232	79
Mercury(Hg)	-	0.000003 (b)	-	0.003
Lead (Pb)	-	0.000028 (b)	-	0.03
Beryllium	-	0.0000025 (b)	-	0.003
S.Acid Mist	-	-	-	0.0032

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu

[Const. Permit No. AC53-190437 and BACT Determination of 7/26/91].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

6. Unless the Department has determined that other ambient concentrations are required to protect the public health and safety, predicted ambient air concentrations (AAC) shall not exceed the following levels for the pollutants shown:

Pollutant	Acceptable Ambient Concentrations (AAC) (ug/cubic meter)		
	8 hr. avg.	24 hr. avg.	Annual avg.
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds, all forms of vapor, as Hg	-	-	0.3

[Construction Permit No. AC53-190437].

Operational Limitations

7. This source is allowed to operate continuously (8,760 hrs/yr).
[Construction Permit No. AC53-190437].

8. The combustion turbine is permitted to use natural gas as the primary fuel with No. 2 distillate oil as a secondary fuel. Fuel usage rates not to exceed the values below:

- A. maximum heat input rate shall not exceed 1,055 MMBtu/hr for natural gas or 1,040 MMBtu/hr for No. 2 fuel oil;
- B. maximum annual firing of No. 2 fuel oil shall not exceed 1/3 (33.3%) of the annual capacity factor;
- C. maximum No. 2 oil consumption shall not exceed 8,190 gallons per hour or 23,914,800 gallons per year.

[Construction Permit No. AC53-190437].

9. The maximum sulfur content of the No. 2 fuel oil fired in the combustion gas turbine shall not exceed 0.20 % sulfur (S) by weight. [Note: This limitation is more stringent than and therefore satisfies the requirements of Subpart GG - 40 CFR 60.333(b) [Construction Permit No. AC53-190437 and BACT Determination of July 26, 1991].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

10. Water injection shall be utilized for NOx control. The water to fuel ratio shall be controlled by the turbine automatic control system to the level necessary to insure compliance with Specific Condition No. 5.

[Construction permit AC53-190437].

11. The permittee shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate within $\pm 5\%$. These records shall be retained for a least a two year period and made available to the Department upon request. In addition a copy of the continuous fuel/water injection records for the period of any stack testing shall be submitted with the test report.

[Construction permit AC53-190437, Subpart GG - 40 CFR 60.334(a), and Rule 17-4.070(3), F.A.C.].

12. The permittee shall install and maintain a module suitable for possible installation of SCR NOx control equipment.

[Construction permit AC53-190437].

Compliance and Testing Requirements

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to August 6. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

(X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)

(X) Nitrogen Oxides (NOx)

[Construction Permit No. AC53-190437 and Rules 17-297.340 and 17-297.570, F.A.C.].

14. Should the Department have reason to believe that any of the emission standards are not being met, the Department may require that compliance with the emission standard be demonstrated by testing in accordance with Rule 17-297, F.A.C.

[Rule 17-297.620(4), F.A.C.].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

15. Compliance with the emission limitations of Specific Condition Nos. 4 and 5 shall be determined using the following EPA Methods contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-297, F.A.C.:

- A. EPA Method 9 for VE
- B. EPA Method 20 for NOx
- C. EPA Method 5, 5B, or 17 for PM (Should a test be required by the Department - See Specific Condition No. 14.)

Other test methods may be used for compliance testing after prior Departmental approval. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-297, F.A.C. and 40 CFR 60, Appendix A. [Construction Permit No. AC41-190437 and Rule 17-297, F.A.C.].

16. The permittee shall notify the Air Program of the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. [Rule 17-297.340(1)(i), F.A.C.].

17. Testing of emissions must be conducted during operation of the combustion gas turbine at 90-100% of the maximum permitted fuel heat input rates specified in Specific Condition No. 8.A. A compliance test submitted at an operating rate less than 90% of maximum permitted rate will automatically constitute an amended permit at the lesser rate plus 10% until another test showing compliance at a higher rate (not to exceed those shown in Specific Condition No. 8.A.) is submitted. Failure to submit the fuel heat input rate and actual operating conditions with the test report may invalidate the test. [Rule 17-4.070(3), F.A.C.].

18. The visible emissions tests shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [Rule 17-297.330(1)(b), F.A.C.].

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with 40 CFR 60.335(c)(1) (or 60.335(f)(1) if appropriate approvals are obtained). [Rule 17-296.800, F.A.C., and 40 CFR 60.335].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

20. Annual NOx compliance testing shall be conducted separately while burning natural gas and while burning No. 2 fuel oil unless either has not been used for more than 400 hours in the 12 month period prior to testing. In that case, testing need only be conducted on fuel used for more than 400 hours in the last 12 consecutive month period. The test report shall include a statement that the above criteria was met if one of fuels is not tested. The unit shall comply with the provisions of Rule 17-297.340(1)(c), F.A.C. [Construction permit AC53-190437 and Rule 17-297, F.A.C.].

21. Annual visible emissions testing shall be conducted while burning No. 2 fuel oil. The visible emissions compliance test can be waived, on a year by year basis, if fuel oil has not been used in this unit for more than 400 hours for the previous 12 months. If this waiver is exercised, each year when the VE test is due a letter must be sent to the SWD District office stating that the above qualifications for the waiver have been satisfied. A VE test shall be conducted during the 12 month period prior to submittal of an operation permit renewal application while burning any fuel used for more than 400 hours for the 12 month period prior to the test. The unit shall comply with the provisions of Rule 17-297.340(1)(c), F.A.C. [Rule 17-297.340, F.A.C.].

22. Proof of compliance with the fuel oil sulfur content limitation of Specific Condition No. 9 shall be submitted to the Department annually with the other required compliance test reports, if fuel oil has been used in this unit for more than 400 hours during the previous 12 months, by submitting a fuel analysis for sulfur content of the oil burned done in accordance with ASTM D2880-71. [Rules 17-4.070(3) and 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.335(d)].

Recordkeeping and Reporting Requirements

23. In order to demonstrate compliance with the fuel oil sulfur content limitation of Specific Condition No. 9, and in accordance with Subpart GG - 40 CFR 60.334(b), the permittee shall maintain records of the fuel oil sulfur content and nitrogen content for each shipment of fuel received for use in this unit. Compliance with the sulfur content standards shall be determined in accordance with the requirements of Subpart GG - 40 CFR 60.335(d). Proof of compliance with the annual SO₂ limitation (including calculations) shall be submitted along with the annual operating report each year. [Construction Permit No. AC53-190437, Rule 17-296.800, F.A.C., and Subpart GG - 40 CFR 60.334(b) and 60.335(d)].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

24. The permittee shall submit quarterly NOx and SO₂ excess emission reports in accordance with Subpart GG - 40 CFR 60.334(c). These reports shall be based on the fuel oil sulfur content records (Specific Condition No. 23), data from the continuous fuel consumption/water injection monitoring system (Specific Condition No. 11), or data from other certified continuous emission monitoring systems approved by the Department. The reports shall include periods for which the water injection control system or the fuel/water injection monitoring system were inoperative. If there are no excess emissions during a calendar quarter the permittee shall submit a report stating that no excess emissions occurred during the reporting period.

[Rule 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.334].

25. In order to document compliance with the capacity factor limitation for oil firing in Specific Condition No. 8.B., the following fuel usage records shall be maintained:

- A. daily fuel usage of natural gas and No. 2 oil;
- B. monthly records of total usage of natural gas and No. 2 fuel oil and total Btu heat input of each;
- C. an annual calculation of the % of the annual capacity factor that was associated with fuel oil firing.

[Rule 17-4.070(3), F.A.C. and construction permit AC53-190437].

26. Submit to the Air Program of the Southwest District Office of the Department each calendar year on or before March 1 completed DER Form 17-213.900(4), "Annual Operating Report for Air Pollutant Emitting Facility," for the preceding calendar year.

[Rule 17-210.370(2), F.A.C. and construction permit AC53-190437].

27. All reports required by this permit and/or 40 CFR 60 shall be submitted to the Air Program of the Southwest District Office of the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

[Rule 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.7(c)].

Permit Application

28. An application to renew this operating permit, along with two additional copies, shall be submitted to the Air Program of the Southwest District Office of the Department no later than June 1, 1998 (60 days prior to the expiration date of this permit).

[Rule 17-4.090(1), F.A.C.].

PERMITTEE

City of Lakeland
Larsen Power Plant

Specific Conditions:

PERMIT/PROJECT

Permit No.: A053-219296

Project: Combustion Gas Turbine
Larsen Unit No. 8

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION



Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

GENERAL CONDITIONS:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

GENERAL CONDITIONS:

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Compliance with New Source Performance Standards (NSPS)

"OR"

14. OR 13. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. OR 14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

When the Order (Permit Amendment) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This letter must be attached to and becomes a part of Permit No. AO53-219296. If you have any questions, please call Mr. Gerald Kissel of my staff at (813)744-6100 extension 107.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



William C. Thomas, P.E.
District Air Program Administrator

cc: M. Costello, DEP

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT AMENDMENT and all copies were mailed by certified mail before the close of business on SEP 22 1995 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby acknowledged.


(Clerk)

SEP 22 1995
(Date)

Z 175 923 584



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

PSI	Special Delivery Fee	
	Restricted Delivery Fee	
	Return Receipt Showing to Whom & Date Delivered	
	Return Receipt Showing to Whom, Date, and Addressee's Address	
	TOTAL Postage & Fees	\$
Postmark or Date		
SEP 22 1995		

Is your RETURN ADDRESS completed on the reverse side?

SENDER: A053-219296

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

JK

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

4a. Article Number

Z 175 923 584

4b. Service Type

- | | |
|-----------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

0108 B2 09/25/98

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

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USE TO AVOID PAYMENT
OF POSTAGE \$3.00



SEP 26 1995

Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

Print your name, address and ZIP Code here _____

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DR
TAMPA, FLORIDA 33619

Air

Final Determination

City of Lakeland-Charles Larsen Power Plant
Lakeland, Florida

120 MW Combined Cycle Gas Turbine System

Permit Number: AC 53-190437
PSD-FL-166

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

July 19, 1991

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to install a combined cycle gas turbine at the City of Lakeland-Charles Larsen power plant in Lakeland, Polk County, Florida, was distributed on March 15, 1990. The Notice of Intent to Issue was published in the Lakeland Ledger on April 3, 1991. Copies of the evaluation were available for public inspection at the Department's Tampa and Tallahassee offices.

The City of Lakeland's (City) permit application has been reviewed and the Final Determination made by the Division of Air Resources Management. EPA Region IV indicated in their April 4 letter (attachment 2) that they had no adverse comments on the Technical Evaluation and Preliminary Determination (TE & PD). Comments were received from the City of Lakeland dated April 3 and May 15, 1991 (see attachments 1 and 4) and from the National Park Service (NPS) dated May 3, 1991 (attachment 3). The Division concurs with the City's comments concerning the narrative portion of the TE & PD and the comments will become part of the permit file. The NPS and the City's comments which pertain to BACT and Air Quality Analysis are addressed as follows:

BACT

The City would like a 33 percent instead of the proposed 25 percent capacity limit when using oil. In their May 15 letter they provided several supporting reasons as follows:

- a. Limiting the oil to a maximum sulfur content of 0.2 percent is lower than recent permit applications of 0.3 to 0.5 percent sulfur.
- b. The planned improvements will retire an existing 2.5 percent sulfur unit at the same facility.
- c. The higher capacity limit is consistent with permit conditions being revised for the City of Vero Beach, should low NOx burners be installed.
- d. Most 25 percent capacity limitations on other Florida projects have 65 ppmvd instead of the 42 ppmvd limit on the City's proposed facility.
- e. Increased concern for natural gas capacity given existing uses and proposals to build new facility with generation exceeding 3500MW over the next 8-10 years.

Considering the use of low NOx burners (emission rate of 42 ppmvd) and the use of 0.2 percent maximum sulfur No. 2 fuel oil to limit the SO₂ emissions, DER is willing to allow up to 33% capacity limit for oil firing or 2925 hours per year.

Air Quality Analysis

NPS found the City's dispersion modeling analysis to be deficient since it lacked cumulative Class I increment analysis including all increment consuming sources impacting Chassahowitzka Wilderness Area. The NPS is becoming increasingly concerned about the cumulative impact of emissions on resources, such as lichens and bryophytes, that are known to be particularly sensitive to SO₂. They are also concerned about the acidification of surface water in the Wilderness Area due to increased sulfur and nitrogen deposition. They state that, "Acidification can have serious implications not only to invertebrates and fish but... species higher on the food chain... such as alligator, pelican, and bald eagle."

The Department agrees on the necessity to evaluate the total ambient pollution levels in the Wilderness Area. The Department agrees that future applicants will be required to perform a cumulative analysis for all increment consuming sources impacting the Chassahowitzka Wilderness Area.

The final action of the Department will be to issue construction permit AC 53-190437/PSD-FL-166 as proposed in the Technical Evaluation and Preliminary Determination.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

City of Lakeland
501 East Lemon Street
Lakeland, Florida 33801-5050

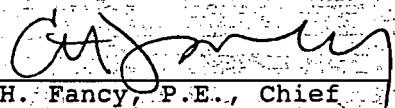
DER File No. AC 53-190437
PSD-FL-166
Polk County

Enclosed is Permit Number AC 53-190437/PSD-FL-166 to install a combined cycle gas turbine plant at the existing Charles Larsen power plant in Lakeland, Polk County, Florida, issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 7-26-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


(Clerk)

7-26-91
(Date)

Copies furnished to:

J. Harper, EPA
S. Day, B&V
H. Kerns, SW District ✓
D. Schultz, B&V
C. Shaver, NPS



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

City of Lakeland
501 E. Lemon Street
Lakeland, Florida 32961

Permit Number: AC 53-190437
Expiration Date: March 30, 1993
County: Polk
Latitude/Longitude: 28°02'56"N
81°55'25"W

Project: 120 MW Combined Cycle
Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 120 MW combined cycle gas turbine to be located at the City of Lakeland-Charles Larsen Power Plant in Lakeland, Florida. The turbine will fire natural gas as the primary fuel and have limited hours firing No. 2 fuel oil. The turbine is a GE PG7111 (EA) Frame 7 unit with water injection to reduce NOx emissions. Fuel flow rate for natural gas is 17,333 scfm @ ISO and 124.2 gal/min @ ISO for No. 2 fuel oil. The UTM coordinates are 409.185 km East and 3102.754 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. City of Lakeland-Charles Larsen Power Plant's letter dated April 3, 1991.
2. EPA Region IV letter dated April 4, 1991.
3. National Park Service's letter dated May 3, 1991.
4. City of Lakeland's letter dated May 15, 1991.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (x) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from this facility shall not exceed the emission rates listed in Table 1.
2. Unless the Department has determined other concentrations are required to protect public health and safety, predicted acceptable ambient air concentrations (AAC) of the following pollutants shall not be exceeded:

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Pollutant	Acceptable Ambient Concentrations ug/m ³		
	8-hrs	24-hrs	Annual
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds, all forms of vapor, as Hg	-	-	0.3

3. Visible emissions shall not exceed 10% opacity.

Operating Rates

4. This source is allowed to operate continuously (8760 hours per year).

5. This source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 6 below).

6. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:

- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 8,190 gals/hr; 23,914,800 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 1/3 of the annual capacity factor.
- Maximum sulfur (S) content in the No. 2 fuel oil shall not exceed 0.20 percent by weight.
- Maximum heat input shall not exceed 1055 MMBtu/hr (gas) or 1040 MMBtu/hr No. 2 fuel (oil).

7. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southwest District offices.

8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Compliance Determination

9. Initial (I) compliance tests shall be performed on each CT using both fuels. The stack test for each turbine shall be performed within 10 percent of the maximum heat rate input for the tested operating temperature. Annual (A) compliance tests shall be performed on each CT with the fuel(s) used for more than 400 hours in the preceding 12-month period. Tests shall be conducted using EPA reference methods in accordance with the November 2, 1989, version of 40 CFR 60 Appendix A:

- a. 5 or 17 for PM (I, A, for oil only)
- b. 10 for CO (I)
- c. 9 for VE (I, A)
- d. 20 for NO_x (I, A)
- e. Trace elements of Beryllium (Be) shall be tested (I, for oil only) using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.
- f. Mercury (Hg) shall be tested using EPA Method 101 (40 CFR 61, Appendix B) (I, for oil only) or fuel sampling analysis using methods acceptable to the Department.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

10. Method 5 or 17 must be used to determine the initial compliance status of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

11. Compliance with the SO₂ emission limit can also be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid.

12. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

13. During performance tests, to determine compliance with the proposed NO_x standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$\text{NO}_x = (\text{NO}_x \text{ obs}) \left(\frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} e^{19(H_{\text{obs}} - 0.00633)} \left(\frac{288^\circ\text{K}}{T_{\text{AMB}}} \right)^{1.53}$$

where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

NO_x obs = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in advance of the compliance test. The source shall operate between 90% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. Water injection shall be utilized for NO_x control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. In addition, the Permittee shall install a duct module suitable for future installation of SCR equipment.

16. To determine compliance with the capacity factor condition for oil firing, the Permittee shall maintain daily records of fuel usage. All records shall be maintained for a minimum of three years after the date of each record and shall be made available to representatives of the Department upon request.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded per fuel oil shipment. These records shall also be kept by the company for at least three years and made available for regulatory agency's inspection.

18. Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions shall be demonstrated based on calculations certified by a Professional Engineer registered in Florida, using actual operating conditions. Determination of the ambient concentrations for chemical compounds shall be determined by Department approved dispersion modeling. This compliance determination shall be made available upon request.

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes and Chapters 17-2 and 17-4, Florida Administrative Code.

20. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

21. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

22. This source shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

23. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur, nitrogen content and lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office.

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

25. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this 25th day
of July, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Carol M. Browner, Secretary

TABLE 1.
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG (a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	244	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	307	BACT
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22	BACT
VOC	-	-	9	6.7	BACT
CO	-	-	232	79	BACT
Mercury (Hg)	-	3.0×10^{-6} lbs/MMBtu	-	.003	Est. by Appl.
Lead (Pb)	-	2.8×10^{-5} lbs/MMBtu	-	0.03	" "
Beryllium (be)	-	2.5×10^{-6} lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	-	3.2×10^{-3}	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

Best Available Control Technology (BACT) Determination
City of Lakeland-Charles Larsen Power Plant
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Lakeland. The generator system will consist of a single nominal 80 megawatt (MW) combustion turbine, and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 40 MW steam turbine.

The combustion turbine will be capable of both combined cycle and simple cycle operation. The applicant requested that the combustion turbine use either natural gas or distillate oil. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity and type of fuel fired at ISO conditions to be as follows:

Pollutant	Potential Emissions (tons/yr)		PSD Significant Emission Rate (tons/yr)
	Natural Gas	Fuel Oil	
NOx	425	732	40
SO ₂	2.6	920	40
PM	22.0	66	25
PM ₁₀	22.0	66	15
CO	232	237	100
VOC	9	20.0	40
H ₂ SO ₄	0.8	27.4	7
Be	0.0	0.01	0.0004
Hg	0.0	0.01	0.1
Pb	0.0	0.12	0.6

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 17, 1990

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Determination</u>
NOx	25 ppmvd @ 15% O ₂ (natural gas burning) 42 ppmvd @ 15% O ₂ (diesel oil firing)
SO ₂	Firing of natural gas or No. 2 fuel oil with a maximum sulfur content of 0.20%
PM and PM ₁₀	Combustion control
H ₂ SO ₄	Firing of No. 2 fuel oil with a maximum sulfur content of 0.20%.
Be	Firing of No. 2 fuel oil

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determinations of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- o Combustion Products (Particulates and Heavy Metals). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (CO, VOC, Toxic Organic Compounds). Control is largely achieved by proper combustion techniques.
- o Acid Gases (SO_x, NO_x, HCl, F_l). Controlled generally by gaseous control devices.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "nonregulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., particulates, sulfur dioxide, fluorides, sulfuric acid mist, etc.), if a reduction in "nonregulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

Combustion Products

The City of Lakeland's projected emissions of particulate matter, PM₁₀, and beryllium surpass the significant emission rates given in Florida Administrative Code Rule 17-2.500, Table 500-2 for No. 2 fuel oil firing only.

A PM/PM₁₀ emissions limitation of .025 lb/MMBtu for No. 2 fuel oil firing is reasonable as BACT for the Lakeland facility.

In general, the BACT/LAER Clearinghouse does not contain specific emission limits for beryllium from turbines. BACT for these heavy metals is typically represented by the level of particulate control. As this is the case, the emission factor of .025 lb/MMBtu for particulate matter PM₁₀ is judged to also represent BACT for beryllium.

Products of Incomplete Combustion

The emissions of carbon monoxide exceeds the significant level and therefore requires a BACT analysis.

At the proposed BACT NO_x emissions of 25/42 ppmvd (gas/oil) the turbine will be capable of maintaining CO emission rates of 25 ppmvd for either natural gas or No. 2 fuel oil. The applicant states that catalytic reduction could be installed at a levelized cost of 1.0 million/year to further reduce the CO emissions by 140 tons/year while burning natural gas (8760 hrs/yr). The incremental removal cost of using such control would be approximately \$7340/ton of CO removed. This cost exceeds that which is consistent with BACT and is not economically justifiable.

Acid Gases

The emissions of sulfur dioxide, nitrogen oxides, and sulfuric acid mist, represent a significant proportion of the total emissions and need to be controlled if deemed appropriate. Sulfur dioxide emissions from combustion turbines are directly related to the sulfur content of the fuel being combusted.

The applicant has proposed the use of natural gas and No. 2 fuel oil with a maximum sulfur content of 0.20% to control sulfur dioxide emissions. A review of the latest edition (1990) of the BACT/LAER Clearinghouse indicates that sulfur dioxide emissions from combustion turbines have been controlled by limiting fuel oil sulfur content to a range of 0.1 to 0.3%, with the average for the facilities listed being approximately 0.24 percent. As this is the case, the applicant's proposal to use No. 2 fuel oil with a maximum sulfur content of 0.20% is judged to represent BACT.

The applicant has stated that BACT for nitrogen oxides will be met by using wet (water or steam) injection necessary to limit emissions to 42 ppmvd or 25 ppmvd at 15% oxygen when burning No. 2 fuel oil or natural gas, respectively.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO_x emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NO_x emissions. The SCR process combines vaporized ammonia with NO_x in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NO_x with a new catalyst. As the catalyst ages, the maximum NO_x reduction will decrease to approximately 86 percent.

Given the applicant's proposed BACT level for nitrogen oxides control stated above, an evaluation can be made of the cost and associated benefit of using SCR as follows:

The applicant has indicated that the total levelized annual cost (operating plus amortized capital cost) to install SCR for natural gas firing at 100 percent capacity factor is \$2,190,000. Taking into consideration the total levelized annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NOx emissions with wet injection from the Lakeland facility will be 425 tons/year. Assuming that SCR would reduce the NOx emissions by an additional 80-85%, the SCR would control at least 340 tons of NOx annually for natural gas firing. When this reduction is taken into consideration with the total levelized annual cost of \$2,190,000, the cost per ton of controlling NOx is \$6,441. This calculated cost is higher than has previously been approved as BACT.

Since SCR has been determined to be BACT for several combined cycle facilities, the EPA has clearly stated that there must be unique circumstances to consider the rejection of such control on the basis of economics.

In a recent letter from EPA Region IV to the Department regarding the permitting of a combined cycle facility (Tropicana Products, Inc.), the following statement was made:

"In order to reject a control option on the basis of economic considerations, the applicant must show why the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant."

A review of the combined cycle facilities in which SCR has been established as a BACT requirement indicates that the majority of these facilities are also intended to operate at high capacity factors. As this is the case, the proposed project is similar to other facilities in which SCR has been established as BACT, thereby supporting SCR as BACT for the proposed facility.

For fuel oil firing, the cost associated with controlling NOx emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

A concern associated with the use of SCR on combined cycle projects is the formation of ammonium bisulfate. For the SCR process, ammonium bisulfate can be formed due to the reaction of sulfur in the fuel and the ammonia injected. The ammonium bisulfate formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible for oil firing in some previous BACT determinations.

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. For natural gas firing operation NOx emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NOx emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 386 tons of NOx annually for oil/gas firing, assuming a maximum capacity factor of 33 percent on oil. When this reduction is taken into consideration with the total annual cost of \$2,190,000, the cost per ton of controlling NOx is \$5,674. This cost is lower than that determined for natural gas firing alone; however, it is still higher than what has been previously accepted as BACT.

Environmental Impact Analysis

The predominant environmental impacts associated with this proposal are related to the use of SCR for NOx control. The use of SCR results in emissions of ammonia, which may increase with increasing levels of NOx control. In addition, some catalysts may contain substances which are listed as hazardous waste, thereby creating an additional environmental burden. Although the use of SCR does have some environmental impacts, the disadvantages do not outweigh the benefit which would be provided by reducing nitrogen oxide emissions by 80 percent. The overwhelming benefit of NOx control by using SCR is substantiated by the fact that nearly one half of all BACT determinations have established SCR as the control measure for nitrogen oxides over the last five years.

In addition to the criteria pollutants, the impacts of toxic pollutants associated with the combustion of natural gas and No. 2 fuel oil have been evaluated. Beryllium for oil fired operation exceeds PSD significant levels. Other toxics are expected to be emitted in minimal amounts, with the total emissions combined to be less than 0.1 tons per year.

Although the emissions of the toxic pollutants could be controlled by particulate control devices such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of the toxic pollutants associated with the firing of natural gas or No. 2 fuel oil.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

1. SCR would reduce output of combustion turbines by one percent.
2. SCR could result in the release of unreacted quantities of ammonia to the atmosphere.
3. SCR would require handling of ammonia by plant operators. Since it is a hazardous material, there is a concern about safety and productivity of operators.
4. SCR results in contaminated catalyst from flue gas trace elements which could be considered hazardous. Safety of operators and disposal of spent catalyst is a concern.

BACT Determination by DER

NOx Control

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, capacity factors ranging from low to high). However, the cost and other concerns expressed by the applicant are valid.

The information that the applicant presented and Department calculations indicates that the incremental cost of controlling NOx (\$6,441/ton) for natural gas is high compared to other BACT determinations which require SCR. However, the cost of controlling NOx emissions for oil firing (\$4,600/ton) could be considered reasonable. Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable at this time as BACT. Therefore, the Department is willing to accept low NOx combustors with the firing of natural gas as the primary fuel. However, No. 2 distillate oil firing must be limited to 1/3 of the annual capacity factor. The applicant is also expected to design the facility to accommodate SCR should additional oil usage become necessary and SCR becomes a BACT requirement in the future.

SO2 Control

For sulfur dioxide BACT is represented by firing natural gas or No. 2 fuel oil with an average sulfur content not to exceed 0.20 percent.

Other Emissions Control

The emission limitations for PM and PM₁₀, are based on previous BACT determinations for similar facilities, with the heavy metal beryllium being addressed through the particulate limitation and sulfuric acid mist being addressed through the sulfur dioxide limitation.

The emission limits for the City of Lakeland project are thereby established as follows:

Pollutant	Emission Limit	
	Natural Gas Firing	No. 2 Fuel Oil Firing
NOx	25 ppmvd @ 15% O ₂	42 ppmvd @ 15% O ₂ *
SO ₂	Natural gas as fuel	Sulfur content not to exceed 0.20%
CO	25 ppmvd @ 15% O ₂	25 ppmvd @ 15% O ₂
PM & PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu
Sulfuric Acid Mist	Emissions limited by natural gas and No. 2 fuel oil firing	
Beryllium	Emissions limited by natural gas and No. 2 fuel oil firing	

* No. 2 fuel oil usage limited to 1/3 of the total heat input on an annual basis.

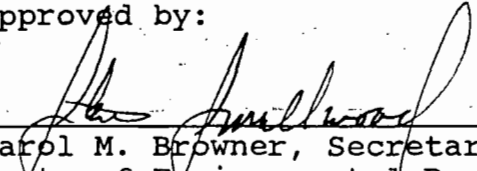
Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

Approved by:


C. H. Fancy, P.E., Chief
Bureau of Air Regulation


Carol M. Browner, Secretary
Dept. of Environmental Regulation

Date

July 14, 1991

Date

July 26, 1991



Lawton Chiles
Governor

Florida Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL

In the Matter of an Application
for permit by:

DER File No.: A053-219296
County: Polk

Mr. Alfred E. Dodd, Mgr. of Engineering
City of Lakeland, Dept. of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Enclosed is Permit Number A053-219296 to operate Unit No. 8 combustion turbine at the Larsen Power Plant, issued pursuant to Section 403, Florida Statutes. Please read this new permit thoroughly as there are changes from the previous permit.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

- (a) The name, address, and the 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by petitioner, if any;

- (e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) 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.

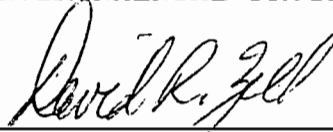
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard 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 receipt of this notice, in the Office of General Counsel at the above address of the Department. Failure to petition within the allotted time frame constitutes a waiver of any rights 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Street Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



David R. Zell
Air Permitting Engineer
3804 Coconut Palm Drive
Tampa Florida 33619-8318
Phone (813) 744-6100 Ext. 412

DRZ/
Attachment

cc:
Farzie Shelton, Environmental Coordinator, Lakeland Electric &
Water

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on JUL 30 1993 to the listed persons.

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.



Clerk

JUL 30 1993

Date

P 648 751 844



Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

MR ALFRED E DODD
MGR OF ENGINEERING
CITY OF LAKELAND
501 EAST LEMON ST
LAKELAND FL 33801-5050

PS Form 3800, June 1990

Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date JUL 30 1993	

#053-219296 D2

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

MR ALFRED E DODD
MGR OF ENGINEERING
CITY OF LAKELAND
501 EAST LEMON ST
LAKELAND FL 33801-5050

4a. Article Number

P 648 751 844

4b. Service Type

- | | |
|-----------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

0108 12/08/02/83

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

UNITED STATES POSTAL SERVICE

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D.E.R.



PENALTY FOR PRIVATE
USE, \$300

AUG 03 1993

SOUTHWEST DISTRICT

Print your name, address and ZIP Code here

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
3804 COCONUT PALM
TAMPA, FLORIDA 33619

P 648 751 845



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Do not use for International Mail
(See Reverse)

**MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKELAND
501 EAST LEMON ST
LAKELAND FL 33801-5050**

PS Form 3800, June 1990

Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date JUL 30 1993	

A053-219296 DZ

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
 - ☐ Restricted Delivery
- Consult postmaster for fee.

**MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKELAND
501 EAST LEMON ST
LAKELAND FL 33801-5050**

4a. Article Number

P 648 751 845

4b. Service Type

- | | |
|-----------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

0108 8/5/93 08/02/93

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)

6. Signature (Agent)

UNITED STATES POSTAL SERVICE

Official Business

D.E.R.

AUG 03 1993

SOUTHWEST DISTRICT

Print your name, address and ZIP Code here

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
3804 COCONUT PALM
TAMPA, FLORIDA 33619



PENALTY FOR PRIVATE
USE, \$300

Air



Lawton Chiles
Governor

Florida Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

City of Lakeland
Dept. of Electric & Water Utilities
501 E. Lemon Street
Lakeland, Florida 33801-5050

PERMIT/CERTIFICATION:

Permit No: AO53-219296
County: Polk
Expiration Date: 08/01/98
Project: Combustion Gas Turbine
Larsen Unit No. 8

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of a 120 MW combined cycle combustion gas turbine with a heat recovery steam generator (HRSG) designated as Larsen Unit No. 8. The combustion turbine will fire natural gas as the primary fuel, with No. 2 oil with a maximum sulfur content of 0.2% as a limited auxiliary fuel. The combustion turbine is a GE Model PG7111 (EA) Frame 7 unit equipped with water injection to reduce nitrogen oxides emissions.

The HRSG will be used to power an existing steam turbine.

Location: Charles Larsen Power Plant, 2002 E. U.S 92 in Lakeland

UTM: 409.19 E 3102.75 N **NEDS No:** 0003 **Point ID No:** 08

Replaces Permit No.: AC53-190437

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

1. A part of this permit is the attached 15 General Conditions. [Rule 17-4.160, F.A.C.].
2. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state or local law. [Rule 17-210.300, F.A.C.].
3. This gas turbine is subject to and shall meet all the applicable requirements of 40 CFR 60 Subpart GG (Standards of Performance for Stationary Gas Turbines, 40 CFR 60.330-335) of the Federal New Source Performance Standards (NSPS).
[Rule 17-296.800, F.A.C. and 40 CFR 60.330].

Emission Limitations

4. Visible emissions shall not exceed 10% opacity.
[Construction Permit No. AC53-190437].
5. The maximum allowable emissions from this source shall not exceed the emission rates show in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	-	-	2.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
VOC	-	-	9	6.7
CO	-	-	232	79
Mercury(Hg)	-	0.000003 (b)	-	0.003
Lead (Pb)	-	0.000028 (b)	-	0.03
Beryllium	-	0.0000025 (b)	-	0.003
S.Acid Mist	-	-	-	0.0032

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu

[Const. Permit No. AC53-190437 and BACT Determination of 7/26/91].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

6. Unless the Department has determined that other ambient concentrations are required to protect the public health and safety, predicted ambient air concentrations (AAC) shall not exceed the following levels for the pollutants shown:

Pollutant	Acceptable Ambient Concentrations (AAC) (ug/cubic meter)		
	8 hr. avg.	24 hr. avg.	Annual avg.
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds, all forms of vapor, as Hg	-	-	0.3

[Construction Permit No. AC53-190437].

Operational Limitations

7. This source is allowed to operate continuously (8,760 hrs/yr).
[Construction Permit No. AC53-190437].

8. The combustion turbine is permitted to use natural gas as the primary fuel with No. 2 distillate oil as a secondary fuel. Fuel usage rates not to exceed the values below:

- A. maximum heat input rate shall not exceed 1,055 MMBtu/hr for natural gas or 1,040 MMBtu/hr for No. 2 fuel oil;
- B. maximum annual firing of No. 2 fuel oil shall not exceed 1/3 (33.3%) of the annual capacity factor;
- C. maximum No. 2 oil consumption shall not exceed 8,190 gallons per hour or 23,914,800 gallons per year.

[Construction Permit No. AC53-190437].

9. The maximum sulfur content of the No. 2 fuel oil fired in the combustion gas turbine shall not exceed 0.20 % sulfur (S) by weight. [Note: This limitation is more stringent than and therefore satisfies the requirements of Subpart GG - 40 CFR 60.333(b)]
[Construction Permit No. AC53-190437 and BACT Determination of July 26, 1991].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

10. Water injection shall be utilized for NOx control. The water to fuel ratio shall be controlled by the turbine automatic control system to the level necessary to insure compliance with Specific Condition No. 5.

[Construction permit AC53-190437].

11. The permittee shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate within $\pm 5\%$. These records shall be retained for a least a two year period and made available to the Department upon request. In addition a copy of the continuous fuel/water injection records for the period of any stack testing shall be submitted with the test report.

[Construction permit AC53-190437, Subpart GG - 40 CFR 60.334(a), and Rule 17-4.070(3), F.A.C.].

12. The permittee shall install and maintain a module suitable for possible installation of SCR NOx control equipment.

[Construction permit AC53-190437].

Compliance and Testing Requirements

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to August 6. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

(X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)

(X) Nitrogen Oxides (NOx)

[Construction Permit No. AC53-190437 and Rules 17-297.340 and 17-297.570, F.A.C.].

14. Should the Department have reason to believe that any of the emission standards are not being met, the Department may require that compliance with the emission standard be demonstrated by testing in accordance with Rule 17-297, F.A.C.

[Rule 17-297.620(4), F.A.C.].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

15. Compliance with the emission limitations of Specific Condition Nos. 4 and 5 shall be determined using the following EPA Methods contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-297, F.A.C.:

- A. EPA Method 9 for VE
- B. EPA Method 20 for NOx
- C. EPA Method 5, 5B, or 17 for PM (Should a test be required by the Department - See Specific Condition No. 14.)

Other test methods may be used for compliance testing after prior Departmental approval. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-297, F.A.C. and 40 CFR 60, Appendix A. [Construction Permit No. AC41-190437 and Rule 17-297, F.A.C.].

16. The permittee shall notify the Air Program of the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. [Rule 17-297.340(1)(i), F.A.C.].

17. Testing of emissions must be conducted during operation of the combustion gas turbine at 90-100% of the maximum permitted fuel heat input rates specified in Specific Condition No. 8.A. A compliance test submitted at an operating rate less than 90% of maximum permitted rate will automatically constitute an amended permit at the lesser rate plus 10% until another test showing compliance at a higher rate (not to exceed those shown in Specific Condition No. 8.A.) is submitted. Failure to submit the fuel heat input rate and actual operating conditions with the test report may invalidate the test. [Rule 17-4.070(3), F.A.C.].

18. The visible emissions tests shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [Rule 17-297.330(1)(b), F.A.C.].

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with 40 CFR 60.335(c)(1) (or 60.335(f)(1) if appropriate approvals are obtained). [Rule 17-296.800, F.A.C., and 40 CFR 60.335].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: A053-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:

20. Annual NOx compliance testing shall be conducted separately while burning natural gas and while burning No. 2 fuel oil unless either has not been used for more than 400 hours in the 12 month period prior to testing. In that case, testing need only be conducted on fuel used for more than 400 hours in the last 12 consecutive month period. The test report shall include a statement that the above criteria was met if one of fuels is not tested. Regardless of fuel usage, a NOx test shall be conducted on both fuels during the 3 month period prior to submittal of an operation permit renewal application
[Construction permit AC53-190437 and Rule 17-297, F.A.C.].

21. Annual visible emissions testing shall be conducted while burning No. 2 fuel oil. The visible emissions compliance test can be waived, on a year by year basis, if fuel oil has not been used in this unit for more than 400 hours for the previous 12 months, and if it is not expected to be used in this unit for more than 400 hours during the next 12 months. If this waiver is exercised, each year when the VE test is due a letter must be sent to the SWD District office stating that the above qualifications for the waiver have been satisfied. If an annual VE compliance test was not done and fuel oil usage subsequently exceeds 400 hours during the next 12 month period then, a VE test while firing No. 2 fuel oil shall be conducted within 30 days of the 400th hour of fuel oil usage. Regardless of fuel usage, a VE test shall be conducted during the 3 month period prior to submittal of an operation permit renewal application.
[Rule 17-297.340, F.A.C.].

22. For compliance tests conducted while firing No. 2 fuel oil, compliance with the fuel oil sulfur content limitation of Specific Condition No. 9 shall be demonstrated during testing by submitting either of the following with the test report:

- A. A Certificate of Fuel Oil Analysis from your fuel oil vendor for the fuel used during the compliance test;
- B. A Certificate of Fuel Oil Analysis for a fuel oil sample taken during the compliance test.

Fuel analysis for sulfur content of liquid shall be done in accordance with ASTM D2880-71.

[Rules 17-4.070(3) and 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.335(d)].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

Specific Conditions:**Recordkeeping and Reporting Requirements**

23. In order to demonstrate compliance with the fuel oil sulfur content limitation of Specific Condition No. 9, and in accordance with Subpart GG - 40 CFR 60.334(b), the permittee shall maintain records of the fuel oil sulfur content and nitrogen content for each shipment of fuel received for use in this unit. Compliance with the sulfur content standards shall be determined in accordance with the requirements of Subpart GG - 40 CFR 60.335(d). Proof of compliance with the annual SO₂ limitation (including calculations) shall be submitted along with the annual operating report each year. [Construction Permit No. AC53-190437, Rule 17-296.800, F.A.C., and Subpart GG - 40 CFR 60.334(b) and 60.335(d)].

24. The permittee shall submit quarterly NO_x and SO₂ excess emission reports in accordance with Subpart GG - 40 CFR 60.334(c). These reports shall be based on the fuel oil sulfur content records (Specific Condition No. 23), data from the continuous fuel consumption/water injection monitoring system (Specific Condition No. 11), or data from other certified continuous emission monitoring systems approved by the Department. The reports shall include periods for which the water injection control system or the fuel/water injection monitoring system were inoperative. If there are no excess emissions during a calendar quarter the permittee shall submit a report stating that no excess emissions occurred during the reporting period. [Rule 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.334].

25. In order to document compliance with the capacity factor limitation for oil firing in Specific Condition No. 8.B., the following fuel usage records shall be maintained:

- A. daily fuel usage of natural gas and No. 2 oil;
- B. monthly records of total usage of natural gas and No. 2 fuel oil and total Btu heat input of each;
- C. an annual calculation of the % of the annual capacity factor that was associated with fuel oil firing.

[Rule 17-4.070(3), F.A.C. and construction permit AC53-190437].

26. Submit to the Air Program of the Southwest District Office of the Department each calendar year on or before March 1 completed DER Form 17-213.900(4), "Annual Operating Report for Air Pollutant Emitting Facility," for the preceding calendar year. [Rule 17-210.370(2), F.A.C. and construction permit AC53-190437].

PERMITTEE

City of Lakeland
Larsen Power Plant

PERMIT/PROJECT

Permit No.: AO53-219296
Project: Combustion Gas Turbine
Larsen Unit No. 8

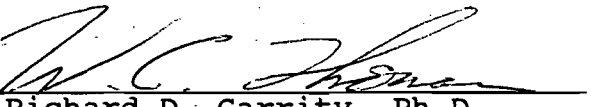
Specific Conditions:

27. All reports required by this permit and/or 40 CFR 60 shall be submitted to the Air Program of the Southwest District Office of the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.
[Rule 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.7(c)].

Permit Application

28. An application to renew this operating permit, along with two additional copies, shall be submitted to the Air Program of the Southwest District Office of the Department no later than June 1, 1998 (60 days prior to the expiration date of this permit).
[Rule 17-4.090(1), F.A.C.].

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION


For Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

ATTACHMENT - GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

- (a) Have access to and copy any records that must be kept under conditions of the permit;
- (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit;
- (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- (a) A description of and cause of noncompliance; and
- (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 17-4.120 and 17-730.300, Florida Administrative Code, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
- () Compliance with New Source Performance Standard

14. The permittee shall comply with the following:

- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
- (c) Records of monitoring information shall include:
 - 1. the date, exact place, and time of sampling or measurements;
 - 2. the person responsible for performing the sampling or measurements;
 - 3. the dates analyses were performed;
 - 4. the person responsible for performing the analyses;
 - 5. the analytical techniques or methods used;
 - 6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.



A053 219296

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC 53-190437/PSD-FL-166 DATE: _____
Company Name: City of Lakeland, Florida County: Polk
Source Identification(s): Combustion Turbine (CT), Gas/Distillate (No.2) Fueled-Larsen Unit #8
Actual costs of serving pollution control purpose: \$ see note below
Operating Rates: 8760 hours per year Design Capacity: 80 MW Simple Cycle Gas Turbine
Expected Normal 8760 hours During Compliance Test 120 hours
Date of Compliance Test: August 3-7, 1992 (Attach detailed test report)

Test Results:	Pollutant	Actual Discharge	Allowed Discharge
	<u>Nitrogen Oxides</u>	<u>See Tables</u>	<u>25 ppmvd/lb/h</u>
	<u>Carbon monoxide</u>	<u>3-2 thru 3-10 in</u>	<u>25 ppmvd at 15% O₂</u>
	<u>PM & PM₁₀</u>	<u>Emission Test Report</u>	<u>0.006 lb/MMBtu</u>

Date plant placed in operation: _____

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC 53-190437/PSD-FL-166 dated July 25, 1991.

A. Applicant:

Alfred M. Dodd

Name of Person Signing (Type)

Alfred M. Dodd, MGR of ENGINEERING
Signature of Owner or Authorized Representative and Title

Date: 9/17/92

Telephone: 813-499-6461

B. Professional Engineer:

Donald D. Schultz

Name of Person Signing (Type)

D D Schultz

Signature of Professional Engineer

Black & Veatch

Company Name

Florida Registration No. 30304

Date: November 20, 1980

(Seal)

P.O. Box 8405, Kansas City, MO 64114

Mailing Address

913-339-2028

Telephone Number

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

Note: N/A - Cost NO_x control included in base cost for combustion turbine package. All other pollution control via fuel selection and fuel firing control.

Exception: The construction of the Combustion Turbine Generator has been completed and it is operating in the simple cycle mode. Construction continues on the HRSG. Construction is expected to be completed on the combined cycle phase of the project and placed into operation in late 1992.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAY
GOVERNOR
VICTORIA J. TSCHIN
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) ☒ New ☐ Existing
APPLICATION TYPE: ☐ Construction ☒ Operation ☐ Modification
COMPANY NAME: City of Lakeland, Florida
COUNTY: Polk
Identify the specific emission point source(s) addressed in this application (i.e. Line
Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Larsen Unit #8-CT
SOURCE LOCATION: Charles Larsen Power Plant city Lakeland
UTM: East 409.185 km North 3102.754 km
Latitude 28° 2' 56" N Longitude 81° 55' 25" W
APPLICANT NAME AND TITLE: City of Lakeland, Department of Electric and Water Utilities
APPLICANT ADDRESS: 501 E. Lemon Street, Lakeland, FL 33801-5050

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative of the City of Lakeland

I certify that the statements made in this application for an Operation permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Charles D. Garing
Charles D. Garing, Larsen Plant Manager
Name and Title (Please Type)

Date: 9-17-92 Telephone No. 813-499-8188

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed

Donald D. Schultz

Donald D. Schultz, Project Manager

Name (Please Type)

Black & Veatch

Company Name (Please Type)

P.O. Box 8405, Kansas City, MO 64114

Mailing Address (Please Type)

Florida Registration No. 30304

Date: November 20, 1980

Telephone No. 913-339-2028

SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

The project will result in full compliance with all applicable regulations. See Attachment A for the Project Description and Attachment B for Best Available Control Technology Analyses (pollution control).

- B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction _____ Completion of Construction _____

- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

See Attachment B. Note that water injection for reduction of NO_x emissions is an integral part of the gas turbine.

- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit Number AC 53-190437/PSD-FL-166; March 30, 1993.

E. Requested permitted equipment operating time: hrs/day 24; days/wk 7; wks/yr 52
if power plant, hrs/yr 8760; if seasonal, describe: NA

F. If this is a new source or major modification, answer the following questions.
(Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No
 - a. If yes, has "offset" been applied?
 - b. If yes, has "Lowest Achievable Emission Rate" been applied?
 - c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source?
If yes, see Section VI. See Attachment B. Yes
3. Does the State "Prevention of Significant Deterioration" (PSD)
requirement apply to this source? If yes, see Sections VI and VII. Yes
4. Do "Standards of Performance for New Stationary Sources" (NSPS)
apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants"
(NESHAP) apply to this source? No
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply
to this source? No
 - a. If yes, for what pollutants?
 - b. If yes, in addition to the information required in this form,
any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
NA				

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission ¹		Allowed ² Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
See Attachment C							

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

J. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Water injection	NO _x		See Tables 3-2	
Type of fuel	SO ₂ , CO, PM		thru 3-10 in	
			Emission Test Report	

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBtu/hr)
	avg/hr	max./hr	
Natural Gas		1.14 MMCF/hr	1054.6 MMBtu/hr
or		(@ 25 F Ambient Conditions)	
No. 2 Fuel Oil		8.17x10 ³ gal/hr	1038.1 MMBtu/hr
		(@ 25 F Ambient Conditions)	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Gas: 2,000 gr/MMCF
 Percent Sulfur: Oil: 0.20% by wgt. Percent Ash: Nil (both fuels)
 Gas: 1 lb/23.8 CF
 Density: Oil: 7.05 lb/gal lbs/gal Typical Percent Nitrogen: 0.73%
 Gas: 22,090 BTU/lb Gas: 928 Btu/CF
 Heat Capacity: Oil: 18.010 BTU/lb Oil: 127,000 Btu/gal (LHV) STU/gal

Other Fuel Contaminants (which may cause air pollution): Negl.

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average None Maximum None

G. Indicate liquid or solid wastes generated and method of disposal.

NA

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: Combined Cycle: 155 ft. Simple Cycle: 100 ft ft. Stack Diameter: Combined Cycle: 19 ft. Simple Cycle: 19 ft. ft.

Exhaust Gas Flow Rate: C: 1,058,000 S: 1,570,000 ACFM DSCFM Gas Exit Temperature: C: 4810F S: 9500F °F.

Water Vapor Content: Gas: 10.13% Oil: 7.25% % Velocity: Combined Cycle: 62.2 (Gas) Simple Cycle: 92.3 (Gas) FPS

SECTION IV: INCINERATOR INFORMATION

NA

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume (ft) ³	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner

☐ Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. See Emission Test Report.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. See Figure 2-3 in Attachment A.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). See Figure 2-1 in Attachment A.
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Figure 2-2 in Attachment A.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

☒ Yes ☐ No Subpart GG

Contaminant	Rate or Concentration
See Attachment B	

- B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

☐ Yes ☐ No See Attachment B

Contaminant	Rate or Concentration

- C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
See Attachment B	

- D. Describe the existing control and treatment technology (if any). NA

1. Control Device/System:

2. Operating Principles:

3. Efficiency:*

4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

10. Stack Parameters

100 ft. simple cycle
a. Height: 155 ft. combined cycle ft. b. Diameter: 19 ft.
1,570,000 simple cycle
c. Flow Rate: 1,058,000 combined cycle d. Temperature: 950 simple cycle °F.
92.3 simple cycle
e. Velocity: 62.2 combined cycle FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1. See Attachment B

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: See Attachment B

1. Control Device:

2. Efficiency:¹

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:²

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

¹ Explain method of determining efficiency.

Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

_____	_____
_____	_____
_____	_____

(8) Process Rate:¹

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

_____	_____
_____	_____
_____	_____

(8) Process Rate:¹

10. Reason for selection and description of systems:

¹Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data See Attachment D

1. _____ no. sites _____ TSP _____ () SO₂ _____ Wind spd/dir _____

Period of Monitoring _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? ☐ Yes ☐ No

b. Was instrumentation calibrated in accordance with Department procedures?

☐ Yes ☐ No ☐ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO ₂	_____ grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A

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 plant site arrangement and a flowchart showing the combustion turbine process are shown in Figures 2-2 and 2-3, respectively.

The Project consists of a new CT generator with the later addition in 1992 of a heat recovery steam generator (HRSG). When operating in the combined cycle mode, the CT will exhaust combustion gases to a dedicated HRSG and eventually to a 155-foot high stack. Steam produced in the HRSG will be directed to the existing Larsen Unit 5 steam turbine. During periods when the HRSG is not operating, the combustion turbine will operate in a simple cycle mode and exhaust through a 100-foot bypass stack. The new CT is natural gas and No. 2 fuel oil (distillate) fueled.

The proposed CT has an independent air cooling system. The steam cycle and associated equipment will be cooled using the existing once-through cooling system. Makeup water for the HRSG boiler and NO_x control water injection for the CT will be supplied from the Larsen Plant demineralized water supply. Wastewater is routed to the existing wastewater system.

BEST AVAILABLE COPY

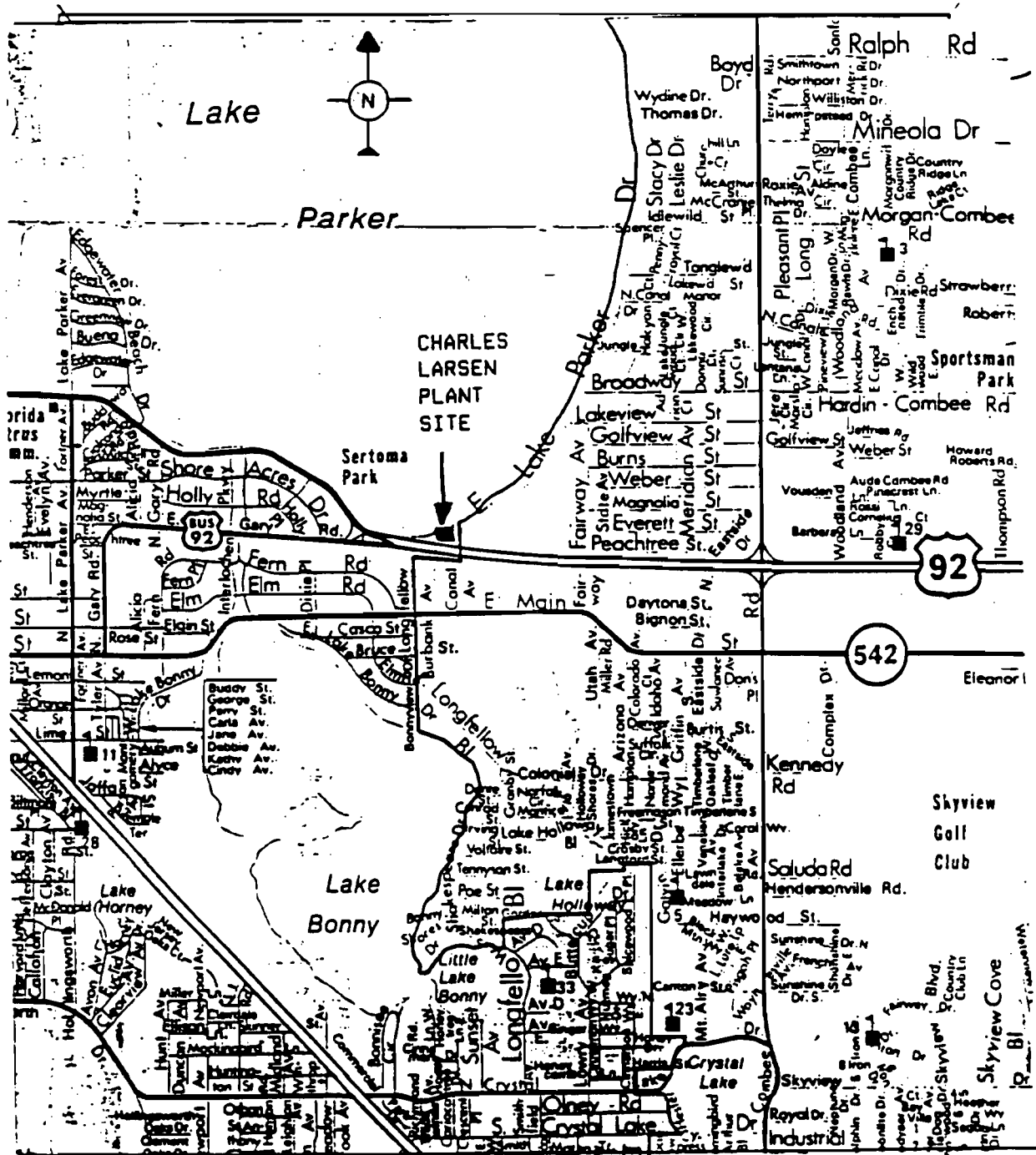


FIGURE 2-1. LOCATION OF CHARLES LARSEN PLANT SITE

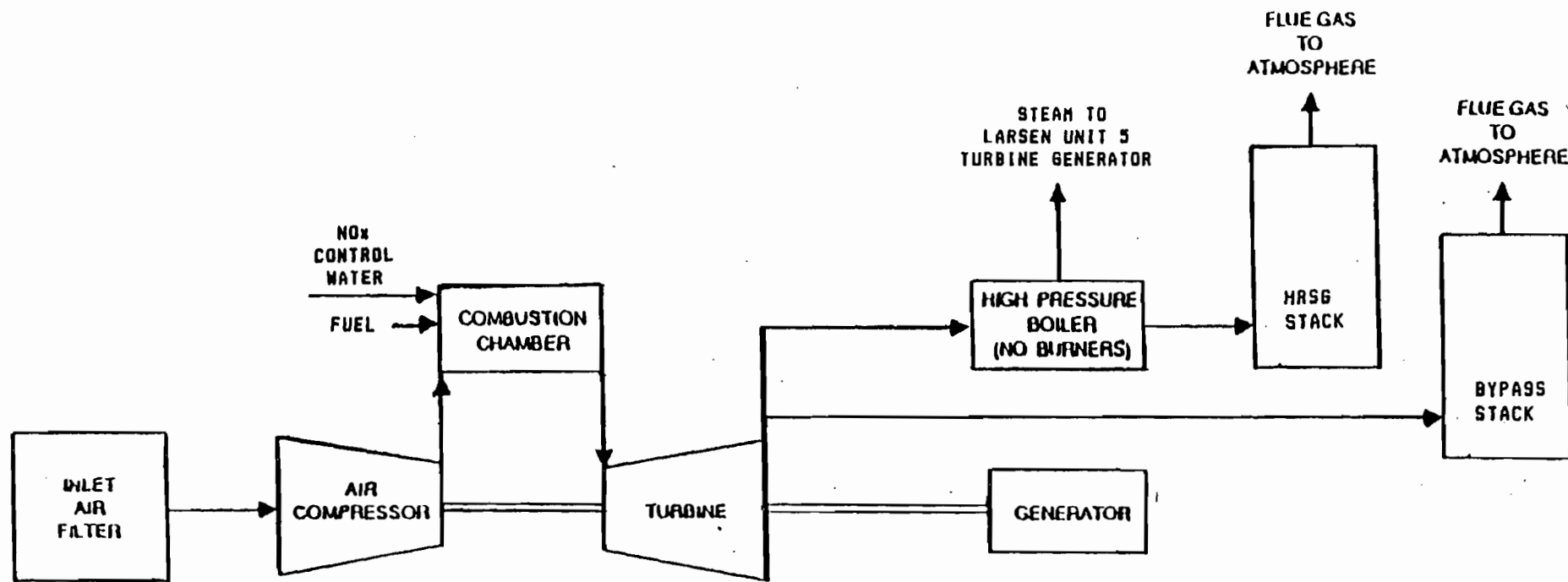


FIGURE 2-3. COMBUSTION TURBINE FLOW DIAGRAM

ATTACHMENT B

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

INTRODUCTION

The Lakeland Combustion Turbine Project consists of one combustion turbine to be operated later in combined cycle. The primary fuel for the project is natural gas. No. 2 fuel oil will be used as a backup combustion turbine fuel. Pollutant emissions are generally higher when burning No. 2 fuel oil. When fuel oil is used for the maximum project operation or 8,760 hours per year (100 percent capacity factor), the following regulated pollutants are subject to the provisions of the PSD Program.

- Nitrogen Oxides (NO_x)
- Sulfur Dioxide (SO₂)
- Sulfuric acid mist (H₂SO₄)
- Particulate (Total and PM10)
- Beryllium (Be)
- Carbon Monoxide (CO)

Consequently, this BACT analysis addresses the control of emissions of these PSD applicable pollutants when burning either natural gas, or No. 2 fuel oil. Also included are evaluations of the effects of the BACT systems selected on the emissions of unregulated hazardous pollutants.

Under the federal Clean Air Act, BACT represents the maximum degree of pollutant reduction determined on a case-by-case basis considering technical, economic, energy, and environmental considerations. However, BACT cannot be less stringent than the emission limits established by the applicable New Source Performance Standards (NSPS) Subpart GG.

This BACT analysis follows the general requirements of EPA's draft "top down" BACT guidance document. This approach requires that the BACT analysis start by assuming the use of the LAER control alternative. Other, less efficient emission control technologies are subsequently evaluated if LAER is determined to be unreasonable considering the above factors.

Based on a review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations including the 1990 edition, a combustion turbine with HRSG that utilizes water or steam injection and selective catalytic reduction (SCR) for NO_x emission control represents LAER. A recent FDER BACT decision for the TECO, Hardee County Project allowed for the use of water or steam injection for NO_x control to 42 ppmvd (@ 15 percent O₂) and no supplemental control devices. The TECO Project is very similar to this Project with the exception of some operating limitations. The TECO project is restricted to a lifetime average capacity factor of 60 percent and limitations on the fuel burn rate. The permit also stipulated

that only natural gas or No. 2 fuel oil can be burned in the combustion turbine. SO₂ emissions for the TECO project will be controlled by limiting the average annual sulfur content of the fuel oil to 0.3 percent by weight with the maximum not to exceed 0.5 percent.

The BACT analysis for the Lakeland Combustion Turbine Project is contained in the following sections.

NITROGEN OXIDES EMISSIONS CONTROL

During combustion, two types of NO_x are formed; fuel NO_x and thermal NO_x. Fuel NO_x emissions are formed through the oxidation of a portion of the nitrogen contained in the fuel. Thermal NO_x emissions are generated through the oxidation of a portion of the nitrogen contained in the combustion air. Nitrogen oxides formation can be limited by lowering combustion temperatures, and staging combustion (a reducing atmosphere followed by an oxidizing atmosphere).

Alternative NO_x Emission Reduction Systems

The EPA has established an NSPS limitation for NO_x emissions from electric utility combustion turbines at 75 parts per million dry volume (ppmvd) at 15 percent oxygen (O₂), with a correction for fuel nitrogen content and turbine heat rate [40 CFR 60.332(b)]. A review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations through the 1990 edition, indicated that the lowest NO_x emission limit to be 4.5 ppmvd at 15 percent O₂. This limit is for a combustion turbine with an HRSG located in California. That permit value was based on the use of water injection in the combustion turbine and a SCR system contained within the HRSG (combined cycle operation).

Either water or steam could be used to limit NO_x formation during combustion. Therefore, the LAER NO_x emission control alternative for use with combustion turbines is established as water or steam injection followed by an SCR system.

Other NO_x emission control systems have been identified for evaluation as BACT. Injection of water into a turbine with low NO_x combustion chamber(s) can limit NO_x emissions to 25 ppmvd (at 15 percent O₂) when burning natural gas and 42 ppmvd when burning fuel oil.

In addition to the two alternatives, NO_x emissions from other types of combustion sources have also been controlled through installation of selective non-catalytic reduction (SNCR) systems such as Thermal DeNO_x. A SNCR system requires gas temperatures of at least 1,500 F for NO_x reduction. The temperature at the outlet of a combustion turbine is too low (950 F to 1,100 F) for such systems. Since raising the flue gas exit

temperature to 1,500 F would require supplemental heating of the flue gas, thereby increasing total emissions due to increased fuel usage, this alternative is judged technically unacceptable for application on a combustion turbine.

Selective Catalytic Reduction. SCR is a post-combustion method for control of NO_x emissions. The SCR process combines vaporized ammonia with NO_x in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90 percent reduction of NO_x with a new catalyst. An aged catalyst will provide a maximum of approximately 80 to 85 percent NO_x reduction.

The optimum flue gas temperature range for SCR operation is approximately 650 to 750 F. Flue gas from the combustion turbines will typically be 950 F to 1100 F. Therefore, an SCR would be installed in an intermediate point of the HRSG where a temperature of approximately 700 F occurs.

Operation of the unit in the simple cycle mode would require that the SCR be bypassed in order to prevent permanent damage to the catalyst from the high exhaust gas temperatures due to the HRSG not being in operation.

Improved Low NO_x Combustion Chamber. Combustion turbine manufacturers have begun to market an improved low NO_x burner design. These burners provide improved air/fuel mixing and reduced flame temperatures. The result is lower concentrations of NO_x in comparison to standard combustion chamber design (25 versus 42 ppmvd when firing natural gas). However, these machines also have significantly higher CO emissions.

The capital and annual cost of a low NO_x combustor which meets a 25/42 (natural gas/oil) ppmvd NO_x emission limit is considered base for this project.

Water/Steam Injection. Use of water or steam injection in the combustion zones of a combustion turbine can limit the amount of NO_x formed. Thermal NO_x formation is avoided due to lower combustion temperatures resulting from the water or steam injection. The degree of reduction in NO_x formation is somewhat proportional to the amount of water or steam injected into the turbine.

Since the combustion turbine NSPS was last revised in 1982, combustion turbines have improved their tolerance to the water steam necessary to control NO_x emissions below the current NSPS level. However, there is still a point at which the amount of water or steam injected into the

turbine seriously degrades the turbine's reliability and operational life. With the manufacturers' existing turbine designs and standard combustors, this generally occurs below a NO_x emission level of about 42 ppmvd (at 15 percent O_2) when firing natural gas and 65 ppmvd when firing fuel oil.

These NO_x emission levels can be achieved with little additional cost and without significant impact on reliability or power output over those costs required to comply with the NSPS.

Capital and Operating Costs of Alternatives

Tables 6-1 and 6-2 present the capital and levelized annual costs of the two feasible NO_x control systems for the combustion turbine facility: a low NO_x combustor with and without an SCR. The incremental annual NO_x emissions are based on firing natural gas for a maximum of 8,760 hours per year (100 percent capacity factor) in the turbines.

The differential capital costs for the SCR system include the costs of the ammonia storage/injection system, the catalytic reactors, HRSG modifications and balance of plant equipment. In addition to the 1990 equipment costs of the two alternatives, the total capital costs include a contingency charge, escalation, indirect costs, and interest during construction.

The levelized annual costs assume a total station fuel consumption of about 8.5×10^6 MMBtu/yr (8,760 h/yr per turbine at base load). This same annual fuel consumption was used in Section 3.0 of this application as the basis for determining pollutant applicability to the PSD Program. Levelized annual costs include operating and maintenance costs (including catalyst replacement), ammonia additive, energy, lost generating capacity and fixed charges on capital investment. The differential energy cost and lost generating capacity for the SCR alternative is the result of the reduced net output of the turbine due to the additional back pressure added by the SCR and the energy requirements of the associated equipment.

The incremental levelized annual cost for adding an SCR to a low NO_x combustor is about \$2.2 million/year. This cost results in an incremental removal cost of approximately \$7,960 per ton of NO_x reduction (275 tons per year while burning natural gas).

TABLE 6-1. COMPARATIVE CAPITAL COSTS OF ALTERNATIVE NO_x CONTROL TECHNOLOGY*

	Low NO _x Combustor Design Plus SCR	Low NO _x Combustor Design
Differential combustion turbine costs	Base	Base
SCR reactors	\$1,990,000	NA
Ammonia storage and injection equipment	\$200,000	NA
HRSG Modification	NA	Base
Water Treatment, Storage and injection equipment	NA	Base
Balance of plant	<u>\$60,000</u>	<u>Base</u>
Direct capital cost (1990)	\$2,250,000	Base
Contingency	\$230,000	Base
Escalation	<u>\$280,000</u>	<u>Base</u>
Direct capital cost	\$2,760,000	Base
Indirects	\$410,000	Base
Interest during construction	<u>\$160,000</u>	<u>Base</u>
Total Capital Costs (1992)	\$3,330,000	Base

*Based on one turbine.

TABLE 6-2. COMPARATIVE LEVELIZED ANNUAL COSTS OF ALTERNATIVE NO_x CONTROL TECHNOLOGY*

	Low NO _x Combustor Design Plus SCR	Low NO _x Combustor Design
Operation and maintenance costs	\$1,090,000	Base
Ammonia	\$90,000	NA
Energy	\$210,000	Base
Generating Cost Adjustment	\$270,000	Base
Fixed charges	<u>\$530,000</u>	<u>Base</u>
Total Annual Costs	\$2,190,000	Base
Annual NO _x Emissions (tpy)	150	425
Incremental Annual NO _x Emissions Reduction (tpy)	275	Base
Incremental Levelized Cost per Ton of NO _x Removed	\$7,960	Base

*Based on one turbine and 8,760 hours/year of natural gas fired operation at ISO conditions (59 F and 60 percent relative humidity).

Other Considerations

The following lists other considerations that effect the operation of the facility.

- Compared to the low NO_x combustor with water or steam injection, the energy requirements of the SCR system would reduce the output of the combustion turbines by approximately one percent.
- The use of an SCR system could result in a negative environmental impact due to the release of quantities of unreacted ammonia to the atmosphere. Ammonia and a number of amine compounds are recognized as hazardous air pollutants. Although ammonia emissions are not regulated nationally, at least one air pollution control district in California recently set a limit of 10 ppm. Unreacted ammonia emissions from an SCR system could average 7 to 10 ppm. This emission level could create an objectionable odor and health hazards. Ammonia is also a hazardous material. Accordingly, this material must be handled and stored with extreme care. Working on and around ammonia equipment will cause operational personnel to be less productive and functional than under normal working conditions.
- Over time with exposure to trace elements in the flue gas, catalysts become contaminated and could be classified as hazardous waste. Therefore, the spent catalyst must be handled and disposed of following hazardous waste procedures. Some catalytic elements are toxic and must be replaced periodically. This replacement must follow hazardous waste disposal procedures.
- The ambient air modeling did not show any significant impacts for NO_x emissions of 25/42 ppmvd (at 15 percent O₂) when burning natural gas or fuel oil, respectively.

Conclusions

Installation of an SCR system designed to meet a NO_x emission limit of 9 ppm (approximately 64 percent reduction) would add over \$3.3 million to the capital cost of the project. The addition of an SCR system increases the total levelized annual costs for the project by about \$2.2 million. This increase results in an incremental removal cost of approximately \$7,960 per ton of NO_x removed while burning natural gas (100 percent capacity factor).

Natural gas is the primary fuel for the project and fuel oil will be used only in the event of an interruption of natural gas supply. The use of an SCR system could result in adverse environmental effects due to unreacted ammonia being released to the atmosphere causing a potential human health hazard.

Therefore, based on economic, energy, and environmental considerations NO_x BACT proposed for this combustion turbine facility is the use of a low NO_x combustor with water or steam injection. The low NO_x combustor will achieve NO_x emissions of 25/42 ppmvd (at least 15 percent O_2) while burning natural gas or No. 2 fuel oil, respectively. The economics are based on operating the unit for 8,760 hours per year (100 percent capacity factor). This level of BACT represents a NO_x control that is lower than recent determinations in the state of Florida. -

SULFUR DIOXIDE AND SULFURIC ACID MIST EMISSIONS

The NSPS established by EPA for emissions from combustion turbines sets a maximum SO_2 level in the flue gas of 150 ppmvd (at 15 percent O_2) and a maximum fuel sulfur content of 0.8 percent by weight (40 CFR 60.333). The EPA has not established a combustion turbine NSPS for sulfuric acid mist (H_2SO_4). The turbine manufacturers' emission data indicate that on average, approximately 3 percent of the SO_2 in the flue gas is oxidized to SO_3 which combines with water to form H_2SO_4 .

Typically, natural gas has only a trace of sulfur (2,000 grains per million standard cubic feet or less). Recent permits for No. 2 fuel oil fired combustion turbines have included limits on maximum allowable fuel sulfur contents. Current BACT/LAER Clearinghouse documents do not list any natural gas, or No. 2 fuel oil fired combustion turbines that are required to use flue gas desulfurization (FGD) systems to meet SO_2 emission requirements. Addition of an FGD system would be a superfluous method of SO_2 emission control. The significant capital and operating cost associated with FGD systems would result in termination of the project.

The primary fuel for the Lakeland Combustion Turbine Project is natural gas. Fuel oil will only be fired when the supply of natural gas is limited to this project.

The use of low sulfur fuel oil (maximum of 0.20 percent sulfur) will impose no differential capital costs on the project. Additionally modeling showed that no significant impacts for SO_2 emissions resulted when burning 0.20 percent sulfur fuel oil.

Based on economic, energy, and environmental considerations limitation of the fuel sulfur content to 0.20 percent by weight is proposed as BACT for the SO_2 emissions during oil firing from the Lakeland Combustion

Turbine Project. Natural gas typically contains only trace amounts of sulfur and no further controls are necessary.

PARTICULATE MATTER EMISSIONS

The natural gas and No. 2 fuel oil used to fuel the combustion turbine contain only trace quantities of noncombustible material. Therefore, emission of particulate matter from the combustion turbine facility is controlled by ensuring as complete combustion of the fuel as possible. The NSPS for combustion turbines do not establish an emission limit for particulate matter. A review of the EPA's BACT/LAER Clearinghouse documents did not reveal any post-combustion particulate matter control technologies being used on gas/oil fuel combustion turbines. The manufacturers' standard combustion turbine operating procedures ensure as complete combustion of the fuel as possible. Accordingly, combustion control is the BACT for total particulate matter and PM-10.

BERYLLIUM EMISSIONS

The emissions of beryllium (Be) from the combustion turbine facility is determined by the Be content of the fuels. Natural gas has no measurable Be content and the Be emissions when firing natural gas are insignificant on an annual basis. No. 2 fuel oil typically contains a trace amount of Be, on the order of 2.5×10^{-6} pounds per million Btu (lb/MMBtu). The annual Be emissions when firing fuel oil for 8,760 hours/year (100 percent capacity factor) are predicted to be 0.01 tons per year. While this is above EPA's significant emission rate of 4.0×10^{-4} tons per year, a review of the EPA's BACT/LAER Clearinghouse documents did not reveal any combustion turbine project which has been required to install supplemental pollution control equipment to reduce Be emissions. Accordingly, complete combustion of the No. 2 fuel oil is the BACT for Be emissions.

CARBON MONOXIDE (CO)

Based on a review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations (1990 edition), a combustion turbine with proper combustion control and an oxidizing catalyst that limits carbon monoxide (CO) emissions to 2 ppmvd represents LAER.

Due to the combustion characteristics of a combustion turbine, it is necessary to consider the BACT determination for the emissions of NO_x in establishing the emissions of CO. Typically, measures taken to minimize the formation of NO_x during combustion inhibit combustion which increases the emissions of CO.

CO is formed during the combustion process due to incomplete oxidation of the carbon contained in the fuel. CO is limited by ensuring complete, efficient combustion of the fuel in the turbines. High combustion temperatures, adequate excess air, and good fuel/air mixing during combustion minimize CO. Therefore, staging combustion and lowering combustion temperatures by water injection, which are used for NO_x emission control, can be counterproductive with regard to CO emissions.

Combustion turbines designed to meet the proposed BACT NO_x emissions of 25/42 ppmvd (gas/oil) will be capable of maintaining CO emission rates of 25 ppmvd (15 percent O₂). At this emission rate, the annual emission will exceed the PSD significance level for carbon monoxide. The use of a CO catalyst would not result in appreciably lower CO emissions.

Catalytic Reduction.

Catalytic reduction is a post-combustion method for removal of CO emissions. The process oxidizes CO to CO₂ with the use of a catalyst. Carbon monoxide control catalyst utilizes a precious metal based catalyst to promote the oxidation process. None of the catalyst components are considered toxic.

The optimum flue gas temperature range for CO catalyst operation is between 850 F and 1100 F. Flue gas from the combustion turbine will typically be between 950 F to 1100 F. Therefore, a CO catalyst can be installed between the discharge of the combustion turbine and the inlet to the HRSG.

Capital and Operating Costs.

Table 6-3 presents the capital and levelized annual costs of a CO emission control system. The CO emissions are based on firing natural gas for a maximum of 8,760 hr/yr (100 percent capacity factor) in the turbine. The capital costs of the SCR system includes the cost of the catalytic reactor and balance-of-plant equipment. In addition to the 1990 equipment costs, the total capital costs include a contingency charge, escalation, indirect costs, and interest during construction. Levelized annual costs include operating and maintenance costs (including catalyst replacement), lost generating capacity, and fixed charges on capital investment.

An incremental levelized cost for the SCR of \$1.0 million/year results in an incremental removal cost of approximately \$7,340 per ton of CO removed (140 tons per year while burning natural gas).

TABLE 6-3 COMPARATIVE CAPITAL COSTS OF ALTERNATIVE CO
CONTROL TECHNOLOGY*

	<u>Carbon Monoxide Catalyst</u>
SCR reactors	\$890,000
Balance of plant	<u>\$100,000</u>
Direct capital cost (1990)	\$990,000
Contingency	\$100,000
Escalation	<u>\$120,000</u>
Direct capital cost	\$1,210,000
Indirects	\$180,000
Interest during construction	<u>\$70,000</u>
Total Capital Costs (1992)	\$1,460,000
Operation and maintenance costs	\$560,000
Generating Cost Adjustment	\$250,000
Fixed charges	<u>\$230,000</u>
Total Annual Costs	\$1,040,000
Annual CO Emissions (tpy)	240
Incremental Annual CO Emissions Reduction (tpy)	140
Incremental Levelized Cost per Ton of CO Removed	\$7,430

*Based on one turbine and 8,760 hours/year of natural gas fired
operation at ISO conditions (59 F and 60 percent relative humidity).

Other Considerations.

The following are other considerations that are associated with a CO catalyst.

- A CO catalyst reactor located downstream of the combustion turbine exhaust will produce an additional backpressure on the combustion turbine. The added backpressure will reduce the output capability of the turbine. Additional backpressure of 3 to 4 inches of water gage would reduce turbine output by approximately 0.5 percent. Lost generating capacity translates directly into lost revenue to the project.
- A CO catalyst is an oxidizing catalyst, consequently it will also oxidize SO_2 and SO_3 which upon condensation will form sulfuric acid mist. The formation of sulfuric acid will result in increased corrosion in the cold end of the heat recovery steam generator.
- There is no long term operating experience with a CO catalyst on the size of combustion turbine proposed for this project.

Conclusions.

Installation of a CO catalyst control system designed to meet a CO emission limit of 10 ppmvd would add approximately \$1.5 million to the capital cost of the project. The total levelized annual costs for the project increases by \$1.0 million resulting in an incremental removal cost of approximately \$7,430 per ton of CO removed while burning natural gas (100 percent capacity factor).

Therefore, based on economic, energy, and environmental considerations CO BACT for this combustion turbine facility is the use of good combustion controls to achieve CO emissions of 25 ppmvd when burning natural gas or fuel oil and operating the unit for 8,760 hours per year (100 percent capacity factor).

OTHER EMISSIONS

The following sections discuss pollutants which are either below the significant emission levels established for the PSD program or have been identified by EPA as hazardous pollutants. Federal and state regulations do not require that BACT be applied for these pollutants, but the effects of the proposed BACT determinations on these pollutants must be considered.

Other Regulated and Hazardous Pollutants

Table 6-4 presents uncontrolled emission estimates for other regulated pollutants (fluorides, mercury, and lead) and hazardous pollutants when firing No. 2 fuel oil. These emission rates have been developed based on manufacturers' information and on information contained in the EPA publication Toxic Air Pollutant Emission Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a).

The only identified methods of controlling the emission of these pollutants are complete combustion of the fuel and the inherent quality of the fuel. Injection of water into the turbines to control NO_x emissions is not expected to have a significant effect on the emissions of these pollutants. Complete combustion will be required to achieve the identified emission rates of formaldehyde. The quality of the fuel will comply with standard commercial No. 2 fuel oil.

When fuel oil is used, no adverse environmental impacts will occur at the tabulated, uncontrolled emission rates.

TABLE 6-4. OTHER REGULATED AND HAZARDOUS POLLUTANT EMISSIONS

<u>Pollutant</u>	<u>Emission Rate</u> lb/MMBtu	<u>Annual Emission</u> [*] tpy
Arsenic	4.2 E-6	0.02
Beryllium	2.5 E-6	0.01
Cadmium	1.1 E-5	0.05
Chromium	4.8 E-5	0.20
Copper	2.8 E-4	1.16
Formaldehyde ^{**}	4.1 E-4	1.70
Lead	2.8 E-5	0.12
Manganese	2.6 E-5	0.11
Mercury	3.0 E-6	0.012
Nickel	1.7 E-4	0.70

*Annual emissions are total for one combustion turbine and are based on annual operation of 8,760 hours firing No. 2 fuel oil at ISO conditions (59 F and 60 percent relative humidity) and a fuel burn rate of 945.5 MMBtu/h.

**Formaldehyde is also found in natural gas combustion. The emission rates are 8.8 E-5 lb/MMBtu or 0.37 tpy.

ATTACHMENT C

STACK PARAMETERS AND SOURCE EMISSIONS

Stack parameters for both natural gas and fuel oil firing are given in Table 3-1 for both combined and simple cycle operation. All calculations were based on preliminary engineering design information and manufacturer performance data. Combustion turbine outputs (megawatts, fuel burn rates, and emissions) increase for operation at lower ambient temperatures. Therefore, the maximum emission rates for a combustion turbine do not occur at 59 F ISO standard day conditions, but occur during lower ambient temperatures. The lowest anticipated temperature for the Lakeland project is 25 F. To keep the analysis conservative, the maximum short-term emission rates and stack parameters used in the modeling analysis are based on an ambient temperature of 25 F. Annual impacts are based on ISO condition (59 F and 60 percent relative humidity) emission rates. The stack parameters given in Table 3-1 are based on the 25 F ambient condition.

Estimated maximum hourly emissions for the combustion turbine when fueled by either natural gas or fuel oil is provided in Table 3-2. These emissions are applicable for both simple and combined cycle operations. The facility does not have duct burning. Estimates are based on a design fuel burn rate assuming the lower heating value (LHV) of the fuels and both the 25 and 59 F ambient temperature conditions. As stated previously, the 25 F emission rates are used to calculate short-term impacts and the ISO emission rates are used for annual calculations. These assumptions are representative of the facility's maximum generation capability.

The nitrogen oxides (NO_x) emission rate for natural gas firing is based on operations with low NO_x burner technology and multi-nozzle water injection (see BACT determination). These controls result in an outlet concentration of 25 ppmvd referenced to 15 percent oxygen when fueled by natural gas. The NO_x emission rate for fuel oil firing is also based on operations with low NO_x burner technology and multi-nozzle water injection. These controls result in an outlet concentration of 42 ppmvd referenced to 15 percent oxygen.

The sulfur dioxide (SO_2) emission rate with natural gas firing is based on a sulfur content of 2,000 grains of sulfur per million cubic feet (MCF) of natural gas and a heat content of 928 Btu/ft³ (LHV). The SO_2 emission rate for fuel oil combustion is based on a 0.2 percent by weight sulfur

TABLE 3-1. COMBUSTION TURBINE SOURCE PARAMETERS AT 25 F

Parameter	Combined Cycle		Simple Cycle	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
Fuel LHV (Btu/ft ³)	928	--	928	--
(Btu/gal)	--	127,000	--	127,000
Heat Rate (MMBtu/h)	1,055	1,038	1,055	1,038
Exhaust Temperature (F)	481	481	949	950
Exhaust Flow (lb/h)	2,588,000	2,589,000	2,588,000	2,589,000
Exhaust Gas Molecular Weight (lb/lb-mole)	28.16	28.66	28.16	28.66
Exhaust Flow Water Vapor Content (% vol)	10.13	7.25	10.13	7.25
Exhaust Flow Oxygen Content (% vol)	12.93	13.44	12.93	13.44
Exhaust Volumetric Flow (acfm)	1,058,000	1,040,000	1,570,000	1,575,000
Exhaust Flow Velocity (fpm)	3,732	3,668	9,192	9,221
Stack Height (ft)	155	155	100	100
Stack Dimensions (ft)	19 diameter		11'11" x 14'4"	
Dominant Building Height (ft)	121.5	121.5	121.5	121.5
Maximum Projected Width (ft)	73.6	73.6	73.6	73.6

TABLE 3-2. COMBUSTION TURBINE SOURCE EMISSIONS¹

Parameter	@ 25 F ²		@ 59 F ³	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
SO ₂ (lb/h) ⁴	0.7	231	0.6	210
NO _x (ppmvd @ 15% O ₂) ⁵	25	42	25	42
NO _x (lb/h) ⁵	106	183	97	167
CO (ppmvd) ⁵	25	25	25	25
CO (lb/h) ⁵	58	58	53	54
VOC (ppmvw) ⁵	1.4	3.5	1.4	3.5
VOC (lb/h) ⁵	2	5	2	4.5
Particulate (lb/h) ⁵	5	15	5	15

¹HRSG and Bypass stack emissions are equivalent.

²25 F emissions are used to calculate short-term impacts.

³59 F emissions are used to calculate annual emissions and impacts.

⁴Natural gas emissions are based on 2,000 gr/MMCF sulfur content. No. 2 fuel oil emissions are based on 0.2 percent sulfur by weight. See Appendix B for a derivation of SO₂ emission rates.

⁵Based on manufacturer performance data.

content and a heat content of 127,000 Btu/gal.

The emission rates of carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM) were obtained from the manufacturer performance data for the GE PG7111(EA) Frame 7 improved low NO_x combustion turbine.

Emission rates for other regulated and hazardous air pollutant emissions were based on manufacturer information and on information contained in the EPA publication Toxic Air Pollutant Emissions Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a). Emissions of beryllium (Be), lead (Pb), mercury (Hg), and sulfuric acid (H₂SO₄) mist were estimated for fuel oil combustion. These pollutants are not found in natural gas firing. Asbestos (As), fluoride (F), and vinyl chloride (C₂H₃Cl) are not found in No. 2 fuel oil or natural gas.

Be, Pb, and Hg are found in No. 2 fuel oil in trace amounts. A typical Be concentration in fuel oil is 2.5×10^{-6} pounds per million Btu. Pb concentrations are estimated at 2.8×10^{-5} pounds per million Btu. Hg concentrations are estimated to be 3.0×10^{-6} pounds per million Btu.

H₂SO₄ mist results from oxidation of the SO₂ in the flue gas to sulfur trioxide (SO₃). The SO₃ then combines with water vapor to form H₂SO₄ mist. Approximately 3 percent of the SO₂ is converted to H₂SO₄ mist. Based on these estimates, the H₂SO₄ mist concentration is 6.7×10^{-3} pounds per million Btu for fuel oil firing, and 1.9×10^{-5} pounds per million Btu for natural gas.

Table 3-3 presents the maximum potential annual emissions from the combustion turbine addition assuming 8,760 hours of annual operation. The results indicate that the new unit required additional PSD review for CO, NO_x, SO₂, PM, Be, and H₂SO₄ mist. VOC, Pb, As, Hg, C₂H₃Cl, F, and reduced sulfur compounds required no further analyses. PSD review required a BACT analysis, an ambient air quality impact analysis, and additional impact analysis.

TABLE 3-3. POTENTIAL ANNUAL EMISSIONS FROM THE COMBUSTION TURBINE

<u>Pollutant</u>	<u>Potential Annual Emission @ 59 F</u>		<u>PSD Significance Levels</u> (tpy)	<u>PSD Significance</u> (yes/no)
	<u>Natural Gas</u> (tpy)	<u>Fuel Oil</u> (tpy)		
CO	232	237	100	yes
NO _x	425	732	40	yes
SO ₂	2.6	920	40	yes
TSP	22	66	25	yes
PM ₁₀ *	22	66	15	yes
VOC	9	20	40	no
Lead	0.0	0.12	0.6	no
Asbestos	0.0	0.0	0.007	no
Beryllium	0.0	0.01	0.0004	yes
Mercury	0.0	0.01	0.1	no
Vinyl Chloride	0.0	0.0	1.0	no
Fluorides	0.0	0.0	3.0	no
H ₂ SO ₄ mist	0.08	27.6	7.0	yes
Total Reduced S	<<10	<<10	10	no
Reduced S	<<10	<<10	10	no
H ₂ S	<<10	<<10	10	no

*The assumption is made that all particulate matter is less than 10 microns in diameter (PM₁₀).

NOTE: Emissions are based on the combustion turbine operating at ISO conditions (59 F and 60 percent relative humidity) with natural gas or fuel oil for 8,760 hours per year (See Appendix B for calculations). PSD significance for a pollutant is triggered if emissions from either fuel exceed the significance levels.

ATTACHMENT D

Based on the results of the ISCST modeling presented in Table 5-2, pollutant emissions from the project will not result in ambient impacts above PSD de minimis monitoring levels. Therefore, ambient monitoring will not be required.

TABLE 5-2. MODELED POLLUTANT IMPACT DETERMINATION

<u>Pollutant</u>	<u>Averaging Period</u>	<u>Significant Impact Criteria</u> ug/m3	<u>Monitoring Criteria</u> ug/m3	<u>Maximum Impact</u> ug/m3	<u>Location</u>		<u>Year</u>	<u>Operating Mode</u> ^{**}
					<u>Dist.</u> m	<u>Dir.</u> deg		
SO ₂	Annual	1	—	0.2	100	260	1982	SC
	24-Hour	5	13	4.7	200	120	1984	CC
	3-Hour	25	—	19.2	100	350	1985	SC
NO _x	Annual	1	14	0.2	100	260	1982	SC
CO	8-Hour	500	575	2.7	100	20	1985	SC
	1-Hour	2,000	—	9.4	100	100	1984	SC
PM	Annual	1	—	0.01	100	260	1982	SC
	24-Hour	5	10	0.3	200	120	1984	CC

*Annual pollutant impacts are based on maximum modeled concentrations assuming 8,760 hours per year operation. The 3-hour and 24-hour impacts are based on highest, second-highest modeled concentrations.

**CC - Combined Cycle Operation.
SC - Simple Cycle Operation.

Harry

State of Florida
Department of Environmental Regulation

District Routing Slip

To: *Bill Thomas*

Date: *1-8-91*

CC. To:

	Pensacola	Northwest District	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
✓	Tampa	Southwest District	
	Bartow	Southwest District Satellite Office	
	Venice	Southwest District Satellite Office	
	Orlando	Central District	
	Melbourne	Central District Satellite Office	
	Jacksonville	Northeast District	
	Gainesville	Northeast District Branch Office	
	Fort Myers	South District	
	Punta Gorda	South District Branch Office	
	Marathon	South District Branch Office	
	West Palm Beach	Southeast District	
	Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐ Reply Required ☐ Info Only ☐
Date Due _____ Date Due _____

Comments:

D. E. R.

JAN - 9 1991

SOUTHWEST DISTRICT
TAMPA

From:

C. H. Fancay

Tel.:

274-1344

Marilyn - Make
a folder and give
to Gary to track

LK



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. Halladay*

*G. Halladay, EPH
C. Halladay, MPS
B. Thomas, SW Dist.*

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



December 11, 1990


Mr. Dale Twachtmann, 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

CITY OF LAKE LAND, FLORIDA
COMBUSTION TURBINE PROJECT

AMBIENT AIR QUALITY IMPACT ANALYSIS

FILE 16587.32.0402

DECEMBER 1990



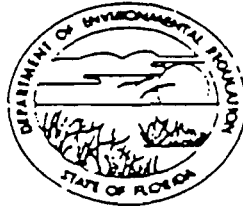
Black & Veatch
Engineers-Architects

#5,000,000
12-10-91
15722

BEST AVAILABLE COPY
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RTHEAST DISTRICT

3426 BILLS ROAD
JACKSONVILLE, FLORIDA 32207



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

G. DOUG DUTTON
DISTRICT MANAGER

AC 53-190437
PSD-FL-100

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) ☒ New¹ ☐ Existing¹

APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification

COMPANY NAME: City of Lakeland, Florida COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Line
Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) CT, Gas/Distillate Fired

SOURCE LOCATION: ~~XXXXX~~ Charles Larsen Power Plant City Lakeland

UTM: East 409.185 km North 3102.754 km

Latitude 28° 2' 56"N Longitude 81° 55' 25"W

APPLICANT NAME AND TITLE: City of Lakeland Department of Electric and Water Utilities

APPLICANT ADDRESS: 501 E. Lemon Street, Lakeland, FL 33801-5050

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of the City of Lakeland

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permit establishment.

*Attach letter of authorization

Signed: Alfred M. Dodd

Alfred M. Dodd, Engr. Mgr.
Name and Title (Please Type)

Date: 12/13/90 Telephone No. 813/499-6461

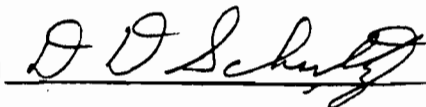
B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

¹ See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed



Donald D. Schultz, Project Manager

Name (Please Type)

Black & Veatch

Company Name (Please Type)

P. O. Box 8405, Kansas City, MO 64114

Mailing Address (Please Type)

Florida Registration No. 30304 Date: November 20, 1980 Telephone No. (913) 339-2028

SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Sections 2.0 and 6.0 of the AAQIA. The project will result in full compliance with all applicable regulations.

- B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction June 1991 Completion of Construction December 1992

- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

See Section 6.0 of the AAQIA. Note that water injection for reduction of NO_x emissions is an integral part of the gas turbine.

- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

NA

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52
 if power plant, hrs/yr 8760 ; if seasonal, describe: NA

F. If this is a new source or major modification, answer the following questions.
 (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No
 - a. If yes, has "offset" been applied?
 - b. If yes, has "Lowest Achievable Emission Rate" been applied?
 - c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source?
 If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioration" (PSD)
 requirement apply to this source? If yes, see Sections VI and VII. Yes
4. Do "Standards of Performance for New Stationary Sources" (NSPS)
 apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants"
 (NESHAP) apply to this source? No
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply
 to this source? No
 - a. If yes, for what pollutants?
 - b. If yes, in addition to the information required in this form,
 any information requested in Rule 17-2.630 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	± Wt		
NA				

B. Process Rate, if applicable: (See Section V, Item 1) NA

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission ¹		Allowed ² Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
See Section 3.3 of the AAQIA.							

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
See Sections 3	3 and 6.0 of the	AAQIA.		

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas		1.14 MMCF/hr	1054.6 MMBtu/hr
or		(@ 25 F Ambient Conditions)	
No. 2 Fuel Oil		8.17x10 ³ gal/hr	1038.1 MMBtu/hr
		(@ 25 F Ambient Conditions)	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Gas: 2,000 gr/MMCF

Percent Sulfur: Oil: 0.20% by wgt.

Percent Ash: Nil (both fuels)

Gas: 1 lb/23.8 CF

Density: Oil: 7.05 lb/gal lbs/gal Typical Percent Nitrogen: 0.73%

Gas: 22,090

Gas: 928 Btu/CF

Heat Capacity: Oil: 18,010 BTU/lb Oil: 127,000 Btu/gal (LHV) BTU/gal

Other Fuel Contaminants (which may cause air pollution): Negl.

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average None Maximum None

G. Indicate liquid or solid wastes generated and method of disposal.

NA

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: See Table 3-1 in the AAQIA ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F

Water Vapor Content: _____ % Velocity: _____ FPM

SECTION IV: INCINERATOR INFORMATION

NA

Type of Waste	Type I (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type II (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lb/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume (ft ³)	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM Velocity: _____ FPM

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner
☐ Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proper methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. In an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
See Appendix B of the AAQIA
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
See Appendix B of the AAQIA
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.) See Section 6.0 of the AAQIA
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). See Section 6.0 of the AAQIA
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. See Figure 2-3 in the AAQIA
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). See Figure 2-1 in the AAQIA
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Figure 2-2 in the AAQIA

CCR Form 17-1.202(1)

Effective November 30, 1982

Page 7 of 12

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

☒ Yes ☐ No Subpart GG

Contaminant	Rate or Concentration
SO ₂	150 ppmvd at 15% O ₂
NO _x	*

*75 ppmvd at 15% O₂ corrected for nitrogen content and heat rate, or 84 ppmvd at 15% O₂

- B. Has EPA declared the best available control technology for this class of sources yes, attach copy)

☐ Yes ☒ No Case by case determination

Contaminant	Rate or Concentration

- C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
See Section 6.0 of the AAQIA	
NO _x	25 ppmvd at 15% O ₂ (Natural Gas) for FBN
	42 ppmvd at 15% O ₂ (Distillate) <0.015%
SO ₂	0.2 percent Fuel Oil (Distillate)

- D. Describe the existing control and treatment technology (if any). NA

1. Control Device/System:

2. Operating Principles:

3. Efficiency:

4. Capital Costs:

Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

10. Stack Parameters

a. Height:

ft. b. Diameter:

ft

c. Flow Rate:

ACFM

d. Temperature:

°F

e. Velocity:

FPS

E. Describe the control and treatment technology available (As many types as applicable use additional pages if necessary).

1. See Section 6.0 of the AAOIA

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

¹ Explain method of determining efficiency.

² Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: See Section 6.0 of the AAQIA

1. Control Device:

2. Efficiency:¹

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:²

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

(8) Process Rate:¹

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant

Rate or Concentration

(8) Process Rate:¹

10. Reason for selection and description of systems:

¹Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data See Section 5.2 of the AAQIA

1. _____ no. sites _____ TSP _____ () SO₂ _____ Wind spd/dir _____

Period of Monitoring _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

- a. Was instrumentation EPA referenced or its equivalent? ☐ Yes ☐ No
- b. Was instrumentation calibrated in accordance with Department procedures?
☐ Yes ☐ No ☐ Unknown

8. Meteorological Data Used for Air Quality Modeling See Section 4.3 of the AAQIA

1. _____ Year(s) of data from _____ to _____
 month day year month day year

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used See Section 4.1 of the AAQIA

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

Applicants Maximum Allowable Emission Data See Section 3.3 of the AAQIA

Pollutant

Emission Rate

TSP _____ grams/sec

SO₂ _____ grams/sec

E. Emission Data Used in Modeling *

Attach list of emission sources. Emission data required is source name, description of point source (on NEQS point number), UTM coordinates, stack data, allowable emissions and normal operating time.

F. Attach all other information supportive to the PSD review. *

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources. *

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology. *

* E-H: See AAQIA for details

CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 PROJECT DESCRIPTION	2-1
3.0 SOURCE CHARACTERIZATION	3-1
3.1 APPLICABILITY OF REGULATIONS	3-1
3.2 CEP STACK HEIGHT DETERMINATION	3-1
3.3 STACK PARAMETERS AND SOURCE EMISSIONS	3-2
3.4 CURRENT AIR QUALITY STATUS	3-7
4.0 MODELING METHODOLOGY	4-1
4.1 MODEL SELECTION AND DESCRIPTION	4-1
4.2 RECEPTOR LOCATIONS	4-2
4.3 METEOROLOGICAL DATA	4-2
5.0 AIR QUALITY IMPACT ANALYSIS	5-1
5.1 MODELING RESULTS	5-1
5.2 PRECONSTRUCTION MONITORING REQUIREMENTS	5-4
5.3 SIGNIFICANT IMPACT AREA DETERMINATION	5-4
5.4 AAQS AND PSD INCREMENT COMPLIANCE DETERMINATION	5-4
6.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)	6-1
6.1 INTRODUCTION	6-1
6.2 NITROGEN OXIDES EMISSIONS CONTROL	6-2
6.2.1 Alternative NO _x Emission Reduction Systems	6-2
6.2.2 Capital and Operating Costs of Alternatives	6-4
6.2.3 Other Considerations	6-7
6.2.4 Conclusions	6-8
6.3 SULFUR DIOXIDE AND SULFURIC ACID MIST EMISSIONS	6-9
6.4 PARTICULATE MATTER EMISSIONS	6-10
6.5 BERYLLIUM EMISSIONS	6-10
6.6 CARBON MONOXIDE (CO)	6-10
6.6.1 Catalytic Reduction	6-11
6.6.2 Capital and Operating Costs	6-11
6.6.3 Other Considerations	6-13
6.6.4 Conclusions	6-13

CONTENTS (cont.)

	<u>Page</u>
6.7 OTHER EMISSIONS	6-14
6.7.1 Other Regulated and Hazardous Pollutants	6-14
7.0 ADDITIONAL AIR QUALITY IMPACT ANALYSIS	7-1
7.1 VISIBILITY	7-1
7.2 SOILS AND VEGETATION	7-1
7.3 GROWTH	7-1

APPENDIX A DIRECTION-SPECIFIC BUILDING ANALYSIS
APPENDIX B EMISSION CALCULATIONS AND SOURCES
APPENDIX C LISTING OF MODELING RUNS
APPENDIX D "VISCREEN" VISIBILITY MODEL RESULTS

LIST OF TABLES

	<u>Page</u>
TABLE 3-1 COMBUSTION TURBINE SOURCE PARAMETERS AT 25 F	3-3
TABLE 3-2 COMBUSTION TURBINE SOURCE EMISSIONS	3-4
TABLE 3-3 POTENTIAL ANNUAL EMISSIONS FROM THE COMBUSTION TURBINE	3-6
TABLE 5-1 REFINED MODELING RESULTS - FUEL OIL COMBUSTION	5-2
TABLE 5-2 MODELED POLLUTANT IMPACT DETERMINATION	5-3
TABLE 6-1 COMPARATIVE CAPITAL COSTS OF ALTERNATIVE NO _x CONTROL TECHNOLOGY	6-5
TABLE 6-2 COMPARATIVE LEVELIZED ANNUAL COSTS OF ALTERNATIVE NO _x CONTROL TECHNOLOGY	6-6
TABLE 6-3 COMPARATIVE CAPITAL COSTS OF ALTERNATIVE CO CONTROL TECHNOLOGY	6-12
TABLE 6-4 OTHER REGULATED HAZARDOUS POLLUTANT EMISSIONS	6-15

CONTENTS (cont.)

LIST OF FIGURES

	<u>Following Page</u>
FIGURE 2-1 LOCATION OF CHARLES LARSEN PLANT SITE	2-1
FIGURE 2-2 CHARLES LARSEN PLANT SITE ARRANGEMENT	2-1
FIGURE 2-3 COMBUSTION TURBINE FLOW DIAGRAM	2-1

1.0 INTRODUCTION

The City of Lakeland Department of Electric and Water Utilities proposes to construct and operate a combustion turbine generator at the existing Charles Larsen Power Plant located in Lakeland, Florida. The combustion turbine (CT) will be capable of generating approximately 80 MW while operating in simple cycle, and 120 MW when in combined cycle operation. While in combined cycle, a single heat recovery steam generator (HRSG) will be used to repower an existing steam turbine generator (Larsen Unit 5). 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.

This report describes the Ambient Air Quality Impact Analysis (AAQIA) performed in support of a Florida Department of Environmental Regulation (FDER) permit to construct an air pollution source at the Larsen facility. The purpose of the AAQIA is to demonstrate that the combustion turbine installation will not cause or contribute to an exceedance of any national or state Ambient Air Quality Standards (AAQSs) and will not consume more than the applicable amount of Prevention of Significant Deterioration (PSD) air quality Class II increment. A Workplan which described the proposed methodology to be followed in this AAQIA was submitted to and conditionally approved by the appropriate FDER staff.

BEST AVAILABLE COPY

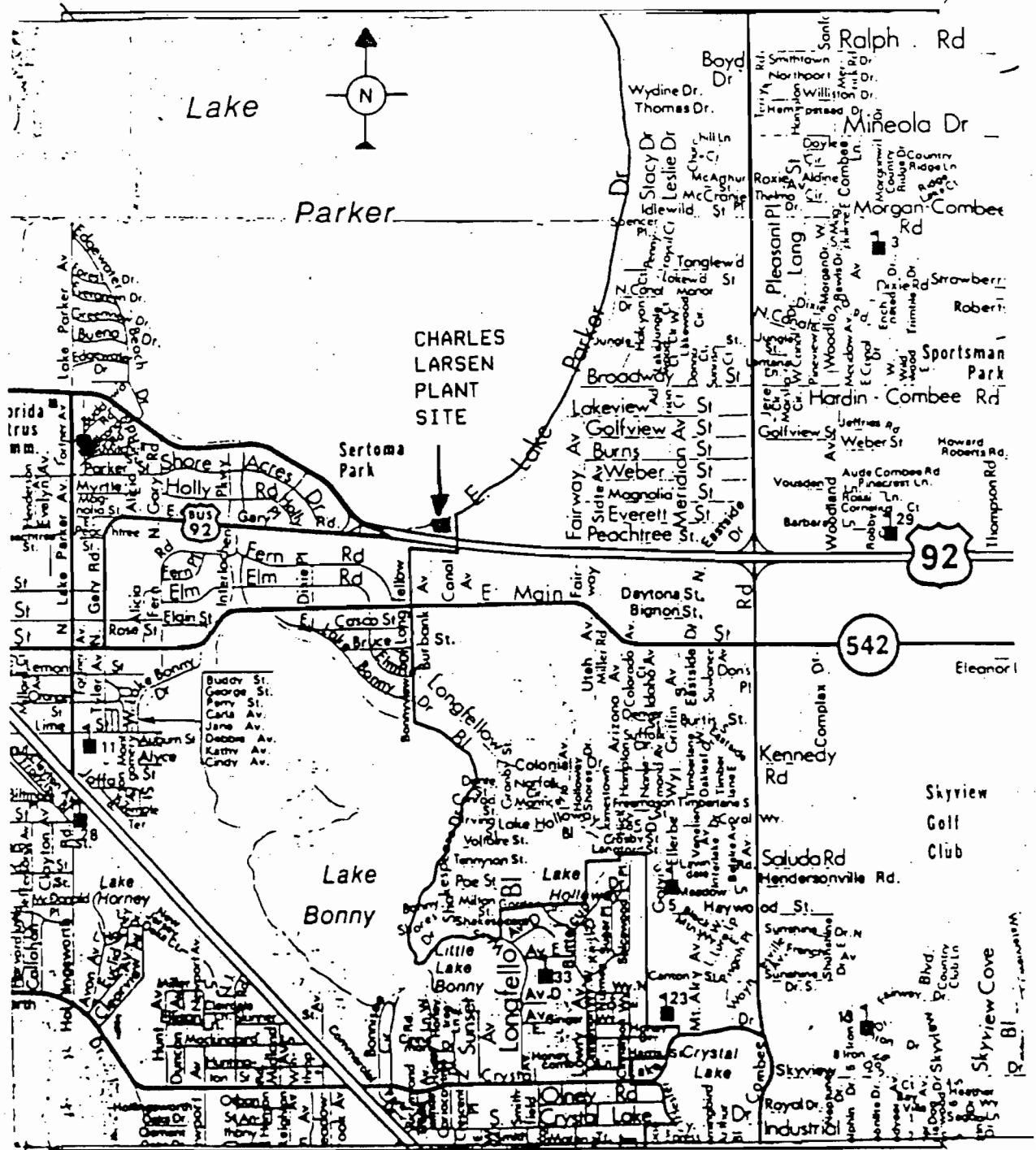


FIGURE 2-1. LOCATION OF CHARLES LARSEN PLANT SITE

2.0 PROJECT DESCRIPTION

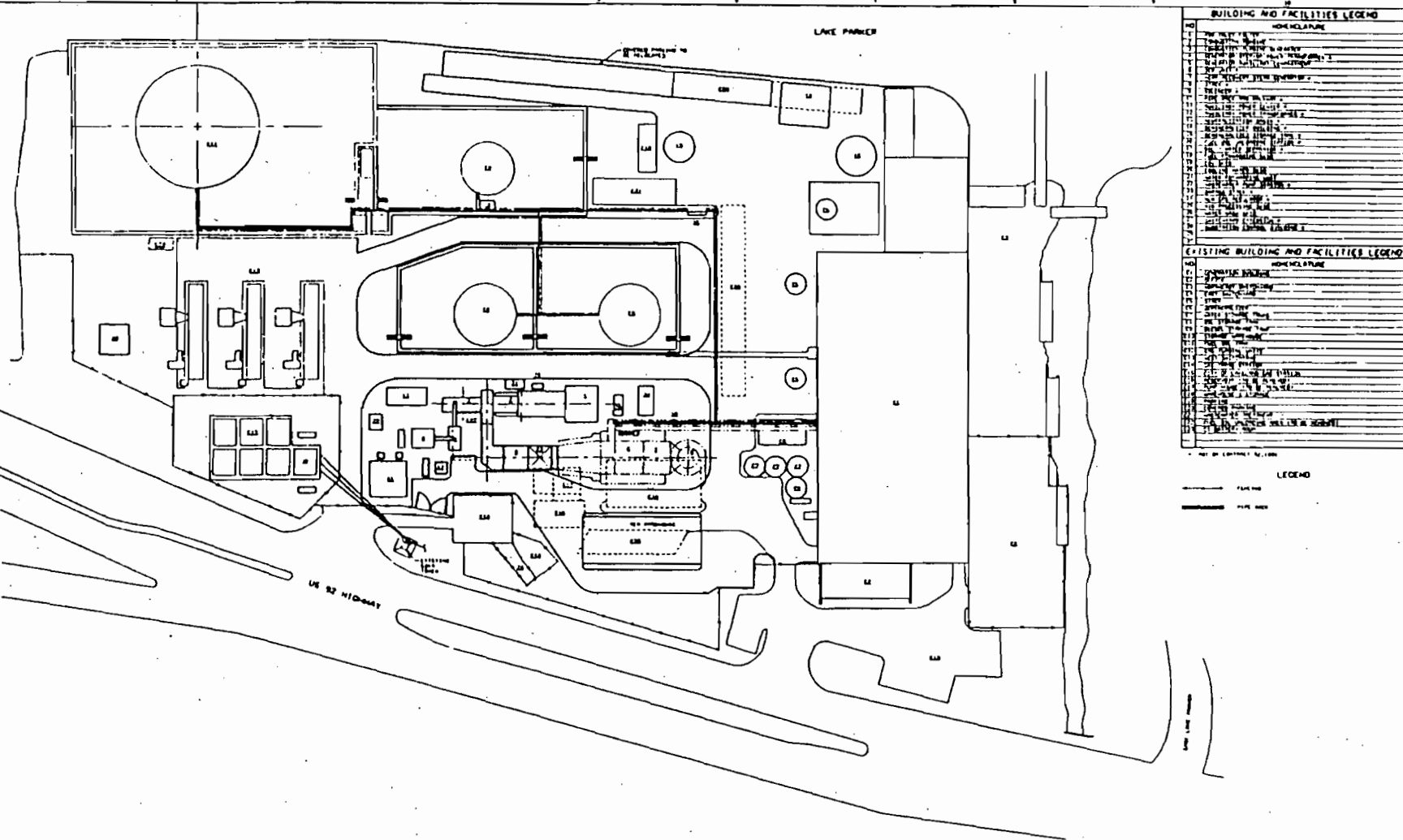
The Lakeland Combustion Turbine Project is located at the existing City of Lakeland Charles Larsen Plant site in Lakeland, Florida. The site is located on the south side of Lake Parker as shown in Figure 2-1. The plant site arrangement and a flowchart showing the combustion turbine process are shown in Figures 2-2 and 2-3, respectively.

The Project will consist of a new CT generator with the addition of a heat recovery steam generator (HRSG). When operating in the combined cycle mode, the CT will exhaust combustion gases to a dedicated HRSG and eventually to a 155-foot high stack. Steam produced in the HRSG will be directed to the existing Larsen Unit 5 steam turbine. During periods when the HRSG is not operating, the combustion turbine will operate in a simple cycle mode and exhaust through a 100-foot bypass stack. The new CT will be natural gas or No. 2 fuel oil (distillate) fired.

The proposed CT will have an independent air cooling system. The steam cycle and associated equipment will be cooled using the existing once-through cooling system. Makeup water for the HRSG boiler and NO_x control water injection for the CT will be supplied from the Larsen Plant demineralized water supply. Wastewater will be routed to the existing wastewater system.

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FIGURE 2-2. CHARLES LARSEN PLANT SITE ARRANGEMENT



BUILDING AND FACILITIES LEGEND	
NO.	NOMENCLATURE
1	100' X 150' Bldg.
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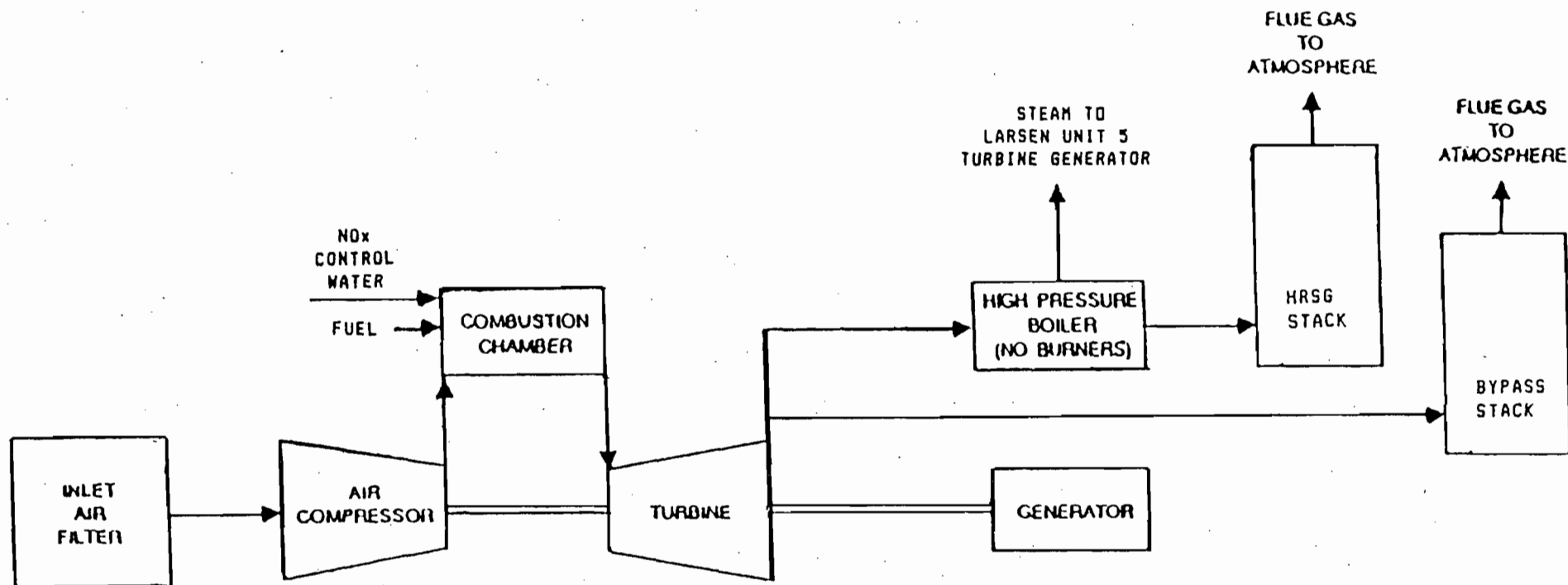


FIGURE 2-3. COMBUSTION TURBINE FLOW DIAGRAM

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 source emission rates, and the current air quality status at the Lakeland site. Best engineering estimates and plant conceptual design information were used to establish the modeling parameters.

3.1 APPLICABILITY OF REGULATIONS

The proposed Lakeland Project is subject to PSD regulations because the installation of the combustion turbine constitutes a major modification to an existing major stationary source and 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 was 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) was used as a basis for this GEP analysis. The dominant structure influencing the proposed combustion turbine stacks is the existing turbine generator building. The maximum height of the generation building is 121.5 feet above grade. The maximum projected width of the generation building is 73.6 feet. The GEP height is calculated as the height of the dominant nearby building plus 1.5 times the lesser of the building height or maximum projected width. Therefore, the maximum GEP height is calculated to be 232 feet. Since the CT stack heights (155 and 100 feet) are less than the GEP height, building downwash considerations were

included in the modeling analysis. In fact, since the proposed stacks will be subject to Schulman-Scire downwash, direction-specific building heights and widths were used in the modeling analysis. Appendix A shows the output of Trinity Consultant's "BRZWAKE" program, which was used to determine direction-specific building dimensions.

3.3 STACK PARAMETERS AND SOURCE EMISSIONS

Stack parameters for both natural gas and fuel oil firing are given in Table 3-1 for both combined and simple cycle operation. All calculations were based on preliminary engineering design information and manufacturer performance data. Combustion turbine outputs (megawatts, fuel burn rates, and emissions) increase for operation at lower ambient temperatures. Therefore, the maximum emission rates for a combustion turbine do not occur at 59 F ISO standard day conditions, but occur during lower ambient temperatures. The lowest anticipated temperature for the Lakeland project is 25 F. To keep the analysis conservative, the maximum short-term emission rates and stack parameters used in the modeling analysis are based on an ambient temperature of 25 F. Annual impacts are based on ISO condition (59 F and 60 percent relative humidity) emission rates. The stack parameters given in Table 3-1 are based on the 25 F ambient condition.

Estimated maximum hourly emissions for the combustion turbine when firing either natural gas or fuel oil is provided in Table 3-2. These emissions are applicable for both simple and combined cycle operation. Duct burning is not proposed for the project. Estimates are based on a design fuel burn rate assuming the lower heating value (LHV) of the fuels and both the 25 and 59 F ambient temperature conditions. As stated previously, the 25 F emission rates are used to calculate short-term impacts and the ISO emission rates are used for annual calculations. These assumptions are representative of the facility's maximum generation capability.

The nitrogen oxides (NO_x) emission rate for natural gas firing is based on operations with low NO_x burner technology and multi-nozzle water injection (see BACT determination in Section 6.0). These controls result in an outlet concentration of 25 ppmvd referenced to 15 percent oxygen when

TABLE 3-1. COMBUSTION TURBINE SOURCE PARAMETERS AT 25 F

Parameter	Combined Cycle		Simple Cycle	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
Fuel LHV (Btu/ft ³)	928	--	928	--
(Btu/gal)	--	127,000	--	127,000
Heat Rate (MMBtu/h)	1,055	1,038	1,055	1,038
Exhaust Temperature (F)	481	481	949	950
Exhaust Flow (lb/h)	2,588,000	2,589,000	2,588,000	2,589,000
Exhaust Gas Molecular Weight (lb/lb-mole)	28.16	28.66	28.16	28.66
Exhaust Flow Water Vapor Content (% vol)	10.13	7.25	10.13	7.25
Exhaust Flow Oxygen Content (% vol)	12.93	13.44	12.93	13.44
Exhaust Volumetric Flow (acfm)	1,058,000	1,040,000	1,570,000	1,575,000
Exhaust Flow Velocity (fpm)	3,732	3,668	5,537	5,555
Stack Height (ft)	155	155	100	100
Stack Diameter (ft)	19	19	19	19
Dominant Building Height (ft)	121.5	121.5	121.5	121.5
Maximum Projected Width (ft)	73.6	73.6	73.6	73.6

TABLE 3-2. COMBUSTION TURBINE SOURCE EMISSIONS¹

Parameter	@ 25 F ²		@ 59 F ³	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
SO ₂ (lb/h) ⁴	0.7	231	0.6	210
NO _x (ppmvd @ 15% O ₂) ⁵	25	42	25	42
NO _x (lb/h) ⁵	106	183	97	167
CO (ppmvd) ⁵	25	25	25	25
CO (lb/h) ⁵	58	58	53	54
VOC (ppmvw) ⁵	1.4	3.5	1.4	3.5
VOC (lb/h) ⁵	2	5	2	4.5
Particulate (lb/h) ⁵	5	15	5	15

¹HRSG and Bypass stack emissions are equivalent.

²25 F emissions are used to calculate short-term impacts.

³59 F emissions are used to calculate annual emissions and impacts.

⁴Natural gas emissions are based on 2,000 gr/MMCF sulfur content. No. 2 fuel oil emissions are based on 0.2 percent sulfur by weight. See Appendix B for a derivation of SO₂ emission rates.

⁵Based on manufacturer performance data.

firing natural gas. The NO_x emission rate for fuel oil firing is also based on operations with low NO_x burner technology and multi-nozzle water injection. These controls result in an outlet concentration of 42 ppmvd referenced to 15 percent oxygen.

The sulfur dioxide (SO_2) emission rate with natural gas firing is based on a sulfur content of 2,000 grains of sulfur per million cubic feet (MCF) of natural gas and a heat content of 928 Btu/ft³ (LHV). The SO_2 emission rate for fuel oil combustion is based on a 0.2 percent by weight fuel sulfur content and a heat content of 127,000 Btu/gal. SO_2 emission rates are derived in Appendix B.

The emission rates of carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM) were obtained from typical manufacturer performance data for the GE PG7111(EA) Frame 7 improved low NO_x combustion turbine.

Emission rates for other regulated and hazardous air pollutant emissions were based on manufacturer information and on information contained in the EPA publication Toxic Air Pollutant Emissions Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a). Emissions of beryllium (Be), lead (Pb), mercury (Hg), and sulfuric acid (H_2SO_4) mist were estimated for fuel oil combustion. These pollutants are not found in natural gas firing. Asbestos (As), fluoride (F), and vinyl chloride ($\text{C}_2\text{H}_3\text{Cl}$) are not found in No. 2 fuel oil or natural gas.

Be, Pb, and Hg are found in No. 2 fuel oil in trace amounts. A typical Be concentration in fuel oil is 2.5×10^{-6} pounds per million Btu. Pb concentrations are estimated at 2.8×10^{-5} pounds per million Btu. Hg concentrations are estimated to be 3.0×10^{-6} pounds per million Btu.

H_2SO_4 mist results from oxidation of the SO_2 in the flue gas to sulfur trioxide (SO_3). The SO_3 then combines with water vapor to form H_2SO_4 mist. Approximately 3 percent of the SO_2 is converted to H_2SO_4 mist. Based on these estimates, the H_2SO_4 mist concentration is 6.7×10^{-3} pounds per million Btu for fuel oil firing, and 1.9×10^{-5} pounds per million Btu for natural gas.

Table 3-3 presents the maximum potential annual emissions from the combustion turbine addition assuming 8,760 hours of annual operation. Appendix B shows the calculations supporting the annual emission rates.

TABLE 3-3. POTENTIAL ANNUAL EMISSIONS FROM THE COMBUSTION TURBINE

<u>Pollutant</u>	<u>Potential Annual Emission @ 59 F</u>		<u>PSD Significance Levels</u> (tpy)	<u>PSD Significance</u> (yes/no)
	<u>Natural Gas</u> (tpy)	<u>Fuel Oil</u> (tpy)		
CO	232	237	100	yes
NO _x	425	732	40	yes
SO ₂	2.6	920	40	yes
TSP	22	66	25	yes
PM ₁₀ *	22	66	15	yes
VOC	9	20	40	no
Lead	0.0	0.12	0.6	no
Asbestos	0.0	0.0	0.007	no
Beryllium	0.0	0.01	0.0004	yes
Mercury	0.0	0.01	0.1	no
Vinyl Chloride	0.0	0.0	1.0	no
Fluorides	0.0	0.0	3.0	no
H ₂ SO ₄ mist	0.08	27.6	7.0	yes
Total Reduced S	<<10	<<10	10	no
Reduced S	<<10	<<10	10	no
H ₂ S	<<10	<<10	10	no

*The assumption is made that all particulate matter is less than 10 microns in diameter (PM₁₀).

NOTE: Emissions are based on the combustion turbine operating at ISO conditions (59 F and 60 percent relative humidity) with natural gas or fuel oil for 8,760 hours per year (See Appendix B for calculations). PSD significance for a pollutant is triggered if emissions from either fuel exceed the significance levels.

The results indicate that the new unit will require additional PSD review for CO, NO_x, SO₂, PM, Be, and H₂SO₄ mist. VOC, Pb, As, Hg, C₂H₃Cl, F, and reduced sulfur compounds require no further analyses. PSD review requires a BACT analysis, an ambient air quality impact analysis, and additional impact analysis.

3.4 CURRENT AIR QUALITY STATUS

The Charles Larsen Power Plant is located in an area which is designated as attainment for all applicable criteria pollutants.

4.0 MODELING METHODOLOGY

This section discusses the modeling methodology used for determining ambient air quality impacts for SO₂, NO_x, CO, and PM resulting from the proposed combustion turbine addition. The proposed methodology was reviewed and approved by FDER in the AAQIA Workplan. Section 5.0 gives the results of the dispersion modeling analysis.

4.1 MODEL SELECTION AND DESCRIPTION

The combustion turbine will burn either natural gas or low sulfur No. 2 fuel oil. Tables 3-2 and 3-3 show that the SO₂, NO_x, and PM emissions from fuel oil combustion are significantly higher than natural gas combustion, while the gas flow characteristics are fairly similar. Therefore, it can be concluded without screening-level analysis that fuel oil combustion will result in the higher ground-level pollutant impacts.

The terrain surrounding the Larsen facility is relatively flat. Following the recommended EPA guidance for refined models, the Industrial Source Complex Short Term (ISCST) dispersion model was used with five years of hourly meteorological data to predict maximum and highest, second-highest ambient pollutant impacts at receptor locations surrounding the plant site. The ISCST model is designed to predict ambient pollutant 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.

All recommended EPA default options were 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 | : | yes |

- o Calm processing option : yes
- o Above ground receptors used : no
- o Schulman - Scire downwash : yes

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 were selected with adequate density to ensure that the maximum and highest, second-highest predicted concentrations were determined. Dispersion modeling for the HRSG and bypass stacks was performed with receptors placed along the 36 standard radial directions surrounding a point half-way between the two stacks 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 15,000 meters. Furthermore, discrete receptors were placed at the boundaries that restrict public access along the 36 radial directions.

4.3 METEOROLOGICAL DATA

The ISCST dispersion model was used with five years (1982-1986) of sequential hourly surface meteorological data and twice-daily mixing heights. The surface and mixing height data were selected from a location 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.

Hourly surface and mixing height data from the Tampa, Florida NWS reporting station were obtained from FDER. The data were selected by FDER as the most representative of meteorological conditions at the City of Lakeland Charles Larsen Power Plant. The data had been preprocessed into the "CRSTER" format and all five years were used in the modeling.

5.0 AIR QUALITY IMPACT ANALYSIS

An air quality impact analysis was performed using the modeling methodology approved by the FDER in the AAQIA Workplan and reviewed in Section 4.0. The analysis was performed to determine which pollutants emitted from the combustion turbine project 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 an ambient air quality standard (AAQS) and PSD increment consumption analysis outline must be developed.

5.1 MODELING RESULTS

The results of the refined-level dispersion modeling are presented in Tables 5-1 and 5-2. Table 5-1 shows the modeled concentrations for each averaging period assuming a nominal (1 g/s) SO₂ emission rate. Table 5-2 shows the impacts for each pollutant after ratioing the annual nominal impacts to the 59 F actual emission rates and the short-term nominal impacts to the 25 F actual emission rates. A description of the modeling runs is given in Appendix C. Printed and floppy diskette copies of the runs will be provided to the FDER.

Table 5-1 shows that the highest impacts for all averaging periods except the 24-hour period are predicted to occur when the combustion turbine is operating in the simple cycle mode (Bypass). The highest 24-hour impact occurs in the combined cycle mode (HRSG). The maximum impact location for the annual averaging period is 100 meters from the plant. The highest, second-highest 1-, 3-, 8-, and 24-hour average impact locations are also 100 meters from the plant. The highest, second-highest 24-hour impact occurred 200 meters from the plant.

Table 5-2 shows the maximum annual and highest, second-highest 3-, and 24-hour average impacts of SO₂ are 0.2, 4.7, and 19.2 ug/m³, respectively. These values are below the PSD significance levels of 1.0, 5.0, and 25.0 ug/m³, respectively. Therefore, no further air quality impact analysis is required for SO₂.

TABLE 5-1. REFINED MODELING RESULTS - FUEL OIL COMBUSTION

<u>Operating Condition</u>	<u>1-Hour Impact*</u>	<u>3-Hour Impact*</u>	<u>8-Hour Impact*</u>	<u>24-Hour Impact*</u>	<u>Annual Impact**</u>
Simple Cycle - Bypass***					
Concentration (ug/m ³)	1.28234	0.66011	0.37247	0.14412	0.00698
Receptor Dist. (m)	100	100	100	100	100
Receptor Dir. (deg)	100	350	20	100	260
Modeled Year	1984	1985	1985	1983	1982
Combined Cycle - HRSG***					
Concentration (ug/m ³)	0.78584	0.47293	0.25268	0.15978	0.00484
Receptor Dist. (m)	200	200	200	200	4,000
Receptor Dir. (deg)	290	120	120	120	90
Modeled Year	1983	1984	1984	1984	1986

*Concentrations are highest, second-highest values.

**Concentrations are maximum values when averaged over 8,760 hours.

***All impacts are based on a nominal 1 g/s emission rate.

TABLE 5-2. MODELED POLLUTANT IMPACT DETERMINATION

Pollutant	Averaging Period	Significant Impact Criteria ug/m3	Monitoring Criteria ug/m3	Maximum Impact* ug/m3	Location		Year	Operating Mode**
					Dist. m	Dir. deg		
SO ₂	Annual	1	--	0.2	100	260	1982	SC
	24-Hour	5	13	4.7	200	120	1984	CC
	3-Hour	25	--	19.2	100	350	1985	SC
NO _x	Annual	1	14	0.2	100	260	1982	SC
CO	8-Hour	500	575	2.7	100	20	1985	SC
	1-Hour	2,000	--	9.4	100	100	1984	SC
PM	Annual	1	--	0.01	100	260	1982	SC
	24-Hour	5	10	0.3	200	120	1984	CC

*Annual pollutant impacts are based on maximum modeled concentrations assuming 8,760 hours per year operation. The 3-hour and 24-hour impacts are based on highest, second-highest modeled concentrations.

**CC - Combined Cycle Operation.
SC - Simple Cycle Operation.

The maximum annual average impact for NO_x is 0.2 ug/m^3 . This value is below the significant ambient air quality impact level of 1.0 ug/m^3 . No further air quality impact analysis is necessary for NO_x .

The highest, second-highest 1- and 8-hour CO impacts are 9.4 and 2.7 ug/m^3 , respectively. These values are well below the significant ambient air quality levels of 2,000 and 500 ug/m^3 , respectively. Consequently, no further air quality impact analysis is required for CO.

The maximum annual and highest, second-highest 24-hour average impact for PM (TSP/PM₁₀) are 0.01 and 0.3 ug/m^3 , respectively. These values are well below the significant ambient air quality impact levels of 1.0 and 5.0 ug/m^3 , respectively. No further air quality impact analysis is necessary for particulates.

5.2 PRECONSTRUCTION MONITORING REQUIREMENTS

Based on the results of the ISCST modeling presented in Table 5-2, pollutant emissions from the project will not result in ambient impacts above PSD de minimis monitoring levels. Therefore, ambient monitoring will not be required.

5.3 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.

Modeling results from Section 5.1 show that none of the applicable pollutants have impacts above ambient significance levels. Therefore, there is not a significant impact area for this project.

5.4 AAQS AND PSD INCREMENT COMPLIANCE DETERMINATION

Criteria pollutants with ambient air quality impacts above significance levels must demonstrate compliance with AAQS and PSD increment consumption. Based on the ISCST modeling results, no compliance determination is required for the project since all impacts are below significance levels.

6.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

6.1 INTRODUCTION

The Lakeland Combustion Turbine Project will consist of one combustion turbine operating in combined cycle. The primary fuel for the project will be natural gas. However, No. 2 fuel oil will be used as a backup combustion turbine fuel. Pollutant emissions are generally higher when burning No. 2 fuel oil. Section 3.0 concluded that when fuel oil is used for the maximum project operation or 8,760 hours per year (100 percent capacity factor), the following regulated pollutants are subject to the provisions of the PSD Program.

- | | |
|--------------------------------------------------------|--------------------------------|
| o Nitrogen Oxides (NO _x) | o Particulate (Total and PM10) |
| o Sulfur Dioxide (SO ₂) | o Beryllium (Be) |
| o Sulfuric acid mist (H ₂ SO ₄) | o Carbon Monoxide (CO) |

Consequently, this BACT analysis will address the control of emissions of these PSD applicable pollutants when burning either natural gas, or No. 2 fuel oil. Also included are evaluations of the effects of the BACT systems selected on the emissions of unregulated hazardous pollutants.

Under the federal Clean Air Act, BACT represents the maximum degree of pollutant reduction determined on a case-by-case basis considering technical, economic, energy, and environmental considerations. However, BACT cannot be less stringent than the emission limits established by the applicable New Source Performance Standards (NSPS) Subpart GG.

This BACT analysis follows the general requirements of EPA's draft "top down" BACT guidance document. This approach requires that the BACT analysis start by assuming the use of the LAER control alternative. Other, less efficient emission control technologies are subsequently evaluated if LAER is determined to be unreasonable considering the above factors.

Based on a review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations including the 1990 edition, a combustion turbine with HRSG that utilizes water or steam injection and selective catalytic reduction (SCR) for NO_x emission control represents LAER. A recent FDER BACT decision for the TECO, Hardee County Project allowed for

the use of water or steam injection for NO_x control to 42 ppmvd (@ 15 percent O₂) and no supplemental control devices. The TECO Project is very similar to the proposed Lakeland Project with the exception of some operating limitations. The TECO project is restricted to a lifetime average capacity factor of 60 percent and limitations on the fuel burn rate. The permit also stipulated that only natural gas or No. 2 fuel oil can be burned in the combustion turbine. SO₂ emissions for the TECO project will be controlled by limiting the average annual sulfur content of the fuel oil to 0.3 percent by weight with the maximum not to exceed 0.5 percent.

The BACT analysis for the Lakeland Combustion Turbine Project is contained in the following sections.

6.2 NITROGEN OXIDES EMISSIONS CONTROL

During combustion, two types of NO_x are formed; fuel NO_x and thermal NO_x. Fuel NO_x emissions are formed through the oxidation of a portion of the nitrogen contained in the fuel. Thermal NO_x emissions are generated through the oxidation of a portion of the nitrogen contained in the combustion air. Nitrogen oxides formation can be limited by lowering combustion temperatures, and staging combustion (a reducing atmosphere followed by an oxidizing atmosphere).

6.2.1 Alternative NO_x Emission Reduction Systems

The EPA has established an NSPS limitation for NO_x emissions from electric utility combustion turbines at 75 parts per million dry volume (ppmvd) at 15 percent oxygen (O₂), with a correction for fuel nitrogen content and turbine heat rate [40 CFR 60.332(b)]. A review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations through the 1990 edition, indicated that the lowest NO_x emission limit to be 4.5 ppmvd at 15 percent O₂. This limit is for a combustion turbine with an HRSG located in California. That permit value was based on the use of water injection in the combustion turbine and a SCR system contained within the HRSG (combined cycle operation).

Either water or steam could be used to limit NO_x formation during combustion. Therefore, the LAER NO_x emission control alternative for use with combustion turbines is established as water or steam injection followed by an SCR system.

Other NO_x emission control systems have been identified for evaluation as BACT. Injection of water into a turbine with a low NO_x combustion chamber(s) can limit NO_x emissions to 25 ppmvd (at 15 percent O₂) when burning natural gas and 42 ppmvd when burning fuel oil.

In addition to the two alternatives, NO_x emissions from other types of combustion sources have also been controlled through installation of selective non-catalytic reduction (SNCR) systems such as Thermal DeNO_x. A SNCR system requires gas temperatures of at least 1,500 F for NO_x reduction. The temperature at the outlet of a combustion turbine is too low (950 F to 1,100 F) for such systems. Since raising the flue gas exit temperature to 1,500 F would require supplemental heating of the flue gas, thereby increasing total emissions due to increased fuel usage, this alternative is judged technically unacceptable for application on a combustion turbine.

6.2.1.1 Selective Catalytic Reduction. SCR is a post-combustion method for control of NO_x emissions. The SCR process combines vaporized ammonia with NO_x in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90 percent reduction of NO_x with a new catalyst. An aged catalyst will provide a maximum of approximately 80 to 85 percent NO_x reduction.

The optimum flue gas temperature range for SCR operation is approximately 650 to 750 F. Flue gas from the combustion turbines will typically be 950 F to 1100 F. Therefore, an SCR would be installed in an intermediate point of the HRSG where a temperature of approximately 700 F occurs.

Operation of the unit in the simple cycle mode would require that the SCR be bypassed in order to prevent permanent damage to the catalyst from the high exhaust gas temperatures due to the HRSG not being in operation.

6.2.1.2 Improved Low NO_x Combustion Chamber. Combustion turbine manufacturers have begun to market an improved low NO_x burner design.

These burners provide improved air/fuel mixing and reduced flame temperatures. The result is lower concentrations of NO_x in comparison to standard combustion chamber design (25 versus 42 ppmvd when firing natural gas). However, these machines also have significantly higher CO emissions.

The capital and annual cost of a low NO_x combustor which meets a 25/42 (natural gas/oil) ppmvd NO_x emission limit is considered base for this project.

6.2.1.3 Water/Steam Injection. Use of water or steam injection in the combustion zones of a combustion turbine can limit the amount of NO_x formed. Thermal NO_x formation is avoided due to lower combustion temperatures resulting from the water or steam injection. The degree of reduction in NO_x formation is somewhat proportional to the amount of water or steam injected into the turbine.

Since the combustion turbine NSPS was last revised in 1982, combustion turbines have improved their tolerance to the water steam necessary to control NO_x emissions below the current NSPS level. However, there is still a point at which the amount of water or steam injected into the turbine seriously degrades the turbine's reliability and operational life. With the manufacturers' existing turbine designs and standard combustors, this generally occurs below a NO_x emission level of about 42 ppmvd (at 15 percent O₂) when firing natural gas and 65 ppmvd when firing fuel oil.

These NO_x emission levels can be achieved with little additional cost and without significant impact on reliability or power output over those costs required to comply with the NSPS.

6.2.2 Capital and Operating Costs of Alternatives

Tables 6-1 and 6-2 present the capital and levelized annual costs of the two feasible NO_x control systems for the combustion turbine facility: a low NO_x combustor with and without an SCR. The incremental annual NO_x emissions are based on firing natural gas for a maximum of 8,760 hours per year (100 percent capacity factor) in the turbines.

The differential capital costs for the SCR system include the costs of the ammonia storage/injection system, the catalytic reactors, HRSG modifications and balance of plant equipment.

TABLE 6-1. COMPARATIVE CAPITAL COSTS OF ALTERNATIVE NO_x CONTROL TECHNOLOGY*

	Low NO _x Combustor Design Plus SCR	Low NO _x Combustor Design
Differential combustion turbine costs	Base	Base
SCR reactors	\$1,990,000	NA
Ammonia storage and injection equipment	\$200,000	NA
HRSG Modification	NA	Base
Water Treatment, Storage and injection equipment	NA	Base
Balance of plant	<u>\$60,000</u>	<u>Base</u>
Direct capital cost (1990)	\$2,250,000	Base
Contingency	\$230,000	Base
Escalation	<u>\$280,000</u>	<u>Base</u>
Direct capital cost	\$2,760,000	Base
Indirects	\$410,000	Base
Interest during construction	<u>\$160,000</u>	<u>Base</u>
Total Capital Costs (1992)	\$3,330,000	Base

*Based on one turbine.

TABLE 6-2. COMPARATIVE LEVELIZED ANNUAL COSTS OF ALTERNATIVE NO_x CONTROL TECHNOLOGY*

	Low NO _x Combustor Design Plus SCR	Low NO _x Combustor Design
Operation and maintenance costs	\$1,090,000	Base
Ammonia	\$90,000	NA
Energy	\$210,000	Base
Generating Cost Adjustment	\$270,000	Base
Fixed charges	<u>\$530,000</u>	<u>Base</u>
Total Annual Costs	\$2,190,000	Base
Annual NO _x Emissions (tpy)	150	425
Incremental Annual NO _x Emissions Reduction (tpy)	275	Base
Incremental Levelized Cost per Ton of NO _x Removed	\$7,960	Base

*Based on one turbine and 8,760 hours/year of natural gas fired operation at ISO conditions (59 F and 60 percent relative humidity).

In addition to the 1990 equipment costs of the two alternatives, the total capital costs include a contingency charge, escalation, indirect costs, and interest during construction.

The levelized annual costs assume a total station fuel consumption of about 8.5×10^6 MMBtu/yr (8,760 h/yr per turbine at base load). This same annual fuel consumption was used in Section 3.0 of this application as the basis for determining pollutant applicability to the PSD Program.

Levelized annual costs include operating and maintenance costs (including catalyst replacement), ammonia additive, energy, lost generating capacity and fixed charges on capital investment. The differential energy cost and lost generating capacity for the SCR alternative is the result of the reduced net output of the turbine due to the additional back pressure added by the SCR and the energy requirements of the associated equipment.

The incremental levelized annual cost for adding an SCR to a low NO_x combustor is about \$2.2 million/year. This cost results in an incremental removal cost of approximately \$7,960 per ton of NO_x reduction (275 tons per year while burning natural gas).

6.2.3 Other Considerations

The following lists other considerations that effect the operation of the facility.

- o Compared to the low NO_x combustor with water or steam injection, the energy requirements of the SCR system would reduce the output of the combustion turbines by approximately one percent.
- o The use of an SCR system could result in a negative environmental impact due to the release of quantities of unreacted ammonia to the atmosphere. Ammonia and a number of amine compounds are recognized hazardous air pollutants. Although ammonia emissions are not regulated nationally, at least one air pollution control district in California recently set a limit of 10 ppm. Unreacted ammonia emissions from an SCR system could average 7 to 10 ppm. This emission level could create an objectionable odor and health hazards.

Ammonia is also a hazardous material. Accordingly, this material must be handled and stored with extreme care. Working on and around ammonia equipment will cause operational personnel to be less productive and functional than under normal working conditions.

- o Over time with exposure to trace elements in the flue gas, catalysts become contaminated and could be classified as a hazardous waste. Therefore, the spent catalyst must be handled and disposed of following hazardous waste procedures. Some catalytic elements are toxic and must be replaced periodically. This replacement must follow hazardous waste disposal procedures.
- o The ambient air modeling did not show any significant impacts for NO_x emissions of 25/42 ppmvd (at 15 percent O₂) when burning natural gas or fuel oil, respectively.

6.2.4 Conclusions

Installation of an SCR system designed to meet a NO_x emission limit of 9 ppm (approximately 64 percent reduction) would add over \$3.3 million to the capital cost of the project. The addition of an SCR system increases the total levelized annual costs for the project by about \$2.2 million. This increase results in an incremental removal cost of approximately \$7,960 per ton of NO_x removed while burning natural gas (100 percent capacity factor).

Natural gas will be the primary fuel for the project and fuel oil will be used only in the event of an interruption of natural gas supply. The use of an SCR system could result in adverse environmental effects due to unreacted ammonia being released to the atmosphere causing a potential human health hazard.

Therefore, based on economic, energy, and environmental considerations NO_x BACT proposed for this combustion turbine facility is the use of a low NO_x combustor with water or steam injection. The low NO_x combustor will achieve NO_x emissions of 25/42 ppmvd (at 15 percent O₂) while burning natural gas or No. 2 fuel oil, respectively. The economics are based on

operating the unit for 8,760 hours per year (100 percent capacity factor). This proposed level of BACT represents a level of NO_x control that is lower than recent determinations in the state of Florida.

6.3 SULFUR DIOXIDE AND SULFURIC ACID MIST EMISSIONS

The NSPS established by EPA for emissions from combustion turbines sets a maximum SO₂ level in the flue gas of 150 ppmvd (at 15 percent O₂) and a maximum fuel sulfur content of 0.8 percent by weight (40 CFR 60.333). The EPA has not established a combustion turbine NSPS for sulfuric acid mist (H₂SO₄). The turbine manufacturers' emission data indicate that on average, approximately 3 percent of the SO₂ in the flue gas is oxidized to SO₃ which combines with water to form H₂SO₄.

Typically, natural gas has only a trace of sulfur (2,000 grains per million standard cubic feet or less). Recent permits for No. 2 fuel oil fired combustion turbines have included limits on maximum allowable fuel sulfur contents. Current BACT/LAER Clearinghouse documents do not list any natural gas, or No. 2 fuel oil fired combustion turbines that are required to use flue gas desulfurization (FGD) systems to meet SO₂ emission requirements. Addition of an FGD system would be a superfluous method of SO₂ emission control. The significant capital and operating cost associated with FGD systems would result in termination of the project.

The primary fuel for the Lakeland Combustion Turbine Project will be natural gas. Fuel oil will only be fired when the supply of natural gas is limited to this project.

The use of low sulfur fuel oil (maximum of 0.20 percent sulfur) would impose no differential capital costs on the project. Additionally modeling showed that no significant impacts for SO₂ emissions resulted when burning 0.20 percent sulfur fuel oil.

Based on economic, energy, and environmental considerations limitation of the fuel sulfur content to 0.20 percent by weight is proposed as BACT for the SO₂ emissions during oil firing from the Lakeland Combustion Turbine Project. Natural gas typically contains only trace amounts of sulfur and no further controls will be necessary.

6.4 PARTICULATE MATTER EMISSIONS

The natural gas and No. 2 fuel oil fuels to be used in the proposed combustion turbines will only contain trace quantities of noncombustible material. Therefore, emission of particulate matter from the combustion turbine facility will be controlled by ensuring as complete combustion of the fuel as possible. The NSPS for combustion turbines do not establish an emission limit for particulate matter. A review of the EPA's BACT/LAER Clearinghouse documents did not reveal any post-combustion particulate matter control technologies being used on gas/oil fueled combustion turbines. The manufacturers' standard combustion turbine operating procedures will ensure as complete combustion of the fuel as possible. Accordingly, combustion control is proposed as BACT for total particulate matter and PM-10.

6.5 BERYLLIUM EMISSIONS

The emissions of beryllium (Be) from the combustion turbine facility will be determined by the Be content of the fuels. Natural gas has no measurable Be content and the Be emissions when firing natural gas are predicted to be insignificant on an annual basis. No. 2 fuel oil typically contains a trace amount of Be, on the order of 2.5×10^{-6} pounds per million Btu (lb/MMBtu). The annual Be emissions when firing fuel oil for 8,760 hours/year (100 percent capacity factor) are predicted to be 0.01 tons per year. While this is above EPA's significant emission rate of 4.0×10^{-4} tons per year, a review of the EPA's BACT/LAER Clearinghouse documents did not reveal any combustion turbine project which has been required to install supplemental pollution control equipment to reduce Be emissions. Accordingly, complete combustion of the No. 2 fuel oil is proposed as BACT for Be emissions.

6.6 CARBON MONOXIDE (CO)

Based on a review of EPA's BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations (1990 edition), a combustion turbine with proper combustion control and an oxidizing catalyst that limits carbon monoxide (CO) emissions to 2 ppmvd represents LAER.

Due to the combustion characteristics of a combustion turbine, it is necessary to consider the BACT determination for the emissions of NO_x in establishing the emissions of CO. Typically, measures taken to minimize the formation of NO_x during combustion inhibit complete combustion which increases the emissions of CO.

CO is formed during the combustion process due to incomplete oxidation of the carbon contained in the fuel. CO is limited by ensuring complete, efficient combustion of the fuel in the turbines. High combustion temperatures, adequate excess air, and good fuel/air mixing during combustion minimize CO. Therefore, staging combustion and lowering combustion temperatures by water injection, which are used for NO_x emission control, can be counterproductive with regard to CO emissions.

Combustion turbines designed to meet the proposed BACT NO_x emissions of 25/42 ppmvd (gas/oil) will be capable of maintaining CO emission rates of 25 ppmvd (15 percent O₂). At this emission rate, the annual emission will exceed the PSD significance level for carbon monoxide. The use of an CO catalyst would not result in appreciably lower CO emissions.

6.6.1 Catalytic Reduction.

Catalytic reduction is a post-combustion method for removal of CO emissions. The process oxidizes CO to CO₂ with the use of a catalyst. Carbon monoxide control catalyst utilizes a precious metal based catalyst to promote to oxidation process. None of the catalyst components are considered toxic.

The optimum flue gas temperature range for CO catalyst operation is between 850 F and 1100 F. Flue gas from the combustion turbine will typically be between 950 F to 1100 F. Therefore, a CO catalyst can be installed between the discharge of the combustion turbine and the inlet to the HRSG.

6.6.2 Capital and Operating Costs.

Table 6-3 presents the capital and levelized annual costs of a CO emissions control system. The CO emissions are based on firing natural gas for a maximum of 8,760 hr/yr (100 percent capacity factor) in the turbine. The capital costs of the SCR system includes the cost of the catalytic

TABLE 6-3 COMPARATIVE CAPITAL COSTS OF ALTERNATIVE CO
CONTROL TECHNOLOGY*

	<u>Carbon Monoxide Catalyst</u>
SCR reactors	\$890,000
Balance of plant	<u>\$100,000</u>
Direct capital cost (1990)	\$990,000
Contingency	\$100,000
Escalation	<u>\$120,000</u>
Direct capital cost	\$1,210,000
Indirects	\$180,000
Interest during construction	<u>\$70,000</u>
Total Capital Costs (1992)	\$1,460,000
Operation and maintenance costs	\$560,000
Generating Cost Adjustment	\$250,000
Fixed charges	<u>\$230,000</u>
Total Annual Costs	\$1,040,000
Annual CO Emissions (tpy)	240
Incremental Annual CO Emissions Reduction (tpy)	140
Incremental Levelized Cost per Ton of CO Removed	\$7,430

*Based on one turbine and 8,760 hours/year of natural gas fired
operation at ISO conditions (59 F and 60 percent relative humidity).

reactor and balance-of-plant equipment. In addition to the 1990 equipment costs, the total capital costs include a contingency charge, escalation, indirect costs, and interest during construction. Levelized annual costs include operating and maintenance costs (including catalyst replacement), lost generating capacity, and fixed charges on capital investment.

An incremental levelized cost for the SCR of \$1.0 million/year results in an incremental removal cost of approximately \$7,340 per ton of CO removed (140 tons per year while burning natural gas).

6.6.3 Other Considerations.

The following are other considerations that are associated with a CO catalyst.

- o A CO catalyst reactor located downstream of the combustion turbine exhaust will produce an additional backpressure on the combustion turbine. The added backpressure will reduce the output capability of the turbine. Additional backpressure of 3 to 4 inches of water gage would reduce turbine output by approximately 0.5 percent. Lost generating capacity translates directly into lost revenue to the project.
- o A CO catalyst is an oxidizing catalyst, consequently it will also oxidize SO_2 to SO_3 which upon condensation will form sulfuric acid mist. The formation of sulfuric acid will result in increased corrosion in the cold end of the heat recovery steam generator.
- o There is no long term operating experience with a CO catalyst on the size of combustion turbine proposed for this project.

6.6.4 Conclusions.

Installation of a CO catalyst control system designed to meet a CO emission limit of 10 ppmvd would add approximately \$1.5 million to the capital cost of the project. The total levelized annual costs for the

project increases by \$1.0 million resulting in an incremental removal cost of approximately \$7,430 per ton of CO removed while burning natural gas (100 percent capacity factor).

Therefore, based on economic, energy, and environmental considerations CO BACT proposed for this combustion turbine facility is the use of good combustion controls to achieve CO emissions of 25 ppmvd when burning natural gas or fuel oil and operating the unit for 8,760 hours per year (100 percent capacity factor).

6.7 OTHER EMISSIONS

The following sections discuss pollutants which are either below the significant emission levels established for the PSD program or have been identified by EPA as hazardous pollutants. Federal and state regulations do not require that BACT be applied for these pollutants, but the effects of the proposed BACT determinations on these pollutants must be considered.

6.7.1 Other Regulated and Hazardous Pollutants

Table 6-4 presents uncontrolled emission estimates for other regulated pollutants (fluorides, mercury, and lead) and hazardous pollutants when firing No. 2 fuel oil. These emission rates have been developed based on manufacturers' information and on information contained in the EPA publication Toxic Air Pollutant Emission Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a).

The only identified methods of controlling the emission of these pollutants are complete combustion of the fuel and the inherent quality of the fuel. Injection of water into the turbines to control NO_x emissions is not expected to have a significant effect on the emissions of these pollutants. Complete combustion will be required to achieve the identified emission rates of formaldehyde. The quality of the fuel will comply with standard commercial No. 2 fuel oil.

When fuel oil is used, no adverse environmental impacts would occur at the tabulated, uncontrolled emission rates.

TABLE 6-4. OTHER REGULATED AND HAZARDOUS POLLUTANT EMISSIONS

<u>Pollutant</u>	<u>Emission Rate lb/MMBtu</u>	<u>Annual Emission[*] tpy</u>
Arsenic	4.2 E-6	0.02
Beryllium	2.5 E-6	0.01
Cadmium	1.1 E-5	0.05
Chromium	4.8 E-5	0.20
Copper	2.8 E-4	1.16
Formaldehyde ^{**}	4.1 E-4	1.70
Lead	2.8 E-5	0.12
Manganese	2.6 E-5	0.11
Mercury	3.0 E-6	0.012
Nickel	1.7 E-4	0.70

* Annual emissions are total for one combustion turbine and are based on annual operation of 8,760 hours firing No. 2 fuel oil at ISO conditions (59 F and 60 percent relative humidity) and a fuel burn rate of 945.5 MMBtu/h.

** Formaldehyde is also found in natural gas combustion. The emission rates are 8.8 E-5 lb/MMBtu or 0.37 tpy.

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 was performed per EPA's Workbook for Plume Visual Impact Screening Level Analysis (1988). The analysis showed that the proposed facility will have no significant effect on visibility at the Class I area. Appendix D contains the output from EPA's "VISCREEN" model.

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 City of Lakeland Charles Larsen Power Plant is not expected to induce any secondary growth in the surrounding area.

APPENDIX A

DIRECTION-SPECIFIC BUILDING ANALYSIS

RBRWAKE

IBM-PC VERSION (2.0)

(C) COPYRIGHT 1989, TRINITY CONSULTANTS, INC.

SERIAL NUMBER 6440 SOLD TO BLACK & VEATCH CONSULTING ENG

RUN NAME: TEMP

RUN BEGAN ON 09-28-90 AT 08:07:58

NUMBER OF SOURCES = 2

THE FOLLOWING OPTIONS HAVE BEEN CHOSEN:

CALCULATIONS ARE MADE FOR THE ISCST MODEL.

ALL STACKS MUST BE WITHIN 5L TO BE CONSIDERED FOR DIRECTION SPECIFIC DOWNWASH.

DOWNWASH IS CALCULATED IN 36 RADIAL DIRECTIONS.

BUILDINGS ARE COMBINED REPEATEDLY.

ALGORITHMS:

0 = NO DOWNWASH
1 = HUBER-SNYDER DOWNWASH
2 = SCHULMAN-SCIRE DOWNWASH

INPUT BUILDINGS

DESCRIPTION	BLDG #	BLDG HT(M)	# OF CORNERS	X(M)	Y(M)
NW CORNER GEN BLDG.	1	37.03	4		
				50.60	57.00
				68.58	57.00
				68.58	70.41
				50.60	70.41
GEN BLDG.	2	20.27	6		
				52.43	-27.13
				91.44	-27.13
				91.44	77.11
				69.80	77.11
				69.80	52.43
				52.43	52.43
STORAGE TANK 1	3	15.24	10		
				-28.87	42.99
				-25.99	39.03
				-25.99	34.13
				-28.87	30.17
				-33.53	28.66
				-38.19	30.17
				-41.07	34.13
				-41.07	39.03
				-38.19	42.99
				-33.53	44.51
STORAGE TANK 2	4	15.24	10		
				9.23	42.99
				12.11	39.03
				12.11	34.13
				9.23	30.17
				4.57	28.66
				-0.09	30.17
				-2.97	34.13
				-2.97	39.03
				-0.09	42.99
				4.57	44.51
AIR INLET	5	13.72	4		
				-12.80	5.79
				-4.27	5.79
				-4.27	18.29
				-12.80	18.29

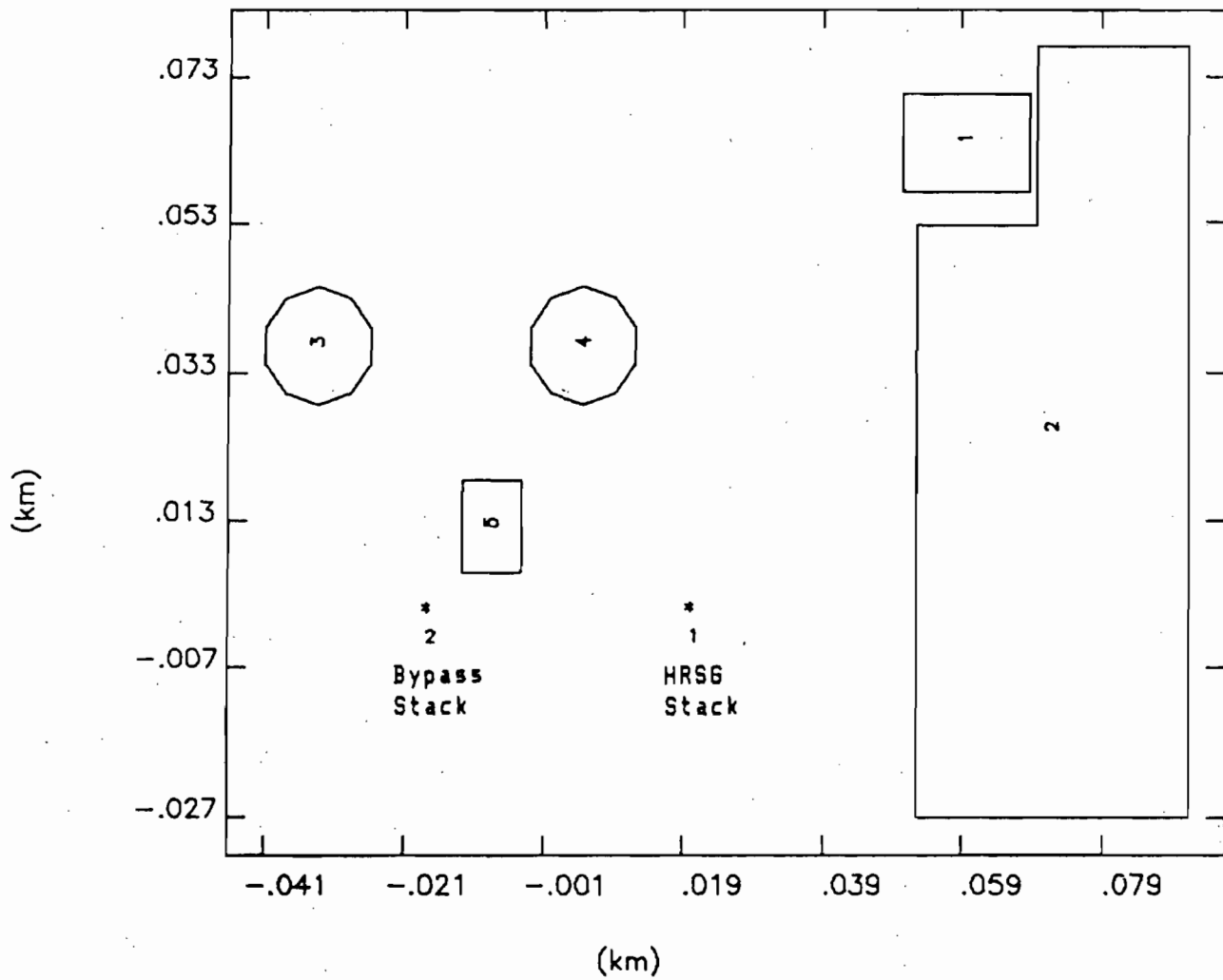
COMBINED BUILDINGS

- STRUCTURE 1 HAS A HEIGHT 37.03 METERS AND CONTAINS THE FOLLOWING BUILDINGS:
BUILDING # 1: NW CORNER GEN BLDG.
- STRUCTURE 2 HAS A HEIGHT 20.27 METERS AND CONTAINS THE FOLLOWING BUILDINGS:
BUILDING # 1: NW CORNER GEN BLDG.
BUILDING # 2: GEN BLDG.
- STRUCTURE 3 HAS A HEIGHT 15.24 METERS AND CONTAINS THE FOLLOWING BUILDINGS:
BUILDING # 3: STORAGE TANK 1
- STRUCTURE 4 HAS A HEIGHT 15.24 METERS AND CONTAINS THE FOLLOWING BUILDINGS:
BUILDING # 4: STORAGE TANK 2
- STRUCTURE 5 HAS A HEIGHT 13.72 METERS AND CONTAINS THE FOLLOWING BUILDINGS:
BUILDING # 4: STORAGE TANK 2
BUILDING # 5: AIR INLET

INPUT STACKS

STACK ID #	STACK #	STACK HT(M)	X(M)	Y(M)
1	1	47.24	18.90	.00
2	2	30.48	-18.90	.00

CITY OF LAKELAND SITE



STACK ID # 1, STACK # 1

THE DOMINANT STRUCTURE WITHIN 5L IS
STRUC= 1 H= 37.03 W= 22.43 SEP= 70.68

DIRECTION SPECIFIC BUILDING DOWNWASH					
DEGREE	STRUCTURE #	HEIGHT	WIDTH	SEP	ALGORITHM
10	0	.00	.00	.00	0
20	2	20.27	71.74	50.68	1
30	2	20.27	84.14	50.68	1
40	2	20.27	93.98	50.68	1
50	2	20.27	100.97	50.68	1
60	2	20.27	104.89	50.68	1
70	2	20.27	105.63	50.68	1
80	2	20.27	106.41	50.68	1
90	2	20.27	104.24	50.68	1
100	2	20.27	109.43	50.68	1
110	2	20.27	111.30	50.68	1
120	2	20.27	109.78	50.68	1
130	2	20.27	104.93	50.68	1
140	2	20.27	96.89	50.68	1
150	0	.00	.00	.00	0
160	0	.00	.00	.00	0
170	0	.00	.00	.00	0
180	0	.00	.00	.00	0
190	0	.00	.00	.00	0
200	1	37.03	21.48	69.25	2
210	1	37.03	22.28	70.44	2
220	1	37.03	22.39	70.62	2
230	2	20.27	100.97	50.68	1
240	2	20.27	104.89	50.68	1
250	2	20.27	105.63	50.68	1
260	2	20.27	106.41	50.68	1
270	2	20.27	104.24	50.68	1
280	2	20.27	109.43	50.68	1
290	2	20.27	111.30	50.68	1
300	2	20.27	109.78	50.68	1
310	2	20.27	104.93	50.68	1
320	2	20.27	96.89	50.68	1
330	0	.00	.00	.00	0
340	0	.00	.00	.00	0
350	0	.00	.00	.00	0
360	0	.00	.00	.00	0

STACK ID # 2, STACK # 2

THE DOMINANT STRUCTURE WITHIN 5L IS
STRUC= 1 H= 37.03 W= 22.43 GEP= 70.68

DIRECTION SPECIFIC BUILDING DOWNWASH
DEGREE STRUCTURE # HEIGHT WIDTH GEP ALGORITHM

10	5	13.72	21.78	34.30	1
20	5	13.72	17.99	34.30	1
30	5	13.72	15.50	34.30	1
40	2	20.27	93.98	50.68	1
50	2	20.27	100.97	50.68	1
60	5	13.72	30.13	34.30	1
70	5	13.72	33.53	34.30	1
80	5	13.72	36.59	34.30	1
90	5	13.72	38.71	34.30	1
100	5	13.72	41.14	34.30	1
110	0	.00	.00	.00	0
120	0	.00	.00	.00	0
130	0	.00	.00	.00	0
140	3	15.24	15.38	38.10	1
150	3	15.24	15.50	38.10	1
160	3	15.24	15.84	38.10	1
170	3	15.24	15.70	38.10	1
180	3	15.24	15.07	37.85	1
190	5	13.72	21.78	34.30	1
200	4	15.24	15.84	38.10	1
210	4	15.24	15.50	38.10	1
220	1	37.03	22.39	70.62	2
230	1	37.03	21.83	69.77	2
240	1	37.03	20.60	67.94	2
250	2	20.27	105.63	50.68	1
260	2	20.27	106.41	50.68	1
270	2	20.27	104.24	50.68	1
280	2	20.27	109.43	50.68	1
290	2	20.27	111.30	50.68	1
300	0	.00	.00	.00	0
310	0	.00	.00	.00	0
320	3	15.24	15.38	38.10	1
330	0	.00	.00	.00	0
340	0	.00	.00	.00	0
350	0	.00	.00	.00	0
360	3	15.24	15.07	37.85	1

STACK # 1

STACK ID: 1, BUILDING HEIGHT: 37.03, BUILDING WIDTH: 22.43
 .00 20.27 20.27 20.27 20.27 20.27 20.27 20.27 20.27 20.27 20.27 20.27
 20.27 20.27 .00 .00 .00 .00 .00 37.03 37.03 37.03 20.27 20.27
 20.27 20.27 20.27 20.27 20.27 20.27 20.27 20.27 .00 .00 .00 .00
 .00 71.74 84.14 93.98 100.97 104.89 105.63 106.41 104.24 109.43 111.30 109.78
 104.93 96.89 .00 .00 .00 .00 .00 21.48 22.28 22.39 100.97 104.89
 105.63 106.41 104.24 109.43 111.30 109.78 104.93 96.89 .00 .00 .00 .00

STACK # 2

STACK ID: 2, BUILDING HEIGHT: 37.03, BUILDING WIDTH: 22.43
 13.72 13.72 13.72 20.27 20.27 13.72 13.72 13.72 13.72 13.72 .00 .00
 .00 15.24 15.24 15.24 15.24 15.24 13.72 15.24 15.24 37.03 37.03 37.03
 20.27 20.27 20.27 20.27 20.27 .00 .00 15.24 .00 .00 .00 15.24
 21.78 17.99 15.50 93.98 100.97 30.13 33.53 36.59 38.71 41.14 .00 .00
 .00 15.38 15.50 15.84 15.70 15.07 21.78 15.84 15.50 22.39 21.83 20.60
 105.63 106.41 104.24 109.43 111.30 .00 .00 15.38 .00 .00 .00 15.07

APPENDIX B

EMISSION CALCULATIONS AND SUPPORT

CALCULATIONS IN SUPPORT OF CITY OF LAKE LAND COMBUSTION TURBINE PROJECT
 AMBIENT AIR QUALITY IMPACT ANALYSIS

The following parameters are based on performance estimates of a GE PG7111(EA) combustion turbine (FRAME 7) with water injection to reduce NO_x emissions to 25/42 ppmvd (natural gas/distillate), referenced to 15 percent oxygen.

Fuel Fired	Natural Gas	Distillate
Heat Rate (LHV) @ 25 F, MMBtu/h	1,054.6	1,038.1
@ ISO, MMBtu/h	964.7	945.5
Fuel Flow Rate @ 25 F	18,949 scfm	136.4 gal/min
@ ISO	17,333 scfm	124.2 gal/min
Emission Rates		
NO _x , ppmvd @ 15% O ₂	25	42
1b/h @ 25 F	106	183
1b/h @ ISO	97	167
CO, ppmvd	25	25
1b/h @ 25 F	58	58
1b/h @ ISO	53	54
VOC, ppmvw	1.4	3.5
1b/h @ 25 F	2	5
1b/h @ ISO	2	4.5
Particulate, 1b/h @ 25 F	5	15
1b/h @ ISO	5	15

CALCULATIONS:

Fuel Heat Content - Natural Gas

$$(1,054.6 \times 10^6 \text{ Btu/h}) \times (1 \text{ min}/18,949 \text{ ft}^3) \times (1 \text{ h}/60 \text{ min}) \\ = 928 \text{ Btu/ft}^3$$

Fuel Heat Content - Distillate

$$(1,038.1 \times 10^6 \text{ Btu/h}) \times (1 \text{ min}/136.4 \text{ gal}) \times (1 \text{ h}/60 \text{ min}) \\ = 127,000 \text{ Btu/gal}$$

SO2 Emission Rate - Natural Gas

Assume natural gas contains 2,000 gr S/MCF (AP-42 factor) and that there are 7,000 grains in one pound of sulfur (AP-42 factor).

$$\text{@ 25F: } (18,949 \text{ ft}^3/\text{min}) \times (60 \text{ min/h}) \times (2,000 \text{ gr S}/10^6 \text{ ft}^3) \times \\ (1 \text{ lb S}/7,000 \text{ gr S}) \times (2 \text{ lb SO}_2/1 \text{ lb S}) \\ = 0.65 \text{ lb/h}$$

$$\text{@ ISO: } (17,333 \text{ ft}^3/\text{min}) \times (60 \text{ min/h}) \times (2,000 \text{ gr S}/10^6 \text{ ft}^3) \times \\ (1 \text{ lb S}/7,000 \text{ gr S}) \times (2 \text{ lb SO}_2/1 \text{ lb S}) \\ = 0.59 \text{ lb/h}$$

SO2 Emission Rate - Distillate

Assume distillate contains 0.2 percent sulfur and that there are 7.05 pounds in one gallon of distillate (AP-42 factor).

$$\text{@ 25F: } (136.4 \text{ gal oil/min}) \times (60 \text{ min/h}) \times (0.2 \text{ lb S}/100 \text{ lb oil}) \times \\ (7.05 \text{ lb oil/gal}) \times (2 \text{ lb SO}_2/1 \text{ lb S}) \\ = 231 \text{ lb/h}$$

$$\text{@ ISO: } (124.2 \text{ gal oil/min}) \times (60 \text{ min/h}) \times (0.2 \text{ lb S}/100 \text{ lb oil}) \times \\ (7.05 \text{ lb oil/gal}) \times (2 \text{ lb SO}_2/1 \text{ lb S}) \\ = 210 \text{ lb/h}$$

SO2 Potential Annual Emissions

Assume turbine operates for 8,760 hours per year. ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions.

$$\text{Natural Gas: } (0.6 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ = 2.6 \text{ tpy}$$

$$\text{Distillate: } (210 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ = 920 \text{ tpy}$$

NOx Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions.

$$\begin{aligned}\text{Natural Gas: } & (97 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 425 \text{ tpy}\end{aligned}$$

$$\begin{aligned}\text{Distillate: } & (167 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 732 \text{ tpy}\end{aligned}$$

CO Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions.

$$\begin{aligned}\text{Natural Gas: } & (53 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 232 \text{ tpy}\end{aligned}$$

$$\begin{aligned}\text{Distillate: } & (54 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 237 \text{ tpy}\end{aligned}$$

VOC Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions.

$$\begin{aligned}\text{Natural Gas: } & (2.0 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 8.8 \text{ tpy}\end{aligned}$$

$$\begin{aligned}\text{Distillate: } & (4.5 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 20 \text{ tpy}\end{aligned}$$

Particulate Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions. It is assumed all particulate matter is less than 10 microns in diameter (PM₁₀).

$$\begin{aligned}\text{Natural Gas: } & (5 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 22 \text{ tpy}\end{aligned}$$

$$\begin{aligned}\text{Distillate: } & (15 \text{ lb/h}) \times (8,760 \text{ hr/y}) \times (\text{ton}/2,000 \text{ lb}) \\ & = 66 \text{ tpy}\end{aligned}$$

Lead Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions. Lead emission taken from EPA's Toxic Air Pollutant Emissions Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a).

Natural Gas: (No measurable emissions)

Distillate: $(2.8 \times 10^{-5} \text{ lb/MMBtu}) \times (945.5 \text{ MMBtu/h}) \times (8,760 \text{ hr/y})$
 $\times (\text{ton}/2,000 \text{ lb})$
 $= 0.12 \text{ tpy}$

Beryllium Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions. Emission factor taken from EPA's Toxic Air Pollutant Emissions Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a).

Natural Gas: (No measurable emissions)

Distillate: $(2.5 \times 10^{-6} \text{ lb/MMBtu}) \times (945.5 \text{ MMBtu/h}) \times (8,760 \text{ hr/y})$
 $\times (\text{ton}/2,000 \text{ lb})$
 $= 0.01 \text{ tpy}$

Mercury Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions. Emission factor taken from EPA's Toxic Air Pollutant Emissions Factors - A Compilation For Selected Air Toxic Compounds and Sources (EPA-450/2-88-006a).

Natural Gas: (No measurable emissions)

Distillate: $(3.0 \times 10^{-6} \text{ lb/MMBtu}) \times (945.5 \text{ MMBtu/h}) \times (8,760 \text{ hr/y})$
 $\times (\text{ton}/2,000 \text{ lb})$
 $= 0.01 \text{ tpy}$

Sulfuric Acid Mist Potential Annual Emissions

Assume turbine operates for 8,760 hours per year (100 percent capacity factor). ISO condition (59 F and 60 percent relative humidity) pound per hour emission rates are used for annual emissions. It is assumed that approximately 3 percent of the SO₂ is converted to H₂SO₄.

Natural Gas: $(0.03) \times (2.6 \text{ tpy}) = 0.08 \text{ tpy}$

Distillate: $(0.03) \times (920 \text{ tpy}) = 27.6 \text{ tpy}$

Other Regulated Pollutant Potential Annual Emissions

Asbestos, Vinyl Chloride, Fluorides, Total Reduced S, Reduced S, and H_2S have no measurable emissions for either natural gas or distillate combustion.

APPENDIX C

LISTING OF MODELING RUNS

120790
LAAQIA

LISTING OF MODELING RUNS SUPPORTING THE CITY OF LAKELAND, FLORIDA AMBIENT AIR QUALITY IMPACT ANALYSIS

Model Output File (.LST)	Model Input File (.DAT)	Model Stack File (.PNT)	Description
<u>ISCST RUNS - COMBINED CYCLE (1982-1986)</u>			
QC82	QC82	QC155	155-ft HRSG Stack, F.O. Combustion*, Std. Receptors**, 1982
QC83	QC83	QC155	155-ft HRSG Stack, F.O. Combustion*, Std. Receptors**, 1983
QC84	QC84	QC155	155-ft HRSG Stack, F.O. Combustion*, Std. Receptors**, 1984
QC85	QC85	QC155	155-ft HRSG Stack, F.O. Combustion*, Std. Receptors**, 1985
QC86	QC86	QC155	155-ft HRSG Stack, F.O. Combustion*, Std. Receptors**, 1986
<u>ISCST RUNS - SIMPLE CYCLE (1982-1986)</u>			
QS82	QS82	QS100	100-ft Bypass Stack, F.O. Combustion*, Std. Receptors**, 1982
QS83	QS83	QS100	100-ft Bypass Stack, F.O. Combustion*, Std. Receptors**, 1983
QS84	QS84	QS100	100-ft Bypass Stack, F.O. Combustion*, Std. Receptors**, 1984
QS85	QS85	QS100	100-ft Bypass Stack, F.O. Combustion*, Std. Receptors**, 1985
QS86	QS86	QS100	100-ft Bypass Stack, F.O. Combustion*, Std. Receptors**, 1986

*F.O. - Fuel Oil

**Standard Receptors: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.25, 1.5, 1.75, 2.0, 2.25, 2.5, 2.75, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0 km. In addition, discrete receptors were placed along the property boundary at each of the 36 radial directions.

APPENDIX D

"VISCREEN" VISIBILITY MODEL RESULTS

Visual Effects Screening Analysis for
Source: CITY OF LAKELAND CT
Class I Area: CHASSAHOWITZKA W.R.

*** Level-1 Screening ***
Input Emissions for

Particulates	15.00	LB /HR
NOx (as NO2)	183.00	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

**** Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	25.00 km
Source-Observer Distance:	86.00 km
Min. Source-Class I Distance:	86.00 km
Max. Source-Class I Distance:	107.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

R E S U L T S

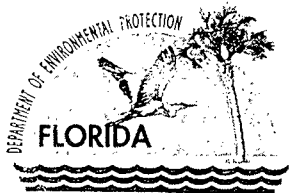
Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

Backgrnd	Theta	Azi	Distance	Alpha	Delta E		Contrast	
					Crit	Plume	Crit	Plume
SKY	10.	84.	86.0	84.	2.00	.070	.05	-.000
SKY	140.	84.	86.0	84.	2.00	.021	.05	-.001
TERRAIN	10.	84.	86.0	84.	2.00	.004	.05	.000
TERRAIN	140.	84.	86.0	84.	2.00	.001	.05	.000

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE NOT Exceeded

Backgrnd	Theta	Azi	Distance	Alpha	Delta E		Contrast	
					Crit	Plume	Crit	Plume
SKY	10.	75.	83.2	94.	2.00	.073	.05	-.000
SKY	140.	75.	83.2	94.	2.00	.022	.05	-.001
TERRAIN	10.	60.	78.7	109.	2.00	.006	.05	.000
TERRAIN	140.	60.	78.7	109.	2.00	.002	.05	.000



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

January 2, 1996

CERTIFIED MAIL

Ms. Farzie Shelton
City of Lakeland
Department of Electric & Water
Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

Dear Ms. Shelton:

Re: Polk County - Air Permit
DEP File No. 1050003-002-AO
Revisions to Larsen Unit 8
AO53-219296

The Department has received your correspondence in reply to the our November 16, 1995, request for additional information regarding changes to the above permit.

Your original amendment request letter, dated June 27, 1995, had been misfiled and was not immediately available. Therefore, the understanding was that your subsequent request of October 13, 1995, was regarding a new issue. The Department extends its regret for any confusion which had developed regarding the status of this matter. The Department's Tallahassee office is indeed responsible for the PSD and air construction permit. It would be inappropriate for the District to issue amendments to an operating permit prior to changing a construction permit. Therefore, the District was not issuing changes until the construction permit matter had been resolved to your satisfaction.

Please be aware that the Department does not normally change the Specific Conditions of any air permit "as a matter of course". Changes are made consistent with the requirements of Florida rules and Department policy. The request of November 16, 1995, was to obtain reasonable assurance that Larsen Unit No. 8 would be able to meet the NOx emission limits agreed to by the City. Although ambient operating temperature is not specifically addressed in the permit, the NOx emission limit is maximum which may not be exceeded with the exception of unavoidable malfunction. Also, the NOx emission limit is not to be considered a yearly "average" emission limitation. The intent of conversion of emissions test results to ISO conditions was to adjust for variations in testing conditions.

The ISO adjustment for a cold, low humidity day would depress the actual NOx emission rate for a combustion turbine. Hence the department's need for reasonable assurance that omitting this adjustment would not cause an exceedance of the permit NOx limitation during cold weather operation. While the current policy memo from Howard Rhodes (September 18, 1995) encourages elimination of the ISO adjustment for such sources as Larsen Unit No. 8, the memo does not state that the permitted emission limitation may be relaxed.

In your response you were concerned regarding the requirement for P.E. certification of data that you discern to be of a non-engineering nature. Please understand that the Department's interest in assuring that the emissions of Larsen Unit No. 8 are within the permit allowable is regulatory in nature. However, determining the performance of a complex piece of equipment is an engineering function. Therefore, the Department again requests that reasonable assurance of the ability of Larsen Unit No. 8 to conform to permitted emission limits under adverse ambient conditions be supplied by a registered professional engineer for final review by our District Air Engineer, who is also a professional engineer. Failure to provide this information may result in denial of the permit amendment.

Thank you for your cooperation in this matter. If you should have any questions, please call me at (813)744-6100 Ext. 104.

Sincerely,



William E. Schroeder
Air Permitting Engineer

WES/ws

cc: Charles D. Garing, Manager, Charles Larsen Power Plant
Martin Costello, DARM
Gerald J. Kissel, P.E., District Air Engineer



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

FACSIMILE TRANSMISSION SHEET

DATE

2/1/96

TO:

FARZIE SHELTON - LAKE LAND ELECTRIC

DEPT:

ENVIRONMENTAL

PHONE:

FROM:

BILL SCHROEDER

DEPT.: DEP, SOUTHWEST DISTRICT

PHONE: (813) 744-6100 SUNCOM 542-6100 EXT. 104

OPERATOR:

EXT.

SUBJECT:

HARD COPY WILL FOLLOW

TOTAL NUMBER OF PAGES, INCLUDING COVER PAGE:

6

AIR PROGRAM FAX NUMBER IS (813) 744-6458
SUNCOM 542-6458

PERMIT APPLICATION FEE/ASSIGNMENT SHEET

Update | Emission unit | permit | project | Pollutant | related party |
 aaaaaaa ARMS Facility aaaaaaa
 Office County AIRS ID
 Owner CITY OF LAKELAND Name
 Directions
 Street
 City ZIP
 UTM Zone East North Latitude : :00 Longitude : :00
 Status Maj Group SIC
 Reloc N Shtdwn Dt Strt Dt Final Shutdown Dt
 Gov Fac
 AOR Req Ozone SIP Facility N Type

Help | Events | Payment | Facility | project | comment | party |
 aaaaaaa Permitting Application aaaaaaa
 Facility Name: AIRS ID: 1050003
 County: Owner:
 Office:
 Project aaaaaaa
 AIR Permit #: - - Project #: 002 CRA Reference #:
 Permit Office: Agency Action:
 Project Name: LARSEN 8 REV'S Desc: REF A033-219296, EMISSION UNIT 08
 Type/Sub/Req: ADMM Logged:
 Received: Issued: Expires:
 Fee: Realized: Dele: Override:
 Related Party aaaaaaa
 Role: Begin: End:
 Name: SSN/FEID:
 Addr:
 City: State: Zip: - Country:
 Phone: Fax:
 Processors aaaaaaa
 Processor: Active: Inactive:

FEE SUBMITTED: (☒) correct () incorrect - Should Be \$ 0
 Submitted \$ 0
 FEE CHECKED BY: GR DATE: 11/2/95 Needed/Refund \$
 APPLICATION ASSIGNED TO: W. SCHROEDER DATE: 11/2

	Completed	Initials
Initial Entry in Arms:	<u>11-3</u>	<u>BC</u>
Permit Engineer Submit Permit Package to District Air Engineer:	<u>1/18/96</u>	<u>WS</u>
Permit Package to District Air Administrator:	<u>1/22/96</u>	<u>GR</u>
Permit Package to Director of District Management:	<u>1/23/96</u>	<u>W</u>
Permit Package Mailed Out:	<u>JAN 24 1996</u>	<u>mq</u>
Issue Date Updated in ARMS:	<u>JAN 24 1996</u>	<u>mq</u>

Z 175 923 739



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MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

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Restricted Delivery Fee	
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Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date JAN 02 1996	

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- Complete items 3, 4a, and 4b.
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WS

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following services (for an
extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

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MS FARZIE SHELTON
ENV COORDINATOR
CITY OF LAKE LAND
501 EAST LEMON ST
LAKE LAND FL 33801-5050

4a. Article Number

Z 175 923 739

4b. Service Type

- ☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

0108 157 1/3/96

8. Addressee's Address (Only if requested
and fee is paid)

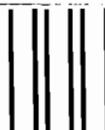
5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DR
TAMPA, FLORIDA 33619

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Department of Environmental Protection
SOUTHWEST DISTRICT

BY _____

2/2/96

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MR CHARLES D GARING
CITY OF LAKE LAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKE LAND FL 33801-5050

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Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date JAN 02 1996 JAN 02 1996	

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- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

MR CHARLES D GARING
CITY OF LAKE LAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKE LAND FL 33801-5050

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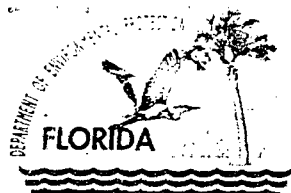
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DR
TAMPA, FLORIDA 33619

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Department of Environmental Protection
SOUTHWEST DISTRICT

BY _____

Air



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

December 18, 1995

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

route 1 WS
file

Dear Ms. Shelton:

Re: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

The Department is in receipt of your June 27, 1995 request to amend the above referenced permit. You requested a customized fuel monitoring schedule for the sulfur and nitrogen content of the natural gas fired in the turbine. You also requested that the sulfur dioxide and sulfuric acid mist permit limits be changed. In addition, you requested clarification of the nitrogen oxides compliance testing requirements, i.e. the ISO correction, specified in the above referenced permit.

The Department acknowledges your oversight in neglecting the sulfur from mercaptans (which are added to the natural gas for safety reasons) in your estimate of annual SO₂ emissions. The Department also agrees that a typographical error was apparently made in the annual emission limits for sulfuric acid mist, both for natural gas and oil.

The Department hereby incorporates each of the following amendments to the above referenced permit:

Custom Fuel Monitoring Schedule

The proposed custom fuel monitoring schedule (attached) has been approved by EPA and is included as an attachment to the above referenced permit. This fuel monitoring schedule supersedes AC53-190437 / PSD-FL-166 condition 23 which

Ms. Farzie Shelton
December 18, 1995
page 2

requires annual reports for nitrogen content of the fuel being fired, as this condition applies to the firing of natural gas.

Annual Sulfur Dioxide And Sulfuric Acid Mist Limits

The annual sulfur dioxide and sulfuric acid mist limits is changed as follows:

TABLE 1

FROM:

SO₂..... 2.6 (tpy on gas)

Sulfuric Acid Mist..... - (tpy on gas)... 3.3×10^{-3} (tpy on oil)

TO:

SO₂..... 8.6 (tpy on gas)

Sulfuric Acid Mist..... 0.8 (tpy on gas)... 9.13 (tpy on oil)

Correction of NO_x Emissions to ISO Conditions

Based on the recent guidance memorandum on combustion turbines the Department hereby removes the requirement to correct the test data to ISO conditions for comparison with the NO_x emission limits established pursuant to the BACT determination for gas and oil firing. To institute this change, Permit PSD-FL-166/AC53-190437 Specific Condition 13 is amended as follows:

During the initial performance tests, to determine compliance with the proposed NSPS NO_x standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO

A copy of this amendment letter shall be attached to and

Ms. Farzie Shelton
December 18, 1995
page 3

shall become a part of Air Construction Permit PSD-FL-166 /
AC53-190437.

Sincerely,



for Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 12-22-95 to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Leri Ober 12-22-95
Clerk Date

Copies to be furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA
Roy Harwood, Polk Co.

CUSTOMED FUEL MONITORING SCHEDULE

1. Monitoring of natural gas nitrogen content shall not be required in accordance with page 2 of the EPA guidance memorandum, attached.
2. Sulfur Monitoring
 - a. Analysis for sulfur content of the natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR § 60.335(b)(2).
 - b. Effective on the approval date of the customized fuel monitoring schedule, sulfur monitoring shall be conducted twice a month for six months. If this monitoring shows little variability in the sulfur content and indicates consistent compliance with 40 CFR § 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.
 - c. If the sulfur content monitoring required for natural gas by 2(b) above shows little variability and the calculated sulfur dioxide emissions represent consistent compliance with the sulfur dioxide emission limits specified under 40 CFR § 60.333, sample analysis shall be conducted twice per year. This monitoring shall be conducted during the first and third quarters of each calendar year.
 - d. Should any sulfur analysis as required by items 2(b) or 2(c) above indicate noncompliance with 40 CFR § 60.333, the City will notify the Department of Environmental Protection of such excess emission and the customized fuel monitoring schedule shall be reexamined. The sulfur content of the natural gas will be monitored weekly during the interim period while this monitoring schedule is being reexamined.
3. The City will notify the Department of Environmental Protection of any change in natural gas supply for reexamination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content varying greater than 10 grains/1000 cf gas) shall be considered as a change in natural gas supply. Sulfur content of the natural gas will be monitored weekly during the interim period when this monitoring schedule is being reexamined.
4. Records of sampling analysis and natural gas supply pertinent to this monitoring schedule shall be retained by the City for a period of three years, and shall be available for inspection by appropriate regulatory personnel.
5. The City will obtain the sulfur content of the natural gas from Florida Gas Transmission Company. (The data presented in Attachment B is based upon representative samples of natural gas taken by Florida Gas Transmission.)

BT

HOPPING GREEN SAMS & SMITH

PROFESSIONAL ASSOCIATION

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

FAX (904) 425-3415

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OF COUNSEL
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DEC - 6 1995

Writer's Direct Dial No. DE.
(904) 425-2258

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

December 4, 1995

BY HAND DELIVERY

Kenneth Plante, Esquire
Office of the General Counsel
Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee FL 32399-2400

RE: City of Lakeland; Larsen Power Plant, Unit No. 8
Notice of Permit Amendment
Permit No. AO53-219296
Polk County, Florida
OGC Case No. 95-2411

Dear Mr. Plante:

On September 25, 1995, the City of Lakeland, Department of Electric & Water Utilities ("Lakeland") received the above-referenced Notice of Permit Amendment for its Larsen Power Plant, Unit No. 8, located in Polk County, Florida. The Notice of Permit Amendment was signed by William C. Thomas, P.E., Air Program Administrator, Southwest District Office, Department of Environmental Protection. Pursuant to Rule 62-103.155(3)(a), Florida Administrative Code, (F.A.C.), and Order of the Department dated October 17, 1995, Lakeland has until December 9, 1995, to file a petition for administrative proceedings regarding the Notice of Permit Amendment.

On behalf of Lakeland, I hereby request, pursuant to Rule 62-103.070, F.A.C., an extension to and including February 9, 1996, in which to file a petition for administrative proceedings regarding the Notice of Permit Amendment. As good cause for granting the request for extension of time for filing, Lakeland states the following:

Kenneth Plante, Esquire
December 4, 1995
Page 2

1. The Permit Amendment contains provisions which appear to warrant clarification or correction.

2. Lakeland representatives have correspondence with the Southwest District air staff regarding these provisions, and at least one of the issues should be resolved when the proposed construction permit amendment is finalized by the Department's Tallahassee office.

3. This request is filed simply as a protective measure to avoid waiver of Lakeland's right to challenge the Permit Amendment. Granting of this request will not prejudice either party, but will further their mutual interests and likely avoid the need to initiate formal administrative proceedings.

4. I hereby certify that I have attempted without success to contact W. Douglas Beason of the Department's Office of General Counsel regarding this request to determine whether he has an objection to the extension of time.

Accordingly, I hereby request that you formally extend the time for filing of a petition for administrative proceedings in regards to the Notice of Permit Amendment for Permit No. AO53-219296 to and including February 9, 1996.

Sincerely,



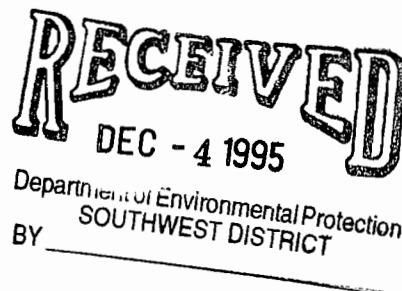
Angela R. Morrison

cc: W. Douglas Beason, Esquire, DEP
Clair Fancy, BAR, DEP
Martin Costello, BAR, DEP
William D. Thomas, DEP SW District
William E. Schroeder, DEP SW District
Farzie Shelton, City of Lakeland



November 30, 1995

William E. Schroeder
Air Permitting Engineer
Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, FL 33619



RE: Charles Larsen Power Plant Unit No. 8
Permit No. AO53-219296
Notice of Permit Amendment

Dear Mr. Schroeder:

The City of Lakeland is in receipt of your letter dated November 16, 1995, regarding the above-referenced permit for the Charles Larsen Power Plant, Unit No. 8. In your letter, you state that additional information is needed to "continue processing the application." As you should know, the Department of Environmental Protection's Southwest District Office issued a "Notice of Permit Amendment" on September 22, 1995, based on a request submitted by the City in June. (This amendment pertained only to the *operation* permit--changes to the *construction* permit are being addressed by the Department's Bureau of Air Regulation in Tallahassee.)

Upon receipt of the "Notice of Permit Amendment," the City responded in a letter dated October 19, 1995, to the District Office requesting two corrections to the "Notice of Permit Amendment." This letter was **not** intended to constitute a new permit amendment application; rather, it was intended to address the proposed permit amendment. The City has been granted until December 8, 1995, within which to file a petition for administrative hearing, and therefore the Notice of Permit Amendment has not yet been accepted by the City and is not final. The City intends to request an additional sixty days to allow adequate time for reissuance of the Permit Amendment. The City remains hopeful that the relatively minor corrections can be made and a new Notice of Permit Amendment issued by the District Office in the near future.

Because the Department's Tallahassee office is processing requested changes to the construction permit, it is inappropriate for the District to consider the City's October 19, 1995, letter as a request for amendment of the construction permit or to consider such request "incomplete." The City is corresponding directly with the Tallahassee office regarding the construction permit issues.

Regarding the operation permit, by its October 19 letter the City has requested correction of a typographical error related to the sulfuric acid mist limit for natural gas as it appeared in

William E. Schroeder
Department of Environmental Protection
Southwest District Office
November 30, 1995
Page 2

QUESTION #2 :
IF TALLY IS HANDLING
PETCOKE WHY DO I
HAVE THE TECO-PETCOKE
FILE? Bill S.

the Notice of Permit Amendment. This change has already been made by the Department's Tallahassee office for the construction permit, and other similar corrections were made by the District in the September 22 Permit Amendment. This correction should be made as a matter of course.

In addition, the City's has requested that the operation permit be changed to be consistent with the construction permit regarding the requirement to correct annual nitrogen oxides compliance test data to ISO conditions (other than to determine compliance with New Source Performance Standard limits). Specifically, the City requested that Condition No. 19 be deleted. Again, the Tallahassee office has made similar changes to the construction permit, and the change to the operation permit should be made as a matter of course. The City has requested additional language changes in the construction permit, and the District could await finalization of these changes by Tallahassee before making corresponding changes to the operation permit. The decision to not require correction to ISO conditions, however, has already been made by the Tallahassee office.

Nevertheless, your November 16 letter requests "reasonable assurance that the combustion turbine will meet NOx emissions standards under less favorable conditions (i.e. winter months) when emissions are adjusted only to 15% oxygen." As stated in the City's October 19 letter and as reiterated above, we are simply requesting deletion of the requirement to correct to ISO conditions. The operation permit, like the construction permit, does not reference ambient temperatures or conditions, or the impact of ambient temperatures or conditions, on the established emission limits. The City is not requesting any change other than deletion of the requirement to correct to ISO conditions, which is consistent with our understanding of the Department's current policy and is consistent with a draft guidance document issued by the Division of Air Resources Management, a copy of which is attached. While "draft," we understand that this guidance should be finalized within the near future without changes to this provision. You may note that this guidance document also addresses the effect of ambient temperatures on *heat input*. The heat input issue, however, is not directly related to correction of nitrogen oxide emissions to ISO conditions and should not affect the City's request.

The City would also like to point out that compliance tests have been conducted in summer months because Specific Condition 13 requires that compliance tests be conducted between June 5 and August 6 each year. It should not be necessary to test during winter months because, as stated above, the nitrogen oxide emission limit is not tied to any particular ambient conditions and the City is simply requesting that the requirement to correct to ISO conditions be deleted.

William E. Schroeder
Department of Environmental Protection
Southwest District Office
November 30, 1995
Page 3

Also in your letter of November 16, you state that responses to Department requests for additional information "of an engineering nature" must be certified by a professional engineer. It is the City's opinion that because these above responses are not "of an engineering nature," but are instead of a *regulatory* nature, it is unnecessary to include a professional engineer's certification.

Thank you for your attention to this matter. If you have any questions, please feel free to call me at 813-254-3998 or 941-499-6603. Also, please direct any future correspondence to me at the above address.

Sincerely,

A handwritten signature in cursive script that reads "Farzie Shelton".

Farzie Shelton
Environmental Coordinator

cc: William C. Thomas, DEP SW District
Clair H. Fancy, DEP Tallahassee
Martin Costello, DEP Tallahassee
Angela Morrison, HGSS



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

November 16, 1995

CERTIFIED MAIL

Mr. Charles D. Garing, Manager
Charles Larsen Power Plant
City of Lakeland
Department of Electric & Water
Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

Dear Mr. Garing:

Re: Polk County - Air Permit
DEP File No. 1050003-008-002AO
Revisions to Larsen Unit 8
PSD-FL-166; AC53-190437; A053-219296

On October 23, 1995, the Department received your request for amendments to the above permits covering Larsen Unit No. 8, located in Lakeland, Polk County. In order to continue processing the application, the Department will need the following additional information pursuant to Rule 62-4.070(1), F.A.C.:

1. All compliance test reports in our files indicate that testing of Larsen Unit 8 was conducted in the summer months only. Please provide reasonable assurance that the combustion turbine will meet NOx emissions standards under less favorable conditions (i.e. winter months) when emissions are adjusted only to 15% excess oxygen.
2. Please note that the Southwest District will also consider the application for amendments to Permits AC53-190437 and A053-219296 incomplete until approval of amendments to Permit PSD-FL-166.

Rule 62-4.050 F.A.C. requires that all applications for a Department 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. **As a result, your response to items above should be certified by a professional engineer just as the original application was.**

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

receive a response to this request for information within 90 days of the date of this letter. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

If you should have any questions, please call me at (813)744-6100 X104.

Sincerely,



William E. Schroeder
Air Permitting Engineer

WES/ws

cc: Martin Costello, DARM
Ms. Farzie Shelton, City of Lakeland

Z 175 923 671



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MR CHARLES D GARING
MANAGER
CITY OF LAKELAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKELAND FL 33801-5050

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CITY OF LAKELAND
DEPT OF E&W UTILITIES
501 EAST LEMON STREET
LAKELAND FL 33801-5050

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October 19, 1995

William C. Thomas, P.E.
District Air Program Administrator
Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa FL 33619-8318

RECEIVED
OCT 23 1995

Department of Environmental Protection
SOUTHWEST DISTRICT

BY _____

**RE: Charles Larsen Power Plant Unit No. 8--Combined Cycle Gas Turbine System
Permits Nos. PSD-FL-166; AC53-190437; AO53-219296; Sulfur Dioxide/Sulfuric
Acid Mist Limits and Nitrogen Oxides Compliance Testing**

Dear Mr. Thomas:

The City of Lakeland submitted to the Department a request for revision of the above-referenced permits and for approval of a customized fuel monitoring schedule on June 27, 1995. Subsequently, the Southwest District Office issued a Notice of [Operation] Permit Amendment on September 22, 1995, which was received by the City on September 25, 1995. In addition, the Department's Tallahassee office issued a Notice of Intent to Issue a Proposed [PSD/Construction] Permit Amendment on September 21, 1995, which was also received by the City on September 25, 1995.

In reviewing the Permit Amendment sent to us by your office, the City has noted two provisions which should be corrected or revised. An outline of those issues, along with a discussion and the City's justification for revision, follows. A separate letter was sent to the Department's Tallahassee office regarding its Proposed Permit Amendment, and a copy of that letter is attached for your information.

1. *Annual Sulfur Dioxide and Sulfuric Acid Mist Limits*--While the annual sulfur dioxide emission limits have been corrected, one incorrect sulfuric acid mist limit remains. The City again respectfully requests that the correct sulfuric acid mist limit for natural gas of 0.8 tons per year be included in a revised permit amendment. All of the other corrections were made, as requested, except for this apparent inadvertent omission. As stated in the City's earlier submittal, the incorrect limits for sulfuric acid mist emissions, for both oil and gas, were included in the PSD/construction permit, apparently as a typographical error. These incorrect limits were later transferred to the operation permit. The Department's Tallahassee office has corrected the limits in the PSD/construction permit, and the Permit Amendment issued by your office corrected the oil limit. The natural gas limit, however, remains incorrect. The City therefore respectfully requests that your office correct the natural gas limit for sulfuric acid mist to 0.8 tons per year.

William C. Thomas, P.E.
October 19, 1995
Page 2

2. *Correction of Nitrogen Oxides Emissions to ISO Conditions*--Consistent with the Proposed Permit Amendment to the PSD/construction permit for Unit 8, the operation permit should not include a requirement to correct annual nitrogen oxides compliance test data to ISO conditions for comparison with the nitrogen oxides emission limits. Specifically, Condition No. 19 should be deleted in its entirety. New Source Performance Standard (NSPS) references included in Condition No. 19 and the corresponding requirement to correct test data to ISO conditions are appropriate *only* for initial performance testing for determining compliance with the NSPS emission limits. As noted in the City's earlier submittal, the NSPS limits are higher than the permitted "Best Available Control Technology" limits in the City's current permit. It is inappropriate to require correction of nitrogen oxides test data to ISO conditions for any purpose other than to demonstrate compliance with the NSPS limits, and any references to the NSPS provisions requiring such correction would be inappropriate for the operation permit. The PSD/construction permit is being revised to delete any requirement to correct data to ISO conditions, and the City respectfully request that the District Office also delete any such requirement in the operation permit.

Thank you again for your response to the City's June 27 request for permit revision, and for your consideration of our comments above. We would like to see these issues amicably resolved and a final permit amendment issued as quickly as possible. If you or your staff have any questions regarding these issues, please call me at (941) 499-6603.

Sincerely,



Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities

cc: Martin Costello, DEP Tallahassee
David McNeal, Region IV, EPA
Angela Morrison, HGSS



October 13, 1995

RECEIVED

OCT 13 1995

BUREAU OF
AIR REGULATION

VIA HAND DELIVERY

Clair H. Fancy, Chief
Bureau of Air Regulation
Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, FL 32399

RE: Charles Larsen Power Plant Unit No. 8--Combined Cycle Gas Turbine System
Permit Nos. PSD-FL-166; AC53-190437; AO53-219296; Customized Fuel
Monitoring Schedule and Sulfur Dioxide/Sulfuric Acid Mist Limits

Dear Clair:

The City of Lakeland submitted to the Department a request for revision of the above-referenced permits and for approval of a customized fuel monitoring schedule on June 27, 1995. Subsequently, the Department issued a Notice of Intent to Issue a Proposed Permit Amendment on September 21, 1995, which was received by the City on September 25, 1995. In addition, the Southwest District Office issued a Notice of Permit Amendment on September 22, 1995, which was also received by the City on September 25, 1995.

In reviewing the Proposed Permit Amendment sent to us by your office, the City has noted a few issues which it would like to see resolved in the final Permit Amendment. An outline of those issues, along with a discussion and the City's justification for revision, follows. A separate letter will be addressed to the Southwest District regarding the Notice of Permit Amendment it issued on September 22.

Notice of Intent to Issue--The Department's notice, which must be published in a newspaper within 30 days, includes language allowing any person to request a public hearing within 30 days of the notice. While the City understands that the 30-day period for public comments is required for emission units subject to Prevention of Significant Deterioration or Nonattainment-Area Preconstruction Review, **this comment period is not required for revisions of such permits.** The permit amendments being made are relatively minor and did not trigger PSD review. The 30-day public comment period and opportunity for hearing should therefore not apply. The City therefore respectfully requests that the language in the last paragraph of the second page of the notice be deleted and not included in the publication.

Clair H. Fancy, Chief
Bureau of Air Regulation
October 13, 1995
Page 2

Annual Sulfur Dioxide and Sulfuric Acid Mist Limits--The "Table 1" attached to the Proposed Permit Amendment is inconsistent with the table attached to the original PSD permit. For example, the mercury, lead, and beryllium standards are located in the wrong column, the sulfuric acid mist limits are incorrect, and the footnote includes the incorrect capacity factor limitation. A copy of the correct "Table 1" is attached to this letter for use by the Department. In addition, a revised version of Table 1 is also attached that shows the changes being made as a result of the permit amendment.

Correction of Nitrogen Oxides Emissions to ISO Conditions--The Proposed Permit Amendment removes the requirement to correct test data to ISO conditions for comparison with the nitrogen oxides emission limit of 25 ppm provided there is no increase in either pound-per-hour or ton-per-year nitrogen oxide emission rates. The Proposed Amendment also requires the City to submit an analysis of emission changes, including continuous emissions monitoring data and associated water injection rates, for at least one month prior to and after the change.

First, the requirement to correct test data to ISO conditions should be deleted not only for comparison to the 25 ppm nitrogen oxides limit for natural gas firing but also the 42 ppm limit for oil firing. Second, as set forth in our June 27 letter to the Department, the City requested only that Specific Condition No. 13 be changed to clarify that a correction of nitrogen oxide test data to ISO ambient conditions would be required only when determining initial compliance with the New Source Performance Standard limits under Subpart GG (performance test). The annual compliance test data should not be adjusted to ISO conditions to determine compliance with the much lower "Best Available Control Technology" (BACT) limits of 25 ppm for gas and 42 ppm for oil. The emission limits of 25 ppm and 42 ppm were not changed, and the City was not proposing to make any physical or operational changes to Unit No. 8 as a result of not adjusting test data to ISO conditions. Neither the water injection rates nor the nitrogen oxide emissions from Unit No. 8 will change as a result of annual compliance test data not being adjusted to ISO conditions. Any fluctuations in nitrogen oxide emissions would be due to combustion conditions--not because test data will no longer be adjusted to ISO conditions. The City therefore respectfully requests that the final permit amendment simply clarify that test data will not need to be adjusted to ISO conditions for determining compliance with the 25 and 42 ppm nitrogen oxide emission limits. The requirement to submit an analysis of emission changes should not be required and the proposed condition containing such a requirement should be deleted.

Thank you again for your response to the City's June 27 request for permit revision, and for your consideration of our comments above. We would like to see these issues amicably

Clair H. Fancy, Chief
Bureau of Air Regulation
October 13, 1995
Page 3

resolved and a final permit amendment issued as quickly as possible. If you or your staff have any questions regarding these issues, please call me at (941) 499-6603.

Sincerely,

A handwritten signature in cursive script, reading "Farzie Shelton /arm".

Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities

cc: Bill Thomas, FDEP Southwest District
David McNeal, Region IV, EPA
Angela Morrison, HGSS

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	244	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	307	BACT
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22	BACT
VOC	-	-	9	6.7	BACT
CO	-	-	232	79	BACT
Mercury (Hg)	-	3.0×10^{-6} lbs/MMBtu	-	.003	Est. by Appl.
Lead (Pb)	-	2.8×10^{-5} lbs/MMBtu	-	0.03	" "
Beryllium (be)	-	2.5×10^{-6} lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	-	3.2×10^{-3}	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine
(Revised October 13, 1995)

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmb at 15 percent oxygen on a dry basis	425	244	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6 <u>8.6</u>	307	BACT
PM/PM ₁₀	0.06 lb/MMBtu	0.025 lb/MMBtu	22	22	BACT
VOC	-	-	9	6.7	BACT
CO	-	-	232	79	BACT
Mercury (Hg)	-	3.0 x 10 ⁻⁶ lbs/MMBtu	-	.003	Est. by Appl.
Lead (Pb)	-	2.8 x 10 ⁻⁵ lbs/MMBtu	-	0.03	" "
Beryllium (be)	-	2.5 x 10 ⁻⁶ lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	--- <u>0.8</u>	3.2 x 10⁻³ <u>9.13</u>	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

Memorandum

Florida Department of Environmental Protection

TO: District Air Program Administrators
County Air Program Administrators

FROM: Howard L. Rhodes, Director
Division of Air Resources Management

DATE: September 18, 1995

SUBJECT: Guidance on Rate of Operation During Compliance
Testing for Combustion Turbines

This memo is to provide limited guidance on determining the rate of operation during compliance testing for combustion turbines.

The mass throughput rate of combustion turbines (CTs) is inversely proportional to temperature and humidity measured at the CT inlet as a result of the changing air densities encountered. Inlet air temperature is the predominant factor, therefore, higher temperatures will result in a lower heat input rate (MMBtu/hr) and vice versa. The temperature is referenced to the CT inlet rather than ambient, as some CTs are equipped with inlet air conditioning systems (e.g., chillers or evaporative coolers) to maintain optimum operating temperature. Inlet air temperature and ambient temperature are equivalent in cases where no conditioning systems are used. CT capacity variations are to be expected due to the range of ambient temperatures and humidities encountered in Florida. Over the usual operating ranges, the CT operating curve (capacity vs. inlet air temperature) is essentially a straight line. An owner or operator of a CT should therefore be able to use these curves in determining the maximum heat input rate for the unit.

The determination of the rate of CT operation during compliance testing is illustrated in the following example. The heat input limit is often referenced to 59°F, and in this example, corresponds to 750 MMBtu/hr (Point A). On the date that compliance testing is conducted, the average ambient (or conditioned) air temperature during the test period is determined to be 80°F. According to the attached curve, the maximum design heat input rate achievable is 700 MMBtu/hr (Point B). The CT has successfully achieved 90 percent of its maximum permitted capacity for this temperature if it is determined to be operating at 630 MMBtu/hr or more (Point C). In this example, the dashed line represents 90 percent of the maximum heat input value achievable over a range of inlet air temperatures. Heat input may vary depending on CT characteristics, therefore, manufacturer's curves for correction to other temperatures shall be provided to the Department, if a source intends to use the curves for compliance purposes. Therefore, at the request of a

District Air Program Administrators and
County Air Program Administrators
September 18, 1995
Page Two

permittee, the following condition shall be incorporated into the construction and corresponding operating permits for CT sources issued a construction permit prior to January 1, 1992:

"Testing of emissions shall be conducted with the source operating at capacity (maximum heat input rate for the inlet air temperature to the CT during the test). Capacity is defined as 90-100 percent of the manufacturer's rated heat input achievable for the average ambient (or conditioned) air temperature during the test. If it is impracticable to test at capacity, then sources may be tested at less than capacity. In such cases, the entire heat input vs. inlet temperature curve will be adjusted by the increment equal to the difference between the design heat input value and 110 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report."

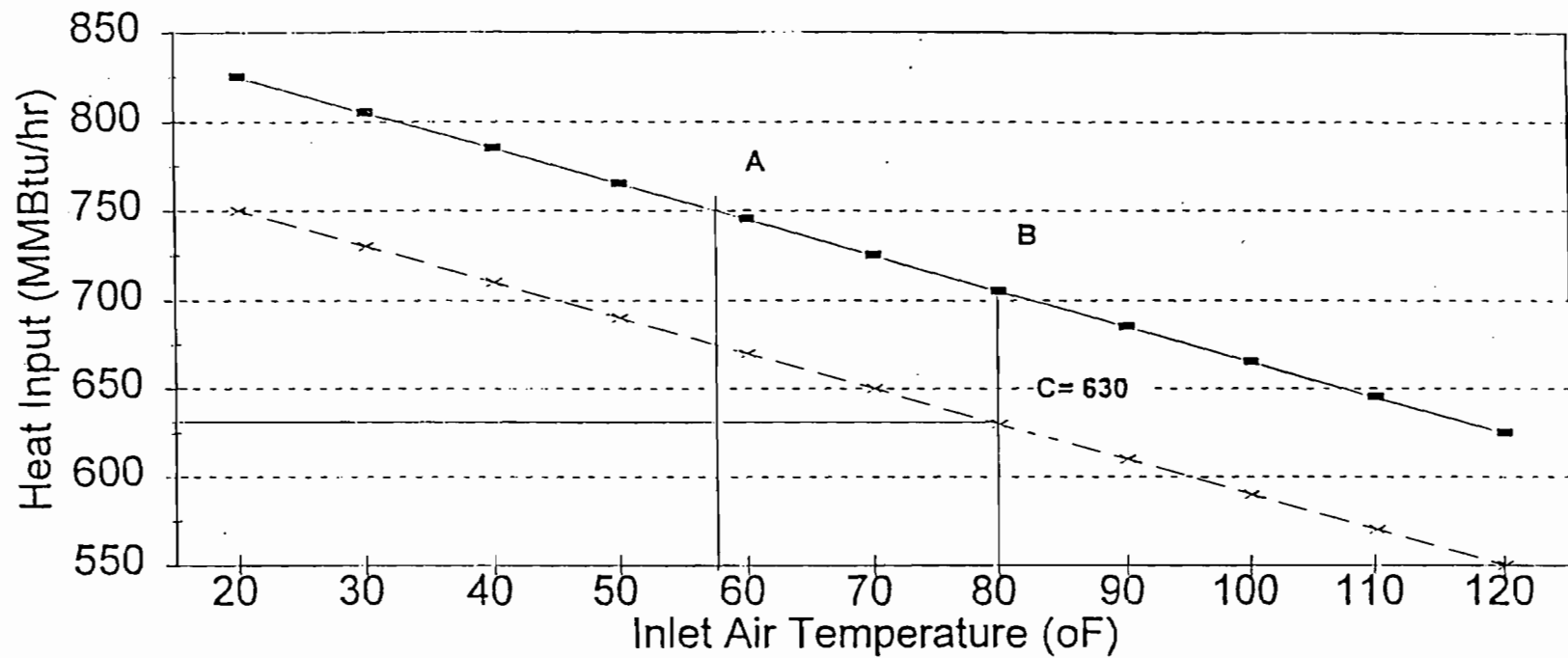
For CT sources receiving construction permits on January 1, 1992 and thereafter, capacity is defined as 95-100 percent and the adjustment shall be 105 percent of the value reached during the test. All other words in the above condition shall remain the same.

To demonstrate compliance with federal new source performance standard Subpart GG - Standards of Performance for Stationary Gas Turbines, an initial test shall be conducted at four load points and corrected to ISO conditions for comparison to the NSPS allowable. Tests conducted to establish compliance with NO_x limits which are more stringent than the NSPS standard shall not require an ISO correction.

HLR/chf/h

attachment

COMBUSTION TURBINE OPERATING CURVE FUEL HEAT INPUT vs. INLET AIR TEMPERATURE



---x--- 90% of Maximum Operating Level --- Maximum Operating Capacity

23 OCT

16 NOV

Rec'd 4 DEC

INCOMP. 4 DEC — 3 JAN



October 13, 1995

RECEIVED
OCT 16 1995

Department of Environmental Protection
SOUTHWEST DISTRICT

BY _____

VIA HAND DELIVERY

Clair H. Fancy, Chief
Bureau of Air Regulation
Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, FL 32399

**RE: Charles Larsen Power Plant Unit No. 8--Combined Cycle Gas Turbine System
Permit Nos. PSD-FL-166; AC53-190437; AO53-219296; Customized Fuel
Monitoring Schedule and Sulfur Dioxide/Sulfuric Acid Mist Limits**

Dear Clair:

The City of Lakeland submitted to the Department a request for revision of the above-referenced permits and for approval of a customized fuel monitoring schedule on June 27, 1995. Subsequently, the Department issued a Notice of Intent to Issue a Proposed Permit Amendment on September 21, 1995, which was received by the City on September 25, 1995. In addition, the Southwest District Office issued a Notice of Permit Amendment on September 22, 1995, which was also received by the City on September 25, 1995.

In reviewing the Proposed Permit Amendment sent to us by your office, the City has noted a few issues which it would like to see resolved in the final Permit Amendment. An outline of those issues, along with a discussion and the City's justification for revision, follows. A separate letter will be addressed to the Southwest District regarding the Notice of Permit Amendment it issued on September 22.

Notice of Intent to Issue--The Department's notice, which must be published in a newspaper within 30 days, includes language allowing any person to request a public hearing within 30 days of the notice. While the City understands that the 30-day period for public comments is required for emission units subject to Prevention of Significant Deterioration or Nonattainment-Area Preconstruction Review, this comment period is *not required* for revisions of such permits. The permit amendments being made are relatively minor and did not trigger PSD review. The 30-day public comment period and opportunity for hearing should therefore not apply. The City therefore respectfully requests that the language in the last paragraph of the second page of the notice be deleted and not included in the publication.

Clair H. Fancy, Chief
Bureau of Air Regulation
October 13, 1995
Page 2

Annual Sulfur Dioxide and Sulfuric Acid Mist Limits--The "Table 1" attached to the Proposed Permit Amendment is inconsistent with the table attached to the original PSD permit. For example, the mercury, lead, and beryllium standards are located in the wrong column, the sulfuric acid mist limits are incorrect, and the footnote includes the incorrect capacity factor limitation. A copy of the correct "Table 1" is attached to this letter for use by the Department. In addition, a *revised* version of Table 1 is also attached that shows the changes being made as a result of the permit amendment.

Correction of Nitrogen Oxides Emissions to ISO Conditions--The Proposed Permit Amendment removes the requirement to correct test data to ISO conditions for comparison with the nitrogen oxides emission limit of 25 ppm *provided* there is no increase in either pound-per-hour or ton-per-year nitrogen oxide emission rates. The Proposed Amendment also requires the City to submit an analysis of emission changes, including continuous emissions monitoring data and associated water injection rates, for at least one month prior to and after the change.

First, the requirement to correct test data to ISO conditions should be deleted not only for comparison to the 25 ppm nitrogen oxides limit for natural gas firing but also the 42 ppm limit for oil firing. Second, as set forth in our June 27 letter to the Department, the City requested only that Specific Condition No. 13 be changed to clarify that a correction of nitrogen oxide test data to ISO ambient conditions would be required only when determining initial compliance with the New Source Performance Standard limits under Subpart GG (performance test). The annual compliance test data should *not* be adjusted to ISO conditions to determine compliance with the much lower "Best Available Control Technology" (BACT) limits of 25 ppm for gas and 42 ppm for oil. The emission limits of 25 ppm and 42 ppm were not changed, and the City was not proposing to make any physical or operational changes to Unit No. 8 as a result of not adjusting test data to ISO conditions. Neither the water injection rates nor the nitrogen oxide emissions from Unit No. 8 will change as a result of annual compliance test data not being adjusted to ISO conditions. Any fluctuations in nitrogen oxide emissions would be due to combustion conditions--*not* because test data will no longer be adjusted to ISO conditions. The City therefore respectfully requests that the final permit amendment simply clarify that test data will not need to be adjusted to ISO conditions for determining compliance with the 25 and 42 ppm nitrogen oxide emission limits. The requirement to submit an analysis of emission changes should not be required and the proposed condition containing such a requirement should be deleted.

Thank you again for your response to the City's June 27 request for permit revision, and for your consideration of our comments above. We would like to see these issues amicably

Clair H. Fancy, Chief
Bureau of Air Regulation
October 13, 1995
Page 3

resolved and a final permit amendment issued as quickly as possible. If you or your staff have any questions regarding these issues, please call me at (941) 499-6603.

Sincerely,

A handwritten signature in cursive script, reading "Farzie Shelton /arm".

Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities

cc: Bill Thomas, FDEP Southwest District
David McNeal, Region IV, EPA
Angela Morrison, HGSS

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
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Beryllium (be)	-	2.5 x 10 ⁻⁶ lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	-	3.2 x 10 ⁻³	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

TABLE 1
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Combined Cycle Combustion Turbine
(Revised October 13, 1995)

Pollutant	<u>Standards</u>		Gas Turbine and HRSG ^(a)		Basis
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(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT
PSD-FL-166/AC53-190437

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to the City of Lakeland, Department of Electric and Water Utilities, 501 East Lemon Street, Lakeland, Florida 33801-5050. The amendment is of certain specific conditions related to fuel monitoring, sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄) emissions, and nitrogen oxides (NO_x) reporting applicable to the Charles Larson Power Plant Unit No. 8.

The U.S. Environmental Protection Agency reviewed and concurred with the customized fuel monitoring schedule. The changes in SO₂ and H₂SO₄ limits are actually corrections and are not significant. The Department will remove the requirement in the PSD/air construction permit to correct compliance test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm (firing natural gas) provided there will not be an increase in either 1b/hr or tons/yr of NO_x emission rates. The applicant is required to submit an analysis of continuous emission monitoring data which shows that this action will not cause reductions in the water injection with corresponding increases in NO_x emissions. Therefore, this change will not cause or contribute to a violation of any air pollution ambient air standard or adversely affect the environment.

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 (F.S.). 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 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, F.S.

The Petition shall contain the following information: (a) 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; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) 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/request 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, Florida Administrative Code.

The application file 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:

Department of Environment Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County Natural Resources Division
4189 Ben Durrance Road
Barrow, Florida 33830

Any person may send written comments on the proposed action to Administrator, New Source Review, at the Department's Tallahassee address. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT**

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment of Permit PSD-FL-008 to the City of Lakeland Department of Electric and Water Utilities (City), 501 East Lemon Street, Lakeland, Polk County, Florida to change certain Conditions of Approval related to fuel use contained in the Final Determination dated December 27, 1978 applicable to the C.D. McIntosh Power Plant, 3030 East Lake Parker Drive, Lakeland, Polk County Florida, Unit No. 3 as amended on September 5, 1995.

Unit No. 3 is a 364 megawatt electrical power generating unit, equipped with a sulfur dioxide scrubber and mist eliminator as well as an electrostatic precipitator for particulate control. In accordance with the current PSD permit, coal or refuse may be continuously burned as fuel in Unit No. 3 while oil may be burned during malfunction of the coal feed equipment or malfunction of the exhaust gas scrubber. The amendment will permit:

- Co-firing of 20 percent petroleum coke (a solid fossil fuel) with coal or coal and refuse.
- Firing low sulfur fuel oil or low sulfur fuel oil and refuse at any time.
- Firing natural gas at any time.

The Department has determined, or included provisions to insure that, there will be no increases in air pollutants including sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter and sulfuric acid mist as a result of the above operational changes. Since there will be no increases in pollutant emissions, the changes are not subject to review for Prevention of Significant Deterioration of Air Quality or a Best Available Control Technology 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 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; (a) 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; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action and (g) 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 file 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:

Department of Environment Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Contact: A.A. Linero (904) 488-1344

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619
Telephone: (813) 744-6100

Polk County ESD
330 W. Church Street
Bartow, Florida 33830
Telephone: (813) 534-7377

Any person may send written comments on the proposed action to Administrator, New Source Review Section, at the Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. All comments received 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(s). Such requests must be submitted within 30 days of this notice.



file

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

September 21, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050


Dear Ms. Shelton:

Re: Amendment of PSD-FL-166/AC53-190437, Specific Conditions
City of Lakeland, Larson Power Plant Unit 8

Attached is one copy of the proposed permit amendment, Intent to Issue, Public Notice of Intent to Issue Permit Amendment (for publication by the City), and Preliminary Determination changing the Specific Conditions applicable to the Charles Larson Power Plant Unit No. 8.

Please submit any comments you may have concerning the Department's proposed action to Mr. A. A. Linero, P.E., Administrator, New Source Review Section, at the above address. If you have any questions, please call Mr. Martin Costello, P.E. or Mr. Linero at (904) 488-1344.

Sincerely,


C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/mc/t

cc: Jerry Kissel, SWD
Jewell Harper, EPA
Roy Harwood, Polk Co.

PROPOSED
PSD-FL166 AMENDMENT

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Technical Evaluation
and
Preliminary Determination

City of Lakeland
Department of Electric and Water Utilities
Polk County, Florida

Charles Larson Power Plant
Unit 8--Combustion Turbine

Department File No. PSD-FL-166/AC53-190437
Request to Amend Permit

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

September 21, 1995

On June 27, 1995 the Department received a request to amend construction permit No. AC53-190437 / PSD-FL-166. The request included the incorporation of a customized fuel monitoring schedule for the sulfur and nitrogen content of the natural gas fired in the turbine, corrections to the sulfur dioxide and sulfuric acid mist permit limits, and clarification of the nitrogen oxides compliance testing requirements (when the ISO correction should be applied).

Custom Fuel Monitoring Schedule

The proposed custom fuel monitoring schedule, as corrected by the applicant's letter dated August 10, 1995 (attached), will be included as an attachment to the construction permit. EPA has approved this fuel monitoring schedule. This fuel monitoring schedule supersedes AC53-190437 / PSD-FL-166 condition 17, which specifies records of daily sulfur and nitrogen content of the fuel and condition 23, which requires annual reports for nitrogen content of the fuel being fired, as these conditions apply to the firing of natural gas.

Increased Emission Limits for SO₂ and H₂SO₄

The Department acknowledges the applicant's oversight in neglecting the sulfur from mercaptans (which are added to the natural gas for safety reasons) in the estimate of annual SO₂ emissions. The Department also agrees that a typographical error was apparently made in the annual emission limits for sulfuric acid mist, both for natural gas and oil. The sulfur dioxide and sulfuric acid mist limits will be adjusted as requested.

Correction of NO_x Emissions to ISO Conditions

The Bureau of Air Regulation has evaluated the request to remove the requirement to correct the compliance test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm @ 15 percent oxygen. The Department will grant this request provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates. If there is a NO_x emissions increase due to less water injection for NO_x control, then pursuant to Rule 62-212.400(2)(g) F.A.C.:

(g) Relaxations of Restrictions on Pollutant Emitting Capacity. If a previously permitted facility or modification becomes a facility or modification which would be subject to the preconstruction review requirements of this section if it were a proposed new facility or modification solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility or modification to emit a pollutant (such as a restriction on hours of operation), which limitation was established after August 7, 1980, then at the time of such relaxation the preconstruction review requirements of this section shall apply to the facility or modification as though

construction had not yet commenced on it.

For verification of emissions changes associated with removing the ISO correction from the permit, the City of Lakeland shall submit an analysis of emissions changes (lbs/hr and tpy), including continuous NO_x monitoring data and associated water injection rates for at least one month prior to and after the change, to the Bureau of Air Regulation. This report shall be submitted to the Bureau of Air Regulation within 13 months from issuance of this amendment.

It is the Department's determination that the proposed changes will not cause or contribute to violations of any ambient air quality standard or allowable increment. The Department intends to issue the permit amendment pending publication by the City of Lakeland of the Notice of Intent to Issue Permit Amendment and consideration of comments.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit Amendment

DEP File No. PSD-FL-166
AC53-190437
Polk County

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment for the proposed changes as detailed in the application/request specified, above and the Department's Preliminary Determination (copy attached), for the reasons stated in the application/request.

The applicant, City of Lakeland Department of Electric and Water Utilities, applied on June 27, 1995, to the Department to amend of their PSD/air construction permit applicable to the Charles Larson Power Plant, Unit No. 8. The request is to remove the ISO correction which is applied to measured NO_x emissions for comparison with the nitrogen oxides (NO_x) limit established in the PSD permit (25 ppm); implement a customized fuel monitoring schedule; and correct the permit limits for sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄). The combustion turbine is Unit 8 and is located at the Charles Larson Power Plant. The facility is located in Polk County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a permit amendment is required for the proposed work.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of

general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit amendment.

The Department will issue the permit amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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, F.S. 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. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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, F.S.

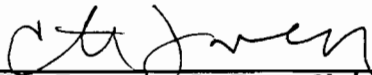
The Petition shall contain the following information;

- (a) 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
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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 intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/request 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 receipt of this intent 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.

Executed in Tallahassee, Florida.

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION**

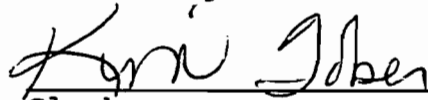

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **INTENT TO ISSUE PERMIT AMENDMENT** all copies were mailed by certified mail before the close of business on 9-21-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


Clerk 9-21-95
Date

Copies furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA
Roy Harwood, Polk Co.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT
PSD-FL-166/AC53-190437

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to the City of Lakeland, Department of Electric and Water Utilities, 501 East Lemon Street, Lakeland, Florida 33801-5050. The amendment is of certain specific conditions related to fuel monitoring, sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄) emissions, and nitrogen oxides (NO_x) reporting applicable to the Charles Larson Power Plant Unit No. 8.

The U. S. Environmental Protection Agency reviewed and concurred with the customized fuel monitoring schedule. The changes in SO₂ and H₂SO₄ limits are actually corrections and are not significant. The Department will remove the requirement in the PSD/air construction permit to correct compliance test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm (firing natural gas) provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates. The applicant is required to submit an analysis of continuous emission monitoring data which shows that this action will not cause reductions in the water injection with corresponding increases in NO_x emissions. Therefore, this change will not cause or contribute to a violation of any air pollution ambient air standard or adversely affect the environment.

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 (F.S.). 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 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, F.S.

The Petition shall contain the following information; (a) 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; (b) A statement of how and when each petitioner received notice of the Department's action

or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) 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/request 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, Florida Administrative Code.

The application/request 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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County Natural Resources Division
4189 Ben Durrance Road
Bartow, Florida 33830

Any person may send written comments on the proposed action to Administrator, New Source Review at the Department's Tallahassee address. All comments received 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(s). Such requests must be submitted within 30 days of this notice.



Department of Environmental Protection

DRAFT

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

October XX, 1995

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Amendment of PSD-FL-166/AC53-190437
City of Lakeland, Larson Power Plant Unit 8

The Department has evaluated your request and hereby incorporate each of the following amendments to the above referenced permit.

Custom Fuel Monitoring Schedule

The proposed custom fuel monitoring schedule, as corrected by your letter dated August 10, 1995 (attached), is included as an attachment to the above referenced permit. This fuel monitoring schedule supersedes AC53-190437/PSD-FL-166 condition 17, which specifies daily sulfur and nitrogen records and condition 23, which requires annual reports for nitrogen content of the fuel being fired, as these conditions apply to the firing of natural gas.

Annual Sulfur Dioxide And Sulfuric Acid Mist Limits

The annual sulfur dioxide and sulfuric acid mist limits is changed as follows:

TABLE 1 (attached)

FROM:

SO₂..... 2.6 (tpy on gas)

Sulfuric Acid Mist..... - (tpy on gas)... 3.3 X 10⁻³ (tpy on oil)

Ms. Farzie Shelton
October XX, 1995
Page Two

DRAFT

TO:

SO₂..... 8.6 (tpy on gas)

Sulfuric Acid Mist..... 0.8 (tpy on gas)... 9.13 (tpy on oil)

Correction of NO_x Emissions to ISO Conditions

The Department hereby removes the requirement to correct the test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates.

For verification of emissions changes associated with removing the ISO correction from the permit, the City of Lakeland shall submit an analysis of emissions changes (lbs/hr and tpy), including continuous NO_x monitoring data and associated water injection rates for at least one month prior to and after the change, to the Bureau of Air Regulation. This report shall be submitted to the Bureau of Air Regulation within 13 months from issuance of this amendment.

A copy of this amendment letter shall be attached to and shall become a part of Air Construction Permit AC53-190437/PSD-FL-166.

Sincerely,

Howard L. Rhodes, Director
Division of Air Resources
Management

Ms. Farzie Shelton
October XX, 1995
Page Three

DRAFT

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on _____ to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Clerk Date

Copies to be furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA
Roy Harwood, Polk Co.

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)			Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year			
			Gas	Oil		
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	181	BACT	
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	230	BACT	
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	16.5	BACT	
VOC	-	-	9	5.0	BACT	
CO	-	-	232	59.3	BACT	
Mercury (Hg)	-	-	3.0×10^{-6} lbs/MMBtu	.003	Est. by Appl.	
Lead (Pb)	-	-	2.8×10^{-6} lbs/MMBtu	0.03	" "	
Beryllium (be)	-	-	2.5×10^{-6} lbs/MMBtu	.003	BACT	
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	1.9×10^{-5} lbs/MMBtu	1.7×10^{-3}	BACT	

(a) Emissions rates based on 100 percent capacity factor for natural gas and 25 percent capacity factor for oil firing.

Attachment



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

TO: M. COSTELLO

SEP 22 1995

PLS MAKE ARMS ENTRY FOR THIS (I'M NOT AUTHORIZED)
NOTICE OF PERMIT AMENDMENT
CERTIFIED MAIL

Ms. Farzie Shelton, Environmental Coordinator
City of Lakeland, Dept. of Electric and Water Utilities
501 East Lemon St.
Lakeland, FL 33801-5050

Thanks
J. Kuid
9/25/95

Dear Ms. Shelton:

Re: Larsen Unit 8 - Combined Cycle Gas Turbine
Air Pollution Permit No. A053-219296
DEP Processing No. 273307

On June 29, 1995 the Department received your request to amend the above-referenced permit. The Department hereby amends the above listed permit as follows:

CHANGE VALUES IN THE TABLE IN SPECIFIC CONDITION 5 FROM:

<u>Pollutant</u>	<u>Tons/year</u>	
	<u>Gas</u>	<u>Oil</u>
SO ₂	2.6	307
S. Acid Mist	-	0.0032


CHANGE VALUES IN THE TABLE IN SPECIFIC CONDITION 5 TO:

<u>Pollutant</u>	<u>Tons/year</u>	
	<u>Gas</u>	<u>Oil</u>
SO ₂	8.6	307
S. Acid Mist	-	9.13

A person whose substantial interests are affected by this permit amendment 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 14 days of receipt of this permit amendment. 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.

MEMORANDUM

TO: W. Thomas

FROM: J. Kissel 

DATE: September 19, 1995

SUBJECT: City of Lakeland
Permit Amendment A053-219296
PATS No. 273307
Day 90 = 9/26/95

This application was included within a letter which appeared to be a compliance issue and was discovered to include a permit application on September 18 (on day 81). The application portion of the letter was actually logged in by Tallahassee from their copy and we were notified by Tallahassee on September 18 of the situation.

The attached resulting amendment has been discussed with Martin Costello of Tallahassee who is processing the corresponding construction permit. I recommend issuance of the attached amendment.

[illegible]

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Help | Events | Payment | Facility | project | comment | party | 
aaaaaaaaaaaaaaaaaaaaaa Permitting Application aaaaaaaaaaaaaaaaaaaaaa
Oooooooooooooooooooooo ARMS Facility aaaaaaaaaaaaaaaaaaaaaa
° Facility Name: AIRS ID:
° County: Owner:
° Office:
Uoooooooooooooooooooo Project aaaaaaaaaaaaaaaaaaaaaa
°AIR Permit #: - - Project #: CRA Reference #:
°Permit Office: Agency Action:
°Project Name: Desc:
°Type/Sub/Req: Logged:
° Received: 6/29/95 Issued: Expires:
°Fee: Realized: Dele: Override:
Uoooooooooooooooooooo Related Party aaaaaaaaaaaaaaaaaaaaaa
°Role: Begin: End:
°Name: SSN/FEID:
°Addr:
°City: State: Zip: - Country:
°Phone: Fax:
Uoooooooooooooooooooo Processors aaaaaaaaaaaaaaaaaaaaaa
°Processor: Active: Inactive:

```

FEE SUBMITTED: () correct () incorrect - Should Be \$ _____
Submitted \$ _____
FEE CHECKED BY: TALLA'E DATE: 6/95 Needed/Refund \$ _____
APPLICATION ASSIGNED TO: J KISSEL DATE: 9/19/95

	<u>Completed</u>	<u>Initials</u>
Initial Entry in Arms PATSI:	<u>6/95</u>	<u>TALL'E</u>
Permit Engineer Submit Permit Package to District Air Engineer:	<u> </u>	<u> </u>
Permit Package to District Air Administrator:	<u>9/20/95</u>	<u>JK</u>
Permit Package to Director of District Management:	<u>9/21/95</u>	<u>WJ</u>
Permit Package Mailed Out:	<u>SEP 22 1995</u>	<u>ThQ</u>
Issue Date Updated in ARMS:	<u>2</u>	<u>2</u>

I N T E R O F F I C E M E M O R A N D U M

Date: 19-Sep-1995 08:15am EST
From: Martin Costello TAL
COSTELLO_M@A1@DER
Dept: Air Resources Management
Tel No: 921-8986 or GIC 708
SUNCOM:

TO: Gerald Kissel TPA

(KISSEL_G@A1@TPA1)

Subject: Let/Larson

Here is the draft amendment package for the Larson Combustion Turbine. Please call/e-mail me this week and let me know where you stand on amending the operating permit.

What do you think of the language which requires the applicant to send an analysis, including CEMS data and water/fuel injection rates, to indicate whether the removal of ISO resulted in emissions increases?

NOTE: THE APPLICATION (6/27/95 LETTER)
IS IN THE COMPLIANCE FILE.

MPK 9/22/95

September XX, 1995

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

The Department is in receipt of your June 27, 1995 request to amend the above referenced permit. You requested a customized fuel monitoring schedule for the sulfur and nitrogen content of the natural gas fired in the turbine. You also requested that the sulfur dioxide and sulfuric acid mist permit limits be changed. In addition, you requested clarification of the nitrogen oxides compliance testing requirements, i.e. the ISO correction, specified in the above referenced permit.

The Department acknowledges your oversight in neglecting the sulfur from mercaptans (which are added to the natural gas for safety reasons) in your estimate of annual SO₂ emissions. The Department also agrees that a typographical error was apparently made in the annual emission limits for sulfuric acid mist, both for natural gas and oil.

The Bureau of Air Regulation has evaluated your request and will incorporate each of the following amendments to the above referenced permit.

Custom Fuel Monitoring Schedule

The proposed custom fuel monitoring schedule, as corrected by your letter dated August 10, 1995 (attached), will be included as an attachment to the above referenced permit. This fuel monitoring schedule superceeds AC53-190437 / PSD-FL-166 condition 17, which specifies daily sulfur and nitrogen records and condition 23, which requires annual reports for nitrogen content of the fuel being fired, as these conditions apply to the firing of natural gas.

Annual Sulfur Dioxide And Sulfuric Acid Mist Limits

The annual sulfur dioxide and sulfuric acid mist limits will be changed as follows:

TABLE 1

FROM:

SO₂..... 2.6 (tpy on gas)

Sulfuric Acid Mist..... - (tpy on gas)... 3.3×10^{-3} (tpy on oil)

TO:

SO₂..... 8.6 (tpy on gas)

Sulfuric Acid Mist..... 0.8 (tpy on gas)... 9.13 (tpy on oil)

Correction of NO_x Emissions to ISO Conditions

The Bureau of Air Regulation has evaluated your request and will remove the requirement to correct the test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates. If there is a NO_x emissions increase due to less water injection for NO_x control, then pursuant to Rule 62-212.400(2)(g) F.A.C.

(g) Relaxations of Restrictions on Pollutant Emitting Capacity. If a previously permitted facility or modification becomes a facility or modification which would be subject to the preconstruction review requirements of this section if it were a proposed new facility or modification solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility or modification to emit a pollutant (such as a restriction on hours of operation), which limitation was established after August 7, 1980, then at the time of such relaxation the preconstruction review requirements of this section shall apply to the facility or modification as though construction had not yet commenced on it.

For verification of emissions changes associated with removing the ISO correction from the permit, the City of Lakeland shall submit an analysis of emissions changes (lbs/hr and tpy), including continuous NO_x monitoring data and associated water injection rates for at least one month prior to and after the change, to the Bureau of Air Regulation. This report shall be submitted to the Bureau of Air Regulation within 13 months from issuance of this amendment.

A copy of this amendment letter shall be attached to and shall become a part of Air Construction Permit AC53-190437 / PSD-FL-166.

Sincerely,

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on _____ to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Clerk Date

Copies to be furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA

September 19, 1995

CERTIFIED MAIL - RETURN RECIEPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

Attached is one copy of the Proposed Permit Amendment for the aboved referenced emissions unit.

Please submit any comments you may have concerning the Department's proposed action to Mr. A. A. Linero, P.E., at the above address. If you have any questions, please call Mr. Martin Costello or Mr. Linero at (904) 488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/mc/t

cc: Jerry Kissel, SWD
Jewell Harper, EPA

TO: C. H. Fancy
FROM: A. A. Linero
DATE: September 19, 1995
SUBJ: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

Attached for your review and approval is a permit amendment which:

- Adds a customized fuel monitoring schedule
- Changes the permit limits for SO₂ and H₂SO₄
- Removes the ISO correction from the NO_x standard

The Company is required to submit an analysis confirming that NO_x emissions increases associated with removing the ISO correction are indeed below significant levels with respect to PSD and major source permitting.

If you have any questions, Martin Costello and I will be glad to discuss the details.

AAL/mc/t

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit Amendment

DEP File No. PSD-FL-166
AC53-190437
Polk County

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment for a modification (copy attached) to the applicant's facility as detailed in the application/request specified, above, for the reasons stated in the application/request.

The applicant, City of Lakeland Department of Electric and Water Utilities, applied on June 27, 1995, to the Department for an amendment of their PSD permit to remove the ISO correction which is applied to measured NO_x emissions for comparison with the NO_x limit established in the PSD permit (25 ppm). The applicant also requested a customized fuel monitoring schedule. In addition, the applicant requested changes to the permit limits for sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄). The combustion turbine is Unit 8 and is located at the Charles Larson Power Plant. The facility is located in Polk County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a permit amendment is required for the proposed work.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit amendment.

The Department will issue the permit amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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, F.S. 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. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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, F.S.

The Petition shall contain the following information;

- (a) 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
- (g) 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 intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/request 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 receipt of this intent 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.

Executed in Tallahassee, Florida.

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION**

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **INTENT TO ISSUE PERMIT AMENDMENT** all copies were mailed by certified mail before the close of business on _____ to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Clerk

Date

Copies furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT
PSD-FL-166/AC53-190437

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to the City of Lakeland, Department of Electric and Water Utilities, 501 East Lemon Street, Lakeland, Florida 33801-5050. The company operates a electric utility located in Lakeland, Polk County, Florida.

The applicant, City of Lakeland Department of Electric and Water Utilities, applied on June 27, 1995, to the Department for an amendment of their PSD permit to remove the ISO correction which is applied to measured NO_x emisisions for comparison with the NO_x limit established in the PSD permit (25 ppm). The applicant also requested a customized fuel monitoring schedule. In addition, the applicant requested changes to the permit limits for sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄). The combustion turbine is Unit 8 and is located at the Charles Larson Power Plant. The facility is located in Polk County.

The Department will remove the requirement in the PSD permit to correct compliance test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm (firing natural gas) provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates. The applicant is required to submit an analysis of continuous emission monitoring data which shows that this action will not cause reductions in the water injection with corresponding increases in NO_x emissions. Therefore, this change will not cause or contribute to a violation of any air pollution ambient air standard or adversely affect the environment.

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 (F.S.). 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 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, F.S.

The Petition shall contain the following information; (a) 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; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's

action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) 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/request 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, Florida Administrative Code.

The application/request 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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Any person may send written comments on the proposed action to Administrator, New Source Review at the Department's Tallahassee address. All comments received 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(s). Such requests must be submitted within 14 days of this notice.

9-27-90
MEMORANDUM

TO: J. Harry Kerns, P.E.
District Air Engineer

DATE: 09/24/93

FROM: David Zell
Permit Engineer

SUBJECT: Company: City of Lakeland
Permit No: A053-219296 Re-Issuance of Permit
County: Polk
Project: Larsen Unit No. 8 Gas Turbine
Default Date (DAY 90): Not applicable

This operation permit was originally issued on 07/30/93. On 08/10/93 City of Lakeland filed with OGC a request for an extension of their right to petition for a hearing. On 08/18/93 OGC granted an extension to 09/30/93.

On 09/24/93 DEP staff met with a City of Lakeland representative to resolve their concerns with the permit conditions. These concerns all dealt with the requirements for compliance testing while burning No. 2 fuel oil, which is permitted as a limited auxiliary fuel. As a result of the discussions, changes were made to Specific Condition Nos. 20, 21 and 22 that are satisfactory to both the Department and City of Lakeland. With these changes operation permit A053-219296 is being re-issued.

I recommend that this permit be re-issued as conditioned and submit it for your review and approval.

APPLICATION TRACKING SYSTEM

JUL 30 1993

09/21/92

APPL NO:219296

APPL RECVD:09/17/92 TYPE CODE:AD SUBCODE:1A

LAST UPDATE:09/21/92

DER OFFICE RECVD:TPA DER OFFICE TRANSFER TO:___ APPLICATION COMPLETE:___/___/___

DER PROCESSOR:AIR 2011

APPL STATUS:AC DATE:09/17/92 (ACTIVE/DENIED/WITHDRAWN/EXEMPT/ISSUED/GENERAL)

RELIEF:___ (SSAC/EXEMPTIONS/VARIANCE)

(Y/N) N MANUAL TRACKING

DISTRICT:40 COUNTY:53

(Y/N) N DGC HEARING REQUESTED

LAT/LONG:___/___/___

(Y/N) N PUBLIC NOTICE REQD?

BASIN-SEGMENT:___

(Y/N) N GOV BODY LOCAL APPROVAL REQD?

COE #:___

(Y/N) Y LETTER OF INTENT REQD? _ (I/ISSUE D/DENY)

ALT#:___

PROJECT SOURCE NAME:COMBUSTION TURBINE

STREET:CHARLES LARSEN POWER PLANT CITY:LAKELAND

STATE:FL ZIP:___ PHONE:___

APPLICATION NAME:LAKELAND, CITY OF

STREET:501 E. LEMON STREET CITY:LAKELAND

STATE:FL ZIP:33801 PHONE:813-499-8188

AGENT NAME:_____

STREET:_____ CITY:_____

STATE:_____ ZIP:_____ PHONE:_____

FEE #1 DATE PAID:09/17/92 AMOUNT PAID:02000 RECEIPT NUMBER:00200514

B DATE APPLICANT INFORMED OF NEED FOR PUBLIC NOTICE - - - - - / / /
C DATE DER SENT DNR APPLICATION/SENT DNR INTENT - - - - - / / /
D DATE DER REQ. COMMENTS FROM GOV. BODY FOR LOCAL APP. - - - - - / / /
E DATE #1 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
E DATE #2 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
E DATE #3 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
E DATE #4 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
E DATE #5 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
E DATE #6 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - - / / /
F DATE LAST 45 DAY LETTER WAS SENT - - - - - / / /
G DATE FIELD REPORT WAS REQ--REC - - - - - / / /
H DATE DNR REVIEW WAS COMPLETED - - - - - / / /
I DATE APPLICATION WAS COMPLETE - - - - - 09/17/93
J DATE GOVERNING BODY PROVIDED COMMENTS OR OBJECTIONS - - - - - / / /
K DATE NOTICE OF INTENT WAS SENT--REC TO APPLICANT - - - - - / / /
L DATE PUBLIC NOTICE WAS SENT TO APPLICANT - - - - - / / /
M DATE PROOF OF PUBLICATION OF PUBLIC NOTICE RECEIVED - - - - - / / /
N WAIVER DATE BEGIN--END (DAY 90) - - - - - 12/03/92-03/04/93

COMMENTS:

05/28/93

08/01/93

07/30/93

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

200514

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from City of Lakeland Date 9-17-92

Address 501 E. Lemon St. Lakeland Dollars \$ 2,000.00

Applicant Name & Address same

Source of Revenue Combustion Turbine

Revenue Code 1032 Application Number A053-219296

By Litty Blades

CHK#
116980

PERMIT APPLICATION FEE/ASSIGNMENT SHEET

APPLICATION TYPE A0 ^(Cococ) FILE/PROCESSING NO. A 053 - ²¹⁹²⁹⁶~~219926~~
 COMPANY City of Lakeland COUNTY Polk
 SOURCE DESCRIPTION/COMMENTS Combined Cycle Combustion Gas Turbine
 DATE APPL. REC'D (Day 1): 09/17/92
 CHECK ATTACHED: (Y) N APPLICATION SUB TYPE CODE 1A
 Not Required ()
 FEE SUBMITTED: (✓) correct () incorrect - Should Be \$ 2000
 Submitted \$ - 2000
 Needed/Refund \$ _____
 FEE CHECKED BY: HK DATE _____
 APPLICATION ASSIGNED TO: D. Zell DATE 9/22/92

PERMIT APPLICATION PROCESSING STATUS

	<u>Completed</u>	<u>Initials</u>
Date PATS Updated With Processor Name:	<u>9/22/92</u>	<u>DPJ</u>
Date AC Logged By Section Secretary:	<u>—</u>	<u>—</u>
Permit Engineer Submit Finished Permit Package & Recommendations to District Air Engineer:	<u>7/28/93</u>	<u>DPJ</u>
Permit Package to District Air Administrator:	<u>9/27/93 Re-issue HK</u>	<u>—</u>
Permit Package to Director of District Management:	<u>7/29/93</u>	<u>DPJ</u>
Permit Package Mailed Out:	<u>JUL 30 1993</u>	<u>mq</u>

DATA FOLLOW UP

Issue Date Updated on PATS:	<u>JUL 30 1993</u>	<u>mq</u>
Updated on Wang:	<u>—</u>	<u>—</u>

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF LAKE LAND,

Petitioner,

vs.

OGC CASE NO. 93-2943

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondent.

_____ /

**ORDER GRANTING REQUEST FOR EXTENSION
OF TIME TO FILE PETITION FOR HEARING**

This cause has come before the Florida Department of Environmental Protection (Department) on receipt of a request made by Petitioner City of Lakeland under rule 17-103.070 of the Florida Administrative Code to grant an extension of time to file a petition for an administrative hearing on Application No. A053-219296. See Exhibit 1.

Counsel for Petitioner has discussed this request with counsel for the Respondent State of Florida Department of Environmental Protection, which has no objection to it.

Therefore,

IT IS ORDERED:

The request for an extension of time to file a petition for administrative proceeding is granted. Petitioner shall have until September 30, 1993, to file a petition in this matter. Filing shall be complete on receipt by the Office of General Counsel, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

DONE AND ORDERED on this 17th day of August 1993 in
Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

W.H. C. [Signature]
KENNETH J. PLANTE
General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9314

CERTIFICATE OF SERVICE

I CERTIFY that a true copy of the foregoing was mailed to:

Angela R. Morrison
HOPPING, BOYD, GREEN, & SAMS
Post Office Box 6526
Tallahassee, Florida 32314

on this 18th day of August 1993.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

W. Douglas Beason [Signature]
W. DOUGLAS BEASON
Assistant General Counsel

2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9730

HOPPING BOYD GREEN & SAMS

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

FAX (904) 681-2964

C. ALLEN CULP, JR.
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
DALANA W. JOHNSON
RICHARD W. MOORE
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
GARY V. PERKO
MICHAEL R. PETROVICH
DOUGLAS S. ROBERTS
KRISTIN C. RUBIN
JULIE ROME STEINMEYER

OF COUNSEL
W. ROBERT FOKES

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
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FRANK E. MATTHEWS
RICHARD D. MELSON
WILLIAM D. PRESTON
CAROLYN S. RAEPPEL
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

August 10, 1993

BY HAND DELIVERY

Kenneth Plante, Esquire
Office of General Counsel
Florida Department of Environmental
Protection
2600 Blair Stone Road, Room 654
Tallahassee, Florida 32399-2400

RECEIVED
AUG 10 1993

Re: City of Lakeland
Larsen Power Plant, Unit No. 8
DEP Air Operation Permit No. A053-219296
Polk County, Florida

Dept. of Environmental Reg.
Office of General Counsel

Dear Mr. Plante:

On August 2, 1993, the City of Lakeland, Department of Electric & Water Utilities ("Lakeland") received the above-referenced Air Operation Permit for its Larsen Power Plant, Unit No. 8, located in Polk County, Florida. The permit was issued by the Department's Southwest District Office and was signed by David R. Zell, Air Permitting Engineer. Pursuant to Rule 17-103.155(3)(a), Florida Administrative Code, (F.A.C.), Lakeland has until August 16, 1993, to file a petition for administrative proceedings regarding the permit.

On behalf of Lakeland, I hereby request, pursuant to Rule 17-103.070, F.A.C., an extension to and including September 30, 1993, in which to file a petition for administrative proceedings regarding the permit. As good cause for granting the request for extension of time for filing, Lakeland states the following:

1. The permit contained twenty-eight (28) Specific Conditions, a few of which appeared to warrant clarification or correction.
2. In particular, the air operation permit would impose a number of new and burdensome requirements concerning emissions testing.

Kenneth Plante, Esquire
August 10, 1993
Page 2

3. Lakeland representatives are in the process of discussing the pending issues with Department District Office staff.

4. This request is filed simply as a protective measure to avoid waiver of Lakeland's right to challenge the permit as issued. Grant of this request will not prejudice either party, but will further their mutual interest and likely avoid the need to initiate formal administrative proceedings.

5. I hereby certify that I have contacted W. Douglas Beason of the Department's Office of General Counsel regarding this request, and he authorized me to report that he concurs on this request for extension of time.

Accordingly, I hereby request that you formally extend the time for filing of a petition for administrative proceedings in regards to Department Air Operation Permit No. A053-219296 to and including September 30, 1993.

Sincerely,

A handwritten signature in cursive script, appearing to read "Angela R. Morrison", with a long horizontal flourish extending to the right.

Angela R. Morrison

cc: W. Douglas Beason, Esquire, DEP
David R. Zell, DEP, Southwest District
Farzie Shelton, City of Lakeland



August 13, 1993

Mr David Zale
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa Florida 33619

Dear Mr Zale:

**Re: Air operating permit No: A053-219296 for Unit #8 at Larsen
Power Plant - Lakeland Electric & Water.**

Pursuant to our telephone conversation on August 2, 1993 in reference to the above operation permit I am writing to confirm our request for clarification and modification of the specific conditions number 20, 21 and 22. We feel these conditions, in their present format, would impose a number of new and more stringent requirements concerning emission testing not otherwise required under the Department's Rules. While we are discussing these pending issues with you, in order to avoid waiver of Lakeland Electric & Water right to an administrative proceedings, we have filed, pursuant to Rule 17-103.070, with the Department a request for extension to and including September 30, 1993. In the meanwhile we would like to discuss with you the possibility of modifying these specific conditions in accordance with the Department's Rules.

Accordingly we are submitting our suggested modification to the Department's specific conditions number 20, 21 and 22. However, we would be happy to meet with you to discuss any or all issues in connection with our comments and request.

We would also appreciate it if you would change the name of applicant on this permit to "Mr. Charles D. Garing, Larsen Plant Manager" in order to be consistent with our application for operation (copy enclosed).

We thank you for all of the cooperation you have extended to us. If you should have any questions please do not hesitate to contact me at (813) 499-6603.

Sincerely

Farzie Shelton

Enclosure

xc: Charles Garing

City of Lakeland

20. Annual NOX compliance testing shall be conducted separately while burning natural gas and while burning No. 2 fuel oil unless either has not been used for more than 400 hours in the 12 month period prior to testing. In that case, testing need only be conducted on fuel used for more than 400 hours in the last 12 consecutive month period. The test report shall include a statement that the above criteria was met if one of fuels is not tested. ~~Regardless of fuel usage, a NOX test shall be conducted on both fuels during the 3 month period prior to submittal of an operation permit renewal application.~~ The unit shall comply with the provisions of Rule 17-297.340(1)(c), F.A.C.
[Construction permit AC53-190437 and Rule 17-297, F.A.C.]

21. Annual visible emissions testing shall be conducted while burning No. 2 fuel oil. The visible emissions compliance test can be waived, on a year by year basis, if fuel oil has not been used in this unit for more than 400 hours for the previous 12 months. ~~and if it is not expected to be used in this unit for more than 400 hours during the next 12 months.~~ If this waiver is exercised, each year when the VE test is due a letter must be sent to the SWD District Office stating that the above qualifications for the waiver have been satisfied. ~~If an annual VE compliance test was not done and fuel oil usage subsequently exceeds 400 hours during the next 12 month period then, a VE test while firing No. 2 fuel oil shall be conducted within 30 days of the 400th hour of fuel oil usage.~~ Regardless of fuel usage, a VE test shall be conducted during the 3 month period prior to submittal of an operation permit renewal application. The unit shall comply with the provisions of Rule 17-297.340(1)(c), F.A.C.
[Rule 17-297.340, F.A.C.]

22. ~~For compliance tests conducted while firing No. 2 fuel oil, compliance with the fuel oil sulfur content limitation of Specific Condition No. 9 shall be demonstrated during testing by submitting either of the following with the test report:~~

- ~~A. A Certificate of Fuel Oil Analysis from your fuel oil vendor for the fuel used during the compliance test:~~
- ~~B. A Certificate of Fuel Oil Analysis for a fuel oil sample taken during the compliance test.~~

Proof of compliance with the fuel oil sulfur content limitation of Specific Condition No. 9 must be submitted to the Department annually, if fuel oil has been used in this unit for more than 400 hours during the previous 12 months, by submitting a fuel analysis for sulfur content of the oil burned of liquid shall be done in accordance with ASTM D2880-71.
[Rules 17-4.070(3) and 17-296.800, F.A.C. and Subpart GG - 40 CFR 60.335(d)]

Key: Strikeover portion to be deleted
Double-underlined portion to be added

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAH,
GOVERNOR

VICTORIA J. TSCHINK
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) ☒ New ☐ Existing

APPLICATION TYPE: ☐ Construction ☒ Operation ☐ Modification

COMPANY NAME: City of Lakeland, Florida COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Line
Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Larsen Unit #8-CT

SOURCE LOCATION: ~~XXXXXX~~ Charles Larsen Power Plant city Lakeland

UTM: East 409.185 km North 3102.754 km

Latitude 28° 2' 56"N Longitude 81° 55' 25"W

APPLICANT NAME AND TITLE: City of Lakeland, Department of Electric and Water Utilities

APPLICANT ADDRESS: 501 E. Lemon Street, Lakeland, FL 33801-5050

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of the City of Lakeland

I certify that the statements made in this application for an Operation permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Charles D. Garing

Charles D. Garing, Larsen Plant Manager
Name and Title (Please Type)

Date: 9-17-92 Telephone No. 813-499-8188

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

DER Form 17-1.202(1)

Effective October 31, 1982

Page 1 of 12

INTEROFFICE MEMORANDUM

Date: 11-Aug-1993 08:00am EST
From: Dea Wahlen TAL
WAHLEN_D@A1@DER
Dept: Office General Counsel
Tel No: (904)488-9730
SUNCOM:

TO: Duane Revell TPA
TO: Patty Adams TAL

(REVELL_D @ A1 @ TPA1)
(ADAMS_P@A1@DER)

CC: David Zell TPA

(ZELL_D @ A1 @ TPA1)

Subject: CITY OF LAKELAND

On August 10, 1993, we received from Angela R. Morrison, counsel for City of Lakeland, a request for extension of time concerning Air Operation Permit 53-219296, Larsen Power Plant, Unit No. 8.

LINE 1 •

DAVID ZELL
DEPARTMENT OF ENVIRONMENTAL PROT.
3804 COCONUT PALM DRIVE
TAMPA FL 33619

ARTICLE

P 913 095 218

NUMBER

AUG 16 1993

Department of Environmental Regulation
SOUTHWEST DISTRICT

HOPPING BOYD GREEN & SAMS

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

FAX (904) 681-2964

August 10, 1993

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
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DOUGLAS S. ROBERTS
KRISTIN C. RUBIN
JULIE ROME STEINMEYER

OF COUNSEL
W. ROBERT FOKES

BY HAND DELIVERY

Kenneth Plante, Esquire
Office of General Counsel
Florida Department of Environmental
Protection
2600 Blair Stone Road, Room 654
Tallahassee, Florida 32399-2400

RECEIVED

AUG 10 1993

Dept. of Environmental Ref
Office of General Counsel

Re: City of Lakeland
Larsen Power Plant, Unit No. 8
DEP Air Operation Permit No. A053-219296
Polk County, Florida

Dear Mr. Plante:

On August 2, 1993, the City of Lakeland, Department of Electric & Water Utilities ("Lakeland") received the above-referenced Air Operation Permit for its Larsen Power Plant, Unit No. 8, located in Polk County, Florida. The permit was issued by the Department's Southwest District Office and was signed by David R. Zell, Air Permitting Engineer. Pursuant to Rule 17-103.155(3)(a), Florida Administrative Code, (F.A.C.), Lakeland has until August 16, 1993, to file a petition for administrative proceedings regarding the permit.

On behalf of Lakeland, I hereby request, pursuant to Rule 17-103.070, F.A.C., an extension to and including September 30, 1993, in which to file a petition for administrative proceedings regarding the permit. As good cause for granting the request for extension of time for filing, Lakeland states the following:

1. The permit contained twenty-eight (28) Specific Conditions, a few of which appeared to warrant clarification or correction.

2. In particular, the air operation permit would impose a number of new and burdensome requirements concerning emissions testing.

Kenneth Plante, Esquire
August 10, 1993
Page 2

3. Lakeland representatives are in the process of discussing the pending issues with Department District Office staff.

4. This request is filed simply as a protective measure to avoid waiver of Lakeland's right to challenge the permit as issued. Grant of this request will not prejudice either party, but will further their mutual interest and likely avoid the need to initiate formal administrative proceedings.

5. I hereby certify that I have contacted W. Douglas Beason of the Department's Office of General Counsel regarding this request, and he authorized me to report that he concurs on this request for extension of time.

Accordingly, I hereby request that you formally extend the time for filing of a petition for administrative proceedings in regards to Department Air Operation Permit No. A053-219296 to and including September 30, 1993.

Sincerely,



Angela R. Morrison

cc: W. Douglas Beason, Esquire, DEP ✓
David R. Zell, DEP, Southwest District
Farzie Shelton, City of Lakeland

MEMORANDUM

TO: J. Harry Kerns, P.E.
District Air Engineer

DATE: 07/28/93

FROM: David Zell *DRZ*
Permit Engineer

SUBJECT: Company: City of Lakeland
Dept. of Electric & Water Utilities
Permit No: AO53-219296
County: Polk
Project: Larsen Unit No. 8 Combustion Turbine
End of Waiver Date: 08/01/93

An application (Certificate of Completion of Construction) for a first time operation permit for a combustion Turbine at the Larsen Power Plant was received on 09/22/92. At the request of the applicant a draft permit was sent to City of Lakeland on 11/19/92. In order to allow more time for review of the draft permit, City of Lakeland submitted a Waiver authorization to end on 03/01/93. Comments on the draft were not received by the SWD until 02/25/93. A revised second draft permit was sent to City of Lakeland on 02/26/93. They then requested a meeting and extended the waiver until 05/28/93. A meeting was held at the SWD office on 03/08/93. In that meeting City of Lakeland requested changes to the permit that could only be accomplished by first modifying the construction permit issued by Tallahassee. On 03/08/93 a call was made by DRZ to Preston Lewis to confirm this position. City of Lakeland then submitted an AC amendment request to Tallahassee and subsequently extended the waiver again to 08/01/93. On 07/20/93 DRZ received a call from Farzie Shelton saying that they had not been successful in obtaining the AC modifications and she wanted the operation permit to be issued in accordance with the revised draft with a few additional changes.

The permitted source consists of a 120 MW combined cycle combustion gas turbine with a heat recovery steam generator (HRSG) designated as Larsen Unit No. 8. The combustion turbine will fire natural gas as the primary fuel, with No. 2 oil with a maximum sulfur content of 0.2% as a limited auxiliary fuel. The combustion turbine is equipped with water injection to reduce nitrogen oxides emissions.

CO, NOx, PM and VE emission tests were conducted on this unit during the period 08/03 through 08/07/92 and showed compliance with the permit limitations.

I recommend that this permit be issued as conditioned and submit it for your review and approval.



Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

February 24, 1993

D.E.R.

FEB 25 1993

Mr. David Zell
Department of Environmental Regulation
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619

SOUTHWEST DISTRICT TAMPA

Re: Air Operating (Draft) Permit No. A053-212296
Unit No. 8 Larsen Power Plant

Dear Mr. Zell:

Thank you for giving us the opportunity to review the above referenced permit. With this letter we are submitting our comments and accordingly request our suggested modification to the Department's proposed specific conditions. However, we would be happy to meet with you to discuss any or all issues in connection with our comments and request.

Additionally, we would like to request the refund of \$2000.00 application fee we submitted for this permit on September 17, 1993 (check No. 00116920). In accordance with Rule 17-213.210 F.A.C. (Annual Operation Licensing Fee.) "no permit application processing fee, renewal fee, modification fee or amendment fee is required for an operation permit for a major source of air pollution".

If you should have any questions, please do not hesitate to contact me at (813)499-6603.

Sincerely

Farzie Shelton

xc: Bill Rodriguez
Chuck Garing

enclosure

Page 1 of 5 of Comments

Permit No: A053-212296

FEB 25 1993

County: Polk

Project: Combustion Gas Turbine
Larsen Unit No. 8

The following comments are in relation to the pages contained in the above referenced permit. Deleted material is represented by ~~strike through~~ and new material is represented by underline:

Page 1 of 7-

For the operation of a ~~80 MW simple~~ 120 MW combine cycle combustion gas turbine designated as Larsen Unit No. 8.

Rationale: This unit in combined mode is rated at 120 MW.

Page 2 of 7 - Specific Conditions:Emission Limitations.

5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/Year	
	N. Gas	No. 2 Oil	Gas	Oil
So2	-	-	-	307
Lead(pb)	-	0.000028 (b)	-	0.03

Rationale: The standards in reference to Lead and So2 need to be amended from 0.003 tons/yr to 0.03 tons/yr, for Lead, so that it would conform with the condition in our construction permit No. AC53-190437 TABLE 1. Also the tons/yr of So2 for gas should be left blank (with no limit) as the 2.6 tons/yr has not been verified by our consulting engineers (Black & Veatch) to be achievable. The 2.6 tons/yr was given as an estimate and we do not have confidence that these estimates of So2 emissions can be demonstrated in the manner specified in the permit. Furthermore, neither the Department nor the EPA under the Clean Air Act (CAA) is concerned about the amount of So2 emitted while burning gas.

FEB 25 1993

Page 2 of 5 of Comments

Permit No: AO53-212296

County: Polk

Project: Combustion Gas Turbine
Larsen Unit No. 8

Page 3 of 7 - Operation Limitation:

8. The combustion turbine is permitted

A. maximum heat input rate shall not exceed 1,055 MMBtu/hr for natural gas ~~per~~ or 1,040 MMBtu/hr for No. 2 fuel oil;

~~B. maximum annual heat input of No. 2 oil shall not exceed 1/3 (33.3%) of the total annual fuel heat input to the gas turbine;~~

CB. maximum No. 2 oil consumption shall not exceed 8,190 gallons per hour ~~per~~ or 23,914,800 gallons per year.

Rationale : To be in conformance with the construction permit No. AC53-1904437 page 6 of 10.

Page 4 of 7 - specific conditions:

10. Water injection shall be utilized for NOX control. The water to fuel ratio shall be controlled by the turbine automatic control system to the level necessary to insure compliance with Specific Condition No. 5 based on ambient conditions, fuel flow, and turbine load. ~~The fuel rate, water injection rate, actual water to fuel ratio and required water to fuel, ratio shall be continuously monitored and recorded.~~

Rationale: Redundant sentence.

11. The permittee shall install and maintain ~~a duct module~~ an HRSG module suitable for possible installation of SCR NOX control equipment.

Rationale: this is a heat recovery system and it is not any duct module.

14. Compliance with the emission limitations of specific condition Nos. 4 and 5 shall be determined using the following EPA Methods contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C:

~~A. EPA Method 5, 5B, or 17 for PM~~

Rationale: This is redundant as condition No. 12 states:
(X) Opacity (VE) (also serves as demonstration of compliance with the PM emission limit)

FEB 25 1993

Page 3 of 5 of Comments

Permit No: AO53-212296

County: Polk

Project: Combustion Gas Turbine
Larsen Unit No. 8Page 4 of 7 - specific conditions:

16. Testing of emissions must be conducted during operation of the combustion gas turbine at 90-100% of the maximum permitted fuel ~~firing rates~~ heat input rates specified in specific condition No. 8.A. A compliance test submitted at an operating rate less than 90% of maximum permitted rate will automatically constitute an amended permit at the lesser rate plus 10% unless another test showing compliance at a higher rate is submitted. Failure to submit the fuel ~~firing rates~~ heat input rates and actual operating conditions may invalidate the test.

Rationale:

Condition No. 8.A references heat input rate. Also since the capability of the gas turbine changes with ambient weather conditions, the efficiency goes higher with colder ambient temperature, and the maximum heat input rate for the permit was based on a 20 F ambient temperature. Then the required annual compliance test in the month of August would be too limiting for the 90-100% of heat input limit and an addition of 10% increase would be appropriate. Please also note that this additional 10% has been granted to us in our air operating permit in relation to our other generating units .

Page 6 of 7 - specific conditions:

20. For purposes of documenting compliance with the Nox limitation of Specific Condition No. 5 based on the results of the Method 5 stack test results, the NOX emission rate ~~(adjusted to ISO standard ambient conditions)~~ shall be computed for each run. ~~based on the equation contained in 40 CFR 60.335(e)(1).~~
~~[Rule 17-2.660, F.A.C. and subpart GG - 40 CFR 60.335(e)(1)].~~

Rationale:

Our Unit #8 has a GE MKIV control system containing an algorithm which determines how much diluent (water/steam) is required to meet allowable NOX emission concentrations under all operating conditions. This system adjusts the water injection rate to provide for a constant amount of water (injection water plus water vapor in the ambient air) over any range of humidities. In calculating the required diluent/fuel ratio, the algorithm makes adjustments for ambient temperature and relative humidity. The rate of water injection is continuously corrected during actual operating conditions. An additional ISO correction is unnecessary and potentially detrimental to the equipment causing excessive maintenance and shortening the life expectancy of the unit.

Page 4 of 5 of Comments

Permit No: A053-212296 FEB 25 1993

County: Polk

Project: Combustion Gas Turbine
Larsen Unit No. 8 TAMCAPage 6 of 7 - Recordkeeping and Reporting Requirements

21. ~~In order to demonstrate compliance with the sulfur dioxide limitations of specific condition Nos. 5, the permittee shall maintain records of the sulfur content in the natural gas as supplied by the pipeline company. The Department may require the applicant to independently verify the sulfur content of the natural gas whenever the Department does not have reasonable assurance that the sulfur content information provided by the natural gas combusted in this source.~~ Compliance with sulfur content standards for the fuel oil shall be determined in accordance with the requirements of Subpart GG - 40 CFR 60.335(d). Proof of compliance with the annual So₂ limitation (including calculations) shall be submitted along with the annual operating report each year.

Rationale: There should be no requirements for demonstrating the sulfur dioxide limitation on gas as this is minute amount and it is presumed to be constant or fluctuating in a small range. The documentation and testing of the sulfur content of the natural gas is costly and serves no purpose.

22. ~~The permittee shall submit quarterly NOX and So₂ excess emission reports in accordance with 40 CFR 60.7(e) and subpart GG - 40 CFR 60.334(e). If there are no excess emissions during a calendar quarter the permittee shall submit a report stating that no excess emissions occurred during the reporting period. [Rule 17-2.660, F.A.C. and subpart GG - 40 CFR 60.334(e)(2)].~~

Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall be recorded per fuel oil shipment. If the standard limits are exceeded or the water injection control system has been unoperational then the permittee shall submit these data to the Department indicating the possible excess emission for that quarter.

Rationale: This unit does not have continuous emission monitoring to enable quarterly excess emission reporting as the Department is requiring. We are burning compliance fuel (0.2 % sulfur content) so that laborious daily fuel testing should not be required. Furthermore the sulfur content of the fuel, as delivered, should not vary while in storage.

FEB 25 1993

Page 5 of 5 of Comments

Permit No: A053-212296

County: Polk

Project: Combustion Gas Turbine
Larsen Unit No. 8

Page 6 of 7 - Recordkeeping and Reporting Requirements

23. In order to document

A.

B.

~~C. monthly records of the total heat input of natural and of No. 2 oil for the most recent 12 consecutive month period and a calculation of the oil firing capacity factor (natural gas BTU/oil Btu] X100%).~~

Rationale: This is too limiting as per correction made in "operational limitations - condition 8(B)" the operation of this unit on the fuel oil is only limited to the 1/3 of the annual maximum heat input (23,914,800 gallons per year) and is not limited to the gas burning activities.

Page 7 of 7 - Permit Application

26. ~~Three application~~ An application and two copies to renew

D.E.R.

FEB 25 1993

SOUTHWEST DISTRICT TAMPA

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	244	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	307	BACT
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22	BACT
VOC	-	-	9	6.7	BACT
CO	-	-	232	79	BACT
Mercury (Hg)	-	3.0×10^{-6} lbs/MMBtu	-	.003	Est. by Appl.
Lead (Pb)	-	2.8×10^{-5} lbs/MMBtu	-	0.03	" "
Beryllium (be)	-	2.5×10^{-6} lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	-	3.2×10^{-3}	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

D.E.R.
FEB 25 1993

SPECIFIC CONDITIONS:

SOUTHWEST DISTRICT TAMPA

Pollutant	Acceptable Ambient Concentrations		
	8-hrs	24-hrs	Annual
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds, all forms of vapor, as Hg	-	-	0.3

3. Visible emissions shall not exceed 10% opacity.

Operating Rates

4. This source is allowed to operate continuously (8760 hours per year).

5. This source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 6 below).

6. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:

- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 8,190 gals/hr; 23,914,800 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 1/3 of the annual capacity factor.
- Maximum sulfur (S) content in the No. 2 fuel oil shall not exceed 0.20 percent by weight.
- Maximum heat input shall not exceed 1055 MMBtu/hr (gas) or 1040 MMBtu/hr No. 2 fuel (oil).

7. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southwest District offices.

8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.



May 5, 1993

D.E.R.
MAY 10 1993
SOUTHWEST DISTRICT
TAMPA

Mr. David Zell
Department of Environmental Regulation
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Air Operating (Draft) Permit N° A053-212296
Unit N°8 Larsen Power Plant ~~219296~~ 219296

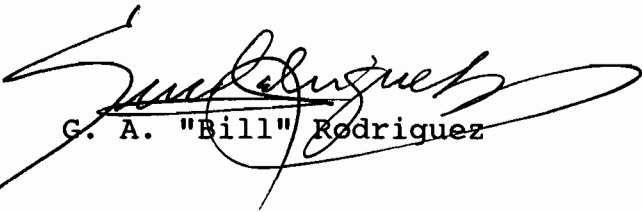
Dear Mr. Zell:

Enclosed, please find a signed waiver of a 90-day time limit for our Larsen Power Plant Unit N°8 Draft Permit.

We are presently awaiting a decision from EPA/DER (Tallahassee) in regards to our request for modifications of our construction permit. In the meanwhile, we are continuing to operate as per conditions of our construction permit.

Thanks again for your cooperation. If you have any questions concerning this request, please contact me at 813/499-6589.

Sincerely,


G. A. "Bill" Rodriguez

GAR/slj

enclosure

xc: Farzie Shelton



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor

813-620-6100

Carol M. Browner, Secretary

D.E.R.

MAY 10 1993

SOUTHWEST DISTRICT

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) and 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. A053-212296

Applicant's Name: City of Lakeland, Department of Electric & Water Utilities

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes, and fully understands the applicant's rights under that section.

With regard to the above referenced license (permit, certification) application, the applicant hereby with full knowledge and understanding of (his) (her) (its) rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right under Sections 120.60(2) and 403.0876, Florida Statutes, to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed in Sections 120.60(2) and 403.0876, Florida Statutes. Said waiver is made freely and voluntarily by the applicant, is in (his) (her) (its) self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 1st day of August 1993.

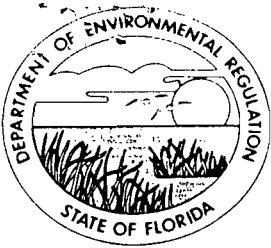
The undersigned is authorized to make this waiver on behalf of the applicant.


SIGNATURE

G. A. "Bill" Rodriguez
NAME (PLEASE TYPE OR PRINT)

Mgr. of Environmental Affairs

Date: May 5, 1993



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

May 3, 1993

Ms. Farzie Shelton
Environmental Coordinator
Lakeland Dept. of Electric
& Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Re: Amendment of Construction Permit No. AC53-190437
Larsen Power Plant Unit No. 8

Dear Ms. Shelton:

Continuing our response of your March 10 letter, we have reviewed the remaining revisions you requested for the above construction permit.

Gas turbines are referred to as either simple or combined cycle. In the Project Description of your permit application dated December, 1990, you stated that the facility is a combined cycle gas turbine. Therefore, your request to delete combined cycle in Specific Condition No. 6 has been denied. This facility falls under the definition for a combined cycle gas turbine given in 40 CFR 60.41a.

On April 3, 1991, the Lakeland Electric & Water Utilities Manager, Alfred M. Dodd, requested by letter that Specific Condition No. 6 of the permit be revised to increase the maximum annual firing, using No. 2 fuel oil from 25% to 1/3 of the annual capacity factor. At that time, we granted your request. Firing natural gas is preferred over No. 2 fuel oil and permits issued recently for similar facilities are limited to 400 hrs/yr or less. Therefore, the utilization rate will not be deleted from Specific Condition No. 6 of the permit.

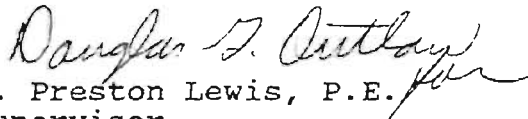
In order to proceed with your request to revise the tons per year allowable emission limit for SO₂ in Table 1, you will have to submit the appropriate compliance test data for natural gas firing. Upon receipt of this data, your request to revise Table 1 will be considered.

You requested a refund of the application fee (we assume it was submitted on September 17, 1992, not 1993). Applications for operating permits submitted after December 31, 1992, are entitled to a refund of the application fee. If your application was submitted on September 17, 1992, it does not qualify for a refund (see 17-213.210 and 17-210.200, F.A.C.).

Ms. Farzie Shelton
Amendment of AC53-190437
Page Two

If you have any questions, please call Charles Logan or myself at
(904) 488-1344.

Sincerely,


G. Preston Lewis, P.E.
Supervisor
Air Permitting and Standards

GPL/CL/plm

cc: David Zell, FDER
John Brown, FDER
Jim Pennington, FDER
Buck Owen, FDER
Jewell Harper, EPA

DISTRICT ROUTING SLIP

TO: David Zell

DATE: 5-3-93

CC
TO

	PENSACOLA	Northwest District							
	PANAMA CITY	Northwest District Branch Office							
	TALLAHASSEE	Northwest District Branch Office							
X	TAMPA	Southwest District							
	ORLANDO	Central Florida District							
	MELBOURNE	Central Florida District Branch Office							
	JACKSONVILLE	Northeast District							
	GAINESVILLE	Northeast District Branch Office							
	FORT MYERS	South Florida District							
	PUNTA GORDA	South Florida District Branch Office							
	MARATHON	South Florida District Branch Office							
	WEST PALM BEACH	Southeast Florida District							
	PORT ST. LUCIE	Southeast Florida District Branch Office							
<table border="0"><tr><td>Reply Optional <input type="checkbox"/></td><td>Reply Required <input type="checkbox"/></td><td>Info Only <input type="checkbox"/></td></tr><tr><td>Date Due: _____</td><td>Date Due: _____</td><td></td></tr></table>				Reply Optional <input type="checkbox"/>	Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>	Date Due: _____	Date Due: _____	
Reply Optional <input type="checkbox"/>	Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>							
Date Due: _____	Date Due: _____								

COMMENTS:

D.E.R.

MAY 05 1993

**SOUTHWEST DISTRICT
TAMPA**

FROM: Charles
Logan

TEL: SC
278-1344



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

April 26, 1993

Ms. Farzie Shelton
Environmental Coordinator
Lakeland Dept. of Electric
& Water Facilities
501 East Lemon Street
Lakeland, FL 33801-5050

Re: Amendment of Construction Permit No. AC53-190437
Larsen Power Plant Unit No. 8

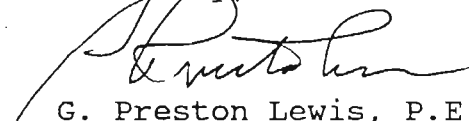
In order to proceed with your request to amend the above referenced permit by revising Specific Condition No. 13, please demonstrate that your facility has complied with 40 CFR 60, Subpart GG, Section 60.335 (f)(1).

In order to demonstrate such compliance, please provide the gas turbine's model number and a copy of or reference to the "Notice of Approval" for that model in the Federal Register. Upon receipt of this information, your request to revise Specific Condition No. 13 will be considered.

You will receive separate correspondence in regard to your request for return of the application fees and revision of Specific Condition No. 6 and Table 1.

If you have any questions, please call Charles Logan at (904) 488-1344.

Sincerely,



G. Preston Lewis, P.E.
Supervisor
Air Permitting and Standards

GPL/CL/plm

cc: David Zell, FDER
John Brown, FDER
Jim Pennington, FDER
Buck Oven, FDER
Jewell Harper, EPA



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

(813) 499-6603

Farzie Shelton

ENVIRONMENTAL COORDINATOR, Ch E.

Mr. Preston Lewis P.E.
Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee Florida 32399-2400

March 10, 1993

RECEIVED
MAR 15 1993

Department of Environmental Regulation
SOUTH WEST DISTRICT

Re: **Modification of Construction Permit No. AC53-190437 - Larsen
Power Plant Unit No. 8**

Dear Mr. Lewis:

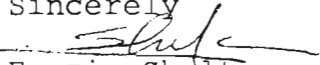
We are in the process of obtaining an air operating permit for our Unit No. 8 (a combined cycle gas turbine) at Larsen Power Plant. To that end, we have received from DER Southwest District office a draft permit, encompassing all conditions covered by our construction permit. We have approached the Department and have requested certain minor changes to be incorporated in this permit. Although Mr. David Zell, the permitting Engineer, has no objection to these changes he is of the opinion that our construction permit needs to be modified to reflect these changes. we also understand that he has confirmed this in a telephone conversation with you and that you see no problem to accommodate these changes. Therefore, we are writing to request the changes as per enclosure.

Additionally, we would like to request the refund of \$2000.00 application fee we submitted for the operation permit on September 17, 1993 (check No. 00116920). In accordance with Rule 17-213.210 F.A.C. (Annual Operation Licensing Fee) "no permit application processing fee, renewal fee, modification fee or amendment fee is required for an operation permit for a major source of air pollution".

We would appreciate if you would process our request expeditiously as the faith of our operating permit must be decided upon by May 28, 1993 unless a further request for extension of time is filled by us.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely


Farzie Shelton

Enc.

xc: David Zell - DER Tampa office
Bill Rodriguez
Chuck Garing

RECEIVED

MAR 15 1963

Permit No: AC53-190437
PSD-FL-166

Department of Environmental Regulation

SOUTH WEST DISTRICT

The following modifications are in relation to the pages contained in the above referenced permit. Deleted material is represented by ~~strike through~~ and new material is represented by underline:

Page 6 of 10 - Specific Condition:

6. The permitted materials and utilization rates for the ~~combined cycle~~ gas turbine shall not exceed the values as follows:

Maximum No. 2 fuel oil consumption shall not exceed the following limitations: 8,190 gals/hr;
23,914,800 gals/yr.

~~Maximum annual firing using No. 2 fuel oil shall not exceed 1/3 of the annual capacity factor.~~

Rational: The operation of this unit utilizing gas or oil should not be limited to the combined cycle only.

The maximum annual fuel oil could be construed 1/3 capacity in relation to gas burned. Therefore if there is a curtailment of gas no fuel oil can be burned and the unit would be unoperational. Also the previous condition limits the burning of fuel oil to 1/3 capability of the unit during any given year. Therefore it should not be necessary to limit it any further.

Page 8 of 10 - Specific Condition:

13. During performance tests, to determine compliance with the proposed Nox standard, measured Nox emission at 15 percent oxygen will be adjusted to Iso ambient atmospheric conditions by the gas turbines built in automatic control ~~following correction factor:~~

Delete the formula and units.

Rationale: Please see enclosed case justification furnished by GE (gas turbine manufactures) attesting to the capability of the controls.

Permit No: AC53-190437
PSD-FL-166

Table 1 - allowable emission limits:

Pollutant	Standards		Gas Turbine Tons per year	
	Gas Firing	No. 2 Oil	Gas	Oil
SO2	Natural Gas	0.2 % S by Wt	2.6	307

Rational:

The tons/yr of SO2 for gas should be left blank (with no limit) as the 2.6 tons/yr has not been verified by our consulting engineers (Black & Veatch) to be achievable. The 2.6 tons/yr was given as an estimate and we do not have confidence that these estimates of SO2 emissions can be demonstrated if the need should arise to demonstrate compliance during operation. Furthermore, neither the Department nor the EPA under the Clean Air Act (CAA) are concerned about the amount of SO2 emitted while burning gas.



Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

~~Carol M. Browner~~ Secretary

Virginia B. Wetherell

DATE: Mon., March 8, 1993

TIME: 9:30^{am}

SUBJECT: City of Lakeland Larsen Unit 8 Operation Permit
A053-219296

A T T E N D E E S

Name

Affiliation

Telephone

DAVID ZELL

DER-SWD

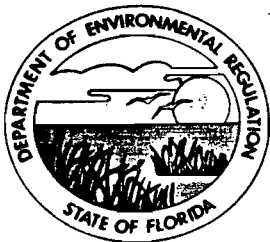
(813) 744-6100 ext 412

Farzie Shelton

City of Lakeland - E&W

(813) 499-6603

TPA-02
02/93



Florida Department of Environmental Regulation

Southwest District

Lawton Chiles, Governor

3804 Coconut Palm

813-744-6100

Tampa, Florida 33619

Carol M. Browner, Secretary

February 26, 1993

Farzie Shelton
Environmental Coordinator
Lakeland Electric & Water
501 East Lemon Street
Lakeland, FL 33801-5050

Dear Mrs. Shelton

Re: Draft Operation Permit No. AO53-219296
Larsen Unit No. 8

As discussed in our phone conversation of February 25, 1993, enclosed is a revised draft of the operation permit for Larsen Unit No. 8. This draft includes revisions made as a result of the suggested modifications requested in your letter of February 24, 1993. In order to help you to identify the revisions, I have attempted to highlight the changes in yellow.

Please review this draft permit and let me know by March 19, 1993 if additional discussions are necessary. Since this revised draft permit represents the Department's response to your suggested modifications, any further discussions involving significant changes to this permit will probably require a meeting. In order to expedite issuance of this permit, any meeting should be scheduled as soon as possible.

In your letter of February 24, 1993 you also requested a refund of your \$2000 operation permit application fee paid on September 17, 1992. I have discussed this request with Harry Kerns and it is not clear how this request should be handled since your fee was submitted and processed in 1992. The Title V Operation Permit rule (Rule 17-213, F.A.C.) states that after December 31, 1992 no permit application processing fee is required for an operation permit for a major source. Any full or partial refund of this fee would have to involve offsetting of Title V annual licensing fees. Since this program is administered totally from the Bureau of Air Regulation in Tallahassee, you will have to contact Preston Lewis (Air Permitting Supervisor) at (904) 488-1344 to further pursue this request.

If you have any questions please contact me at 744-6100 ext. 412.

Sincerely,

David Zell
Permit Engineer

enclosure

BEST AVAILABLE COPY



Florida Department of Environmental Regulation

Station, Electric - 4550 Oak Isle Boulevard - Tampa, Florida 33610-7347

Lawson Carter, Secretary

813-626-6100

Cliff M. Browner, Secretary

WAIVER OF 90 DAY TIME LIMIT UNDER SECTIONS 120.60(2) and 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. 28-1120

Applicant's Name: City of Lakeland Department of Electric & Water Utilities

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes, and fully understands the applicant's rights under that section.

With regard to the above referenced license (permit, certification) application, the applicant hereby with full knowledge and understanding of his (her) (its) rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right under Sections 120.60(2) and 403.0876, Florida Statutes, to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed in Sections 120.60(2) and 403.0876, Florida Statutes. Said waiver is made freely and voluntarily by the applicant, is in his (her) (its) self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 28 day of May 1993.

The undersigned is authorized to make this waiver on behalf of the applicant.


SIGNATURE

G. A. "Bill" Rodriguez
NAME (PLEASE TYPE OR PRINT)

Manager of Environmental Affairs

2/25/93

**LAKELAND
ELECTRIC & WATER**

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001/002

Excellence Is Our Goal. Service Is Our Job.

TELECOPY REQUEST/COVER PAGE

PLEASE DELIVER THE FOLLOWING PAGE(S)

TO: DEF ATTENTION: David ZellTELETYPE NUMBER 813/744-6083FROM: R. Rodriguez TELEPHONE NUMBER 499-6389DATE: 2/25/93 TIME 4:15 PM PMNUMBER OF PAGES (INCLUDING COVER PAGE) 2

FOR INFORMATION ON PROBLEMS, PLEASE CALL (813) 499-6342.



QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER

4876393001

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RECIPIENT'S COPY

Date 02-24-93			
From (Your Name) Please Print Farzie Shelton Company		Your Phone Number (Very Important) (813) 499-6603 Department/Floor No.	
To (Recipient's Name) Please Print David Zell Company		Recipient's Phone Number (Very Important) () Department/Floor No.	
City of Lakeland Street Address 501 E. Lemon Street City Lakeland State FL		Department of Environmental Regulation Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.) 3804 Coconut Palm Drive City Tampa State FL	
ZIP Required 33801		ZIP Required 33619	
YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)			
PAYMENT 1 <input type="checkbox"/> Bill Sender 2 <input type="checkbox"/> Bill Recipient's FedEx Acct. No. 3 <input type="checkbox"/> Bill 3rd Party FedEx Acct. No. 4 <input type="checkbox"/> Bill Credit Card		IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required	
5 <input type="checkbox"/> Cash/Check			
SERVICES (Check only one box)		DELIVERY AND SPECIAL HANDLING (Check services required)	
Priority Overnight (Delivery by next business morning) 11 <input type="checkbox"/> YOUR PACKAGING 16 <input checked="" type="checkbox"/> FEDEX LETTER 12 <input type="checkbox"/> FEDEX PAK 13 <input type="checkbox"/> FEDEX BOX 14 <input type="checkbox"/> FEDEX TUBE Economy Two-Day (Delivery by second business day) 30 <input type="checkbox"/> ECONOMY Freight Service (For packages over 150 lbs.) 70 <input type="checkbox"/> OVERNIGHT FREIGHT 80 <input type="checkbox"/> TWO-DAY FREIGHT		1 <input type="checkbox"/> HOLD FOR PICK-UP (Fill in Box H) 2 <input checked="" type="checkbox"/> DELIVER WEEKDAY 3 <input type="checkbox"/> DELIVER SATURDAY (Extra charge) 4 <input type="checkbox"/> DANGEROUS GOODS (Extra charge) 5 <input type="checkbox"/> 6 <input type="checkbox"/> DRY ICE Lbs. 7 <input type="checkbox"/> OTHER SPECIAL SERVICE 8 <input type="checkbox"/> 9 <input type="checkbox"/> SATURDAY PICK-UP (Extra charge) 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> HOLIDAY DELIVERY (If offered) (Extra charge)	
Standard Overnight (Delivery by next business afternoon, No Saturday delivery) 51 <input type="checkbox"/> YOUR PACKAGING 56 <input type="checkbox"/> FEDEX LETTER 52 <input type="checkbox"/> FEDEX PAK 53 <input type="checkbox"/> FEDEX BOX 54 <input type="checkbox"/> FEDEX TUBE Government Overnight (Restricted for authorized users only) 46 <input type="checkbox"/> GOVT LETTER 41 <input type="checkbox"/> GOVT PACKAGE Declared Value Limit \$500. Call for delivery schedule.		PACKAGES WEIGHT in Pounds Only YOUR DECLARED VALUE Total Total Total DIM SHIPMENT (Chargeable Weight) L x W x H 1 <input type="checkbox"/> Regular Stop 2 <input type="checkbox"/> Drop Box 3 <input type="checkbox"/> B.S.C. 4 <input type="checkbox"/> On-Call Stop 5 <input type="checkbox"/> Station	
		Emp. No. Date <input type="checkbox"/> Cash Received <input type="checkbox"/> Return Shipment <input type="checkbox"/> Third Party <input type="checkbox"/> Chg. To Del. <input type="checkbox"/> Chg. To Hold Street Address City State Zip Received By: X Date/Time Received FedEx Employee Number Release Signature:	
		Federal Express Use Base Charges Declared Value Charge Other 1 Other 2 Total Charges REVISION DATE 2/92 PART #127205 GBFE FORMAT #126 126 © 1991-92 FEDEX PRINTED IN U.S.A.	



USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIRBILL FOR SHIPMENTS TO PORTS AND ALL AIR MAIL LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER

48763930

4876393001



SHIPPER'S FEDERAL EXPRESS ACCOUNT NUMBER 1036-9191-5		Date 02-24-93	
From (Your Name) Please Print Farzie Shelton Company		Your Phone Number (Very Important) 813 499-6603 Department/Floor No.	
To (Recipient's Name) Please Print David Zell Company		Recipient's Phone Number () Department	
City of Lakeland Street Address 501 E. Lemon Street City Lakeland State FL		Department of Environmental Regulation Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.) 3804 Coconut Palm Drive City Tampa State FL	
ZIP Required 33801		ZIP Required 33619	
YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)			
PAYMENT XX 1 <input type="checkbox"/> Bill Sender 2 <input type="checkbox"/> Bill Recipient's FedEx Acct. No. 3 <input type="checkbox"/> Bill 3rd Party FedEx Acct. No. 4 <input type="checkbox"/> Bill Credit Card		IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required	
5 <input type="checkbox"/> Cash/Check			
SERVICES (Check only one box)		DELIVERY AND SPECIAL HANDLING (Check services required)	
Priority Overnight (Delivery by next business morning) 11 <input checked="" type="checkbox"/> YOUR PACKAGING 16 <input checked="" type="checkbox"/> FEDEX LETTER 12 <input type="checkbox"/> FEDEX PAK 13 <input type="checkbox"/> FEDEX BOX 14 <input type="checkbox"/> FEDEX TUBE Economy Two-Day (Delivery by second business day) 30 <input type="checkbox"/> ECONOMY Freight Service (For packages over 150 lbs.) 70 <input type="checkbox"/> OVERNIGHT FREIGHT 80 <input type="checkbox"/> TWO-DAY FREIGHT		1 <input type="checkbox"/> HOLD FOR PICK-UP (Fill in Box H) 2 <input checked="" type="checkbox"/> DELIVER WEEKDAY 3 <input type="checkbox"/> DELIVER SATURDAY (Extra charge) 4 <input type="checkbox"/> DANGEROUS GOODS (Extra charge) 5 <input type="checkbox"/> 6 <input type="checkbox"/> DRY ICE Lbs. 7 <input type="checkbox"/> OTHER SPECIAL SERVICE 8 <input type="checkbox"/> 9 <input type="checkbox"/> SATURDAY PICK-UP (Extra charge) 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> HOLIDAY DELIVERY (If offered) (Extra charge)	
Standard Overnight (Delivery by next business afternoon, No Saturday delivery) 51 <input type="checkbox"/> YOUR PACKAGING 56 <input type="checkbox"/> FEDEX LETTER 52 <input type="checkbox"/> FEDEX PAK 53 <input type="checkbox"/> FEDEX BOX 54 <input type="checkbox"/> FEDEX TUBE Government Overnight (Restricted for authorized users only) 46 <input type="checkbox"/> GOVT LETTER 41 <input type="checkbox"/> GOVT PACKAGE Declared Value Limit \$500. Call for delivery schedule.		PACKAGES WEIGHT in Pounds Only YOUR DECLARED VALUE Total Total Total DIM SHIPMENT (Chargeable Weight) L x W x H 1 <input type="checkbox"/> Regular Stop 2 <input type="checkbox"/> Drop Box 3 <input type="checkbox"/> B.S.C. 4 <input type="checkbox"/> On-Call Stop 5 <input type="checkbox"/> Station	
		Emp. No. Date <input type="checkbox"/> Cash Received <input type="checkbox"/> Return Shipment <input type="checkbox"/> Third Party <input type="checkbox"/> Chg. To Del. <input type="checkbox"/> Chg. To Hold Street Address City State Zip Received By: X Date/Time Received FedEx Employee Number Release Signature:	
		Federal Express Use Base Charges Declared Value Charge Other 1 Other 2 Total Charges REVISION DATE 2/92 PART #127205 GBFE FORMAT #126 126 © 1991-92 FEDEX PRINTED IN U.S.A.	

MULTIPLE PACKAGE SERVICE

**IF YOU ARE
MAKING AN MPS
SHIPMENT, APPLY
THE SELF ADHESIVE
MPS COPY HERE**

TERMS AND CONDITIONS

DEFINITIONS

On this Airbill, we, our and us refer to Federal Express Corporation, its employees and agents. You and your refer to the sender, its employees and agents.

AGREEMENT TO TERMS

By giving us your package to deliver, you agree to all the terms on this Airbill and in our current Service Guide, which is available on request. If there is a conflict between the current Service Guide and this Airbill, the Service Guide will control. No one is authorized to alter or modify the terms of our Agreement.

RESPONSIBILITY FOR PACKAGING AND COMPLETING AIRBILL

You are responsible for adequately packaging your goods and for properly filling out this Airbill. Omission of the number of packages and weight per package from this Airbill will result in a billing based on our best estimate of the number of packages received from you and an estimated "default" weight per package, as determined and periodically adjusted by us.

AIR TRANSPORTATION TAX INCLUDED

Our basic rate includes a federal tax required by Internal Revenue Code Section 4271 on the air transportation portion of this service.

LIMITATIONS ON OUR LIABILITY AND LIABILITIES NOT ASSUMED

Our liability for loss or damage to your package is limited to your actual damages or \$100, whichever is less, unless you pay for and declare a higher authorized value. We do not provide cargo liability insurance, but you may pay an additional charge for each additional \$100 of declared value. If you declare a higher value and pay the additional charge, our liability will be the lesser of your declared value or the actual value of your package.

In any event we will not be liable for any damages, whether direct, incidental, special or consequential in excess of the declared value of a shipment, whether or not Federal Express had knowledge that such damages might be incurred including, but not limited to, loss of income or profits.

We won't be liable for your acts or omissions, including but not limited to improper or insufficient packing, securing, marking or addressing, or for the acts or omissions of the recipient or anyone else with an interest in the package. Also, we won't be liable, if you or the recipient violates any of the terms of our agreement. We won't be liable for loss of or damage to shipments of prohibited items.

We won't be liable for loss, damage or delay caused by events we cannot control, including but not limited to acts of God, perils of the air, weather conditions, acts of public enemies, war, strikes, civil commotions, or acts or omissions of public authorities (including customs and quarantine officials) with actual or apparent authority.

DECLARED VALUE LIMITS

The highest declared value we allow for FedEx Letter and FedEx Pak shipments is \$500. For other shipments, the highest declared value we allow is \$25,000 unless your package contains items of "extraordinary value," in which case the highest declared value we allow is \$500. Items of "extraordinary value," include artwork,

jewelry, furs, precious metals, negotiable instruments, and other items listed in our current Service Guide.

If you send more than one package on this Airbill, you may fill in the total declared value for all packages, not to exceed the \$100, \$500 or \$25,000 per package limit described above. (Example: 5 packages can have a total declared value of up to \$125,000.)

If more than one package is shipped on this airbill, our liability for loss or damage will be limited to the actual value of the package(s) lost or damaged (not to exceed the lesser of the total declared value or the per package limits described above). You have the responsibility of proving the actual loss or damage.

FILING A CLAIM

ALL CLAIMS MUST BE MADE BY YOU IN WRITING. You must notify us of your claim within strict time limits. See current Service Guide.

We'll consider your claim filed if you call and notify our Customer Service Department at 800-238-5355 and notify us in writing as soon as possible.

Within 90 days after you notify us of your claim, you must send us all relevant information about it. We are not obligated to act on any claim until you have paid all transportation charges, and you may not deduct the amount of your claim from those charges.

If the recipient accepts your package without noting any damage on the delivery record, we will assume that the package was delivered in good condition. In order for us to process your claim, you must, to the extent possible, make the original shipping cartons and packing available for inspection.

RIGHT TO INSPECT

We may, at our option, open and inspect your packages prior to or after you give them to us to deliver.

NO C.O.D. SERVICES

NO C.O.D. SERVICES ON THIS AIRBILL. If C.O.D. Service is required, please use a Federal Express C.O.D. airbill for this purpose.

RESPONSIBILITY FOR PAYMENT

Even if you give us different payment instructions, you will always be primarily responsible for all delivery costs, as well as, any cost we may incur in either returning your package to you or warehousing it pending disposition.

RIGHT OF REJECTION

We reserve the right to reject a shipment at any time, when such shipment would be likely to cause damage or delay to other shipments, equipment or personnel, or if the transportation of which is prohibited by law or is in violation of any rules contained in this Airbill or our current Service Guide.

MONEY-BACK GUARANTEE

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund or credit all transportation charges. See current Service Guide for further information.



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

D.E.R.

(813) 499-6603

DEC 14 1992

SOUTHWEST DISTRICT
TAMPA

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

Mr. W.C. Thomas, P.E.
District Air Program Administrator
Florida Department of Environmental Regulation
3804 Coconut Palm Drive
Tampa, Florida 33619

December 11, 1992

Dear Mr. Thomas:

**Re: Construction Permit AC53-190437 and Air Operating (Draft)
Permit AO53-212296 - Unit No. 8 Larsen Power Plant**

In compliance with our construction permit and as per our communication of September 17, 1992, please find enclosed the original and a copy of the completed Certificate of Completion of Construction in relation to the combined cycle mode of this unit.

Accordingly we are requesting that the draft operating permit be amended to reflect both modes of operation (simple and combined cycles). However, please be advised that presently we are in the process of reviewing the draft operating permit and would be forwarding our written comments in due course.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely

Farzie Shelton

Enc.

cc: Bill Rodriguez
Chuck Garing
David Zell - DER



G. A. Rodriguez
MANAGER OF
ENVIRONMENTAL AFFAIRS

D.E.R.

DEC 03 1992

December 2, 1992

SOUTHWEST DISTRICT TAMPA

Mr. David Zell
Department of Environmental Regulation
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Air Operating (Draft) Permit N°A053-212296
Unit N° 8. Larsen Power Plant

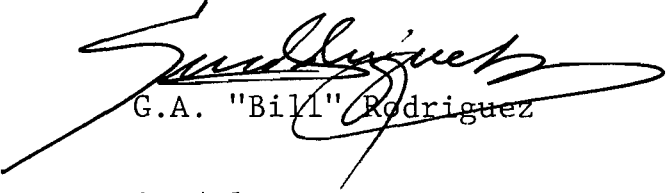
Dear Mr. Zell:

As we agreed in our telephone conversation of December 1, 1992, please find a signed waiver of 90-day time limit for our Larsen Power Plant Unit N° 8 Draft Permit.

With the holidays upon us and awaiting comments from our people and consultants, we feel this additional time is needed in order for us to review this permit in a proper manner.

Thanks again for your cooperation. If you have any questions concerning this request, please contact me at (813)499-6589.

Sincerely,



G.A. "Bill" Rodriguez

GAR/slj

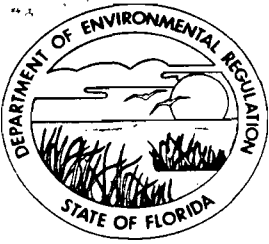
enclosure

xc: Farzie Shelton

BEST AVAILABLE COPY

Transmit Confirmation Report

No.	:	003	
Receiver	:	8-813-499-6344	
Transmitter	:	DER TPA AIR	
Date	:	Dec 01 92	14:54
Time	:	02:03	
Mode	:	Norm	
Pages	:	04	
Result	:	OK	



Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

Carol M. Browner, Secretary

FACSIMILE TRANSMISSION SHEET

DATE Dec. 1, 1992

TO: Bill Rodriguez - Lakeland Elec. & Water
DEPT: Environmental
PHONE: (813) 499-6589

FROM: DAVID ZELL - AIR PERMITTING
DEPT.: DER, SOUTHWEST DISTRICT
PHONE: (813) 744-6100 SUNCOM 542-6100 EXT. 412

OPERATOR: DZ EXT.

SUBJECT: Waiver Request Form used by SW District

TOTAL NUMBER OF PAGES, INCLUDING COVER PAGE: 4

AIR PROGRAM FAX NUMBER IS (813) 744-6083
SUNCOM 542-6083



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor

813-620-6100

Carol M. Browner, Secretary

WAIVER OF 90 DAY TIME LIMIT UNDER SECTIONS 120.60(2) and 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. A053-212296

Applicant's Name: City of Lakeland, Dept. of Electric & Water Utilities

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes, and fully understands the applicant's rights under that section.

With regard to the above referenced license (permit, certification) application, the applicant hereby with full knowledge and understanding of (his) (her) (its) rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right under Sections 120.60(2) and 403.0876, Florida Statutes, to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed in Sections 120.60(2) and 403.0876, Florida Statutes. Said waiver is made freely and voluntarily by the applicant, is in (his) (her) (its) self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 1st day of March 1993.

The undersigned is authorized to make this waiver on behalf of the applicant.


SIGNATURE

G. A. "Bill" Rodriguez
NAME (PLEASE TYPE OR PRINT)

Mgr of Environmental Affairs

Date: December 2, 1992



**LAKELAND
ELECTRIC & WATER**

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(813) 499-6603

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

November 25, 1992

RECEIVED
NOV 25 1992

HAND DELIVERED

Mr David Zale
Department of Environmental Regulation
3804 Coconut Palm Drive
Tampa Florida 33619

Department of Environmental Regulation
SOUTH WEST DISTRICT

Dear Mr Zale:

Re: Air operating permit No: A053-²¹⁹²⁹⁶~~212296~~ for Unit #8 at Larsen
Power Plant - Lakeland Electric & Water.

In connection to our request, we thank you for affording us a draft of the above referenced permit for our review. We understand that you would like to issue this permit in three weeks time. Ordinarily we would agree that three weeks would be sufficient time for a permittee to review a draft permit. However, due to this time coinciding with the two public holidays we are experiencing difficulties to have all personnel and consultant concern with this project to review this document.

Therefore we are writing to request that you consider extending this review time until January 10, 1993. In the meantime I would like to bring to your attention that the construction of the combined cycle of this unit has been completed and I would be submitting a certificate of completion and requesting the operating permit to cover both mode of operations.

If you should have any problem with our request for extension of the review time, please let me know as soon as possible. If we do not receive any communication from you we would consider our request has been warranted.

Sincerely


Farzie Shelton

Will need
received
Called & left message
11/30/92
4:05
To Jan 30, 1993
Call & tell & send for
form.

City of Lakeland • Department of Electric & Water Utilities

501 East Lemon Street • Lakeland, FL 33801-5050 • (813) 499-6300 • Fax 499-6344 • Message System 499-6592



Farzie Shelton
CHEMICAL ENGINEER

September 17, 1992

HAND DELIVERED

Mr W.C. Thomas, P.E.
District Air Program Administrator
Florida Department of Environmental Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Re: Application To Operate Unit Number 8 - Larsen Power Plant

Dear Mr. Thomas:

In compliance with Construction Permit AC53-190437 and Rule 17-4.220 F.A.C. please find enclosed the results of initial compliance tests on the above referenced unit. Also enclosed please find the original and a copy of the completed Certificate of Completion of Construction and Application to Operate Air Pollution Sources together with a check for the sum of \$2,000.00 (check No. 116920) payable to the Department of Environmental Regulation covering the Operating Permit Application fee.

Please be advised that we would endeavor to notify the Department of completion of construction for the combined cycle portion of this unit in due course. However as per our communication dated June 2, 1992 (copy enclosed) we would not be performing any further compliance testing.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely

Farzie Shelton
Environmental Coordinator
Environmental Division

RECEIVED
SEP 17 1992

Department of Environmental Regulation
SOUTH WEST DISTRICT
BY _____

cc: G. A. Rodriguez - Manager Of Environmental Affairs

Enc.



BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

City of Lakeland, Florida
Larsen Unit 8

B&V Project 16587.030
B&V File 32.0404
September 11, 1992

Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Subject: Permitting Certificate of
Completion of Construction
Application to Operate

Attention: Mr. Alfred M. Dodd, Manager
of Production Engineering

Gentlemen:

Enclosed are the originals and two copies of the completed Certificate of Completion of Construction and Application to Operate Air Pollution Sources forms for the Larsen Unit 8 combustion turbine. After your review, affix your signature and the date to the first page of the certificate and application. Then transmit the originals and one copy, along with a check in the amount of \$2,000.00 for the filing fee to the Florida Department of Environmental Regulation (FDER). One copy is for your files. Enclosed for your convenience is a suggested transmittal letter to the FDER.

If questions arise regarding this information, please call Stanley Rasmussen at 913-339-2124 or me at 913-339-2028.

Very truly yours,

BLACK & VEATCH

D. D. Schultz

BBH:kjj
Enclosures

cc: G. A. Rodriguez, w/enc.
S. M. Day, w/enc.
S. L. Rasmussen, w/enc.

RECEIVED
SEP 17 1992

Department of Environmental Regulation
SOUTH WEST DISTRICT

BY _____

SUGGESTED TRANSMITTAL LETTER

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

Attention: Mr. Barry Andrews

Gentlemen:

Enclosed are the originals and one copy each of the completed Certificate of Completion of Construction and Application to Operate Air Pollution Sources forms for the combustion turbine (Unit 8) located at our Charles Larsen Power Plant (permit no. AC 53-190437/PSD-FL-166).

If questions arise regarding this information, please call me at or Don Schultz with Black & Veatch at 913-339-2028.

Very truly yours,

Alfred M. Dodd, Manager
of Production Engineering

Enclosures

cc: D. D. Schultz, w/enc.



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

Gary 771/1116

(813) 499-6603

Farzie Shelton
CHEMICAL ENGINEER

D. E. R.

JUL 23 1992

SOUTHWEST DISTRICT
TAMPA

July 21, 1992

Mr W.C. Thomas, P.E.
District Air Program Administrator
Florida Department of Environmental Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Re: Construction Permit Number AC 53-190437 (PSD-FL-166)
Notice of Actual Start-up.

Dear Mr. Thomas:

In compliance with the above referenced permit and 40 CFR Part 60.7(3) please be advised that the actual start-up of our Unit Number 8 at Larsen Power Plant commenced on July 9, 1992.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely

Farzie Shelton
Environmental Coordinator
Environmental Division

cc: G. A. Rodriguez - Manager Of Environmental Affairs



D. E. R.

JUN 3 1992

SOUTHWEST DISTRICT
TAMPA

June 2, 1992

G. A. Rodriguez
MANAGER OF
ENVIRONMENTAL AFFAIRS

FEDERAL EXPRESS/
OVERNIGHT DELIVERY

Mr. W. C. Thomas, P.E.
District Air Program Administrator
State of Florida, Department of
Environmental Regulation
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

Dear Mr. Thomas:

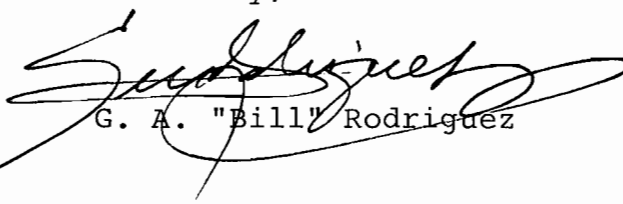
Re: Construction Permit No. AC 53-190437
(PSD-FL-166)/Notice of Start-up

Please be advised that we anticipate initial start-up of the above-referenced unit on July 8, 1992. However, we intend to begin construction debugging the first week of June, 1992, prior to the start-up.

Please also note that the construction of the simple cycle for the above unit would be completed 3-4 months prior to the completion of the combined cycle. In accordance with the enclosed letter, dated June 1, 1992, from our consulting engineer, Black & Veatch, which is responsible for the design and construction of this unit, we feel the compliance test in the simple-cycle mode should demonstrate the compliance of this unit for both modes of operation. Therefore, we intend to perform our compliance tests on the simple cycle for which we would furnish you thirty (30) days' advance notice.

If you have any questions, please do not hesitate to contact me at 499-6589 or Farzie Shelton at 499-6603.

Sincerely,



G. A. "Bill" Rodriguez

FS/bls
Enclosure

xc: A. Dodd (w/Encl.)
F. Shelton (w/Encl.)

BEST AVAILABLE COPY



BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

City of Lakeland
Larsen Repowering Project

B&V Project 16587
B&V File 14.0200
June 1, 1992

FACSIMILE

Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

Subject: Combustion Turbine Operation

Attention: Mr. Alfred M. Dodd, Manager
of Production Engineering Division

Gentlemen:

During operation of the Combustion Turbine Generator in the simple cycle mode, the combustion gasses will bypass the HRSG and be exhausted through the bypass stack. No air emission controls are being bypassed, and hence the emission rates will be identical in either simple cycle or combined cycle mode.

Operating with either the exhaust gasses passing through the bypass stack or the HRSG stack was modeled for the air permit application. The predicted ground level impacts were shown to be below the significant level in both cases by the model.

Very truly yours,

BLACK & VEATCH

D. D. Schultz

Its

cc: Mr. D. A. Lampitt

16587010

Post-It™ brand fax transmittal memo 7871		# of pages > 1
To: <i>Al Dodd</i>	From: <i>D. D. Schultz</i>	
City of Lakeland	Black & Veatch	
Dept:	913-339-2028	
Page: 813-499-6344	913-339-2934	

Berry Andrews

D.E.R.

OGC FILE CLOSING FORM

Deputy General Counsel

Carol Northman

Attorney

None Benson

Date 12/20/91

SUBJECT DISTRICT 8754 Case Style

TAMPA

City of Lakeland
v. DER

The above-referenced OGC file is being closed and sent to archives for storage. See below for summary of final disposition.

ENFORCEMENT CASE

- ☐ Draft Consent Order received, case resolved informally.
- ☐ Consent Order executed, all conditions met.
- ☐ Draft Notice of Violation received, case resolved informally.
- ☐ Notice of Violation issued, Final Order filed, all conditions met.
- ☐ Circuit Court action, document processed, all conditions met.
- ☐ Other (please specify)

PERMITTING CASE: Permit Application # AC53-190437

Final Permit Status: ☒ Issued ☐ Denied ☐ Withdrawn
Date: 7/26/91

- ☒ Request for Extension of Time - No Petition was Filed.
- ☐ Request for Extension of Time - Petition Filed.
Final Order Filed (date)
- ☐ Petition for Hearing Filed.
Final Order Filed (date)
- ☐ Appellate Court action, document processed, all conditions met.
- ☐ Other (please specify)

OTHER CASES (RULEMAKING, PERSONNEL, ETC.)

Final Disposition

cc: District Manager

March 1990

SWD

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Bill Thomas

Date: 8-12-91

C.C. To:

	Pensacola	Northwest District	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
<input checked="" type="checkbox"/>	Tampa	Southwest District	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	Orlando	Central District	
	Melbourne	Central District Satellite Office	
	Jacksonville	Northeast District	
	Gainesville	Northeast District Branch Office	
	Fort Myers	South District	
	Marathon	South District Branch Office	
	West Palm Beach	Southeast District	
	Port St. Lucie	Southeast District Branch Office	
Reply Optional <input type="checkbox"/>		Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>
Date Due: _____		Date Due: _____	

Comments:

D.E.R.

AUG 14 1991

SOUTHWEST DISTRICT TAMPA

From: C. H. Fancley

Tel.: 278-1344



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

4APT-AEB

AUG 06 1991

RECEIVED

AUG 09 1991

Division of Air
Resources Management

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) final determination and permit for the modification to the above referenced source, by letter dated July 26, 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 33%. 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) 347-5014.

Sincerely yours,

Jewell A. Harper, for

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

cc: P. Lewis
B. Andrews
C. Holladay
A. Dodd, City of Lakeland
B. Thomas, SW Dist.
S. Day, B&D
C. Shauer, NPS

Gary

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Bill Thomas

Date: 5-21-91

C.C. To:

Pensacola	Northwest District	
Panama City	Northwest District Branch Office	
Tallahassee	Northwest District Branch Office	
Apalachicola	Northwest District Satellite Office	
Tampa	Southwest District	
Punta Gorda	Southwest District Branch Office	
Bartow	Southwest District Satellite Office	
Orlando	Central District	
Melbourne	Central District Satellite Office	
Jacksonville	Northeast District	
Gainesville	Northeast District Branch Office	
Fort Myers	South District	
Marathon	South District Branch Office	
West Palm Beach	Southeast District	
Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐
Date Due _____

Reply Required ☐
Date Due: _____

Info Only ☐

Comments:

RECEIVED

MAY 22 1991

Department of Environmental Regulation
SOUTH WEST DISTRICT

BY _____

From:

C. H. Gancy

Tel:

278-1340



G. A. Rodriguez
MANAGER OF
ENVIRONMENTAL AFFAIRS

RECEIVED

MAY 17 1991

Division of Air
Resources Management
May 15, 1991

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

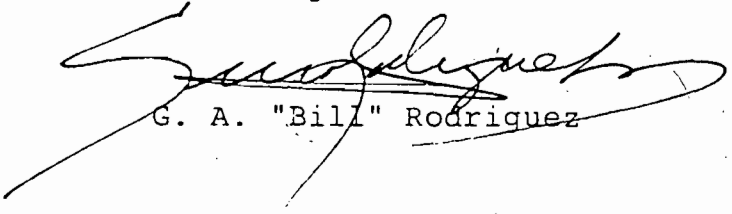
Attention Mr. Barry Andrews

Ladies and Gentlemen:

On April 23, 1991, Mr. Steven M. Day, of Black & Veatch, and Mr. G. A. "Bill" Rodriguez, of the City of Lakeland, met with your staff to discuss the draft PSD permit conditions for the Larsen combustion turbine addition. During that meeting, the FDER requested additional justification from the City of Lakeland for increasing the annual oil firing capacity. FDER's proposed permit conditions limited the annual capacity for fuel oil firing to only 25%. The City of Lakeland desired to raise the capability slightly to allow firing fuel oil for 4 months per year. The City of Lakeland has prepared the enclosed justification to support the City's position.

If you have any further questions concerning this matter, please call me at (813) 499-6589 or Mr. Day at (913) 339-2880.

Sincerely,


G. A. "Bill" Rodriguez

/bls
Enclosure

xc: S. Day, Black & Veatch (w/Encl.)
A. Dodd, Lakeland (w/Encl.)
C. Fancy, FDER (w/Encl.)
P. Lewis, FDER (w/Encl.)

C. Holladay
B. Thomas, SW Dist
G. Harper, EPT
C. Hauer, M&E

City of Lakeland Combustion Turbine Addition

Justification for Increasing Annual Fuel Oil Firing Capacity

The City of Lakeland recently submitted a Prevention of Significant Deterioration (PSD) application for a combined cycle combustion turbine addition at their Larsen Plant. The proposed turbine will utilize a low NO_x burner design to limit NO_x emissions to 25 ppmvd during natural gas firing and 42 ppmvd for No. 2 fuel oil use. With this permit application, the City of Lakeland has also limited the maximum sulfur content of the fuel oil to 0.2 percent for the proposed unit. This limitation is significantly lower than recent permit applications of 0.3 to 0.5 percent sulfur oil. It should be also noted that the City of Lakeland will be retiring an existing unit which is permitted at 2.5 percent fuel oil as part of the planned Larsen Facility improvements.

The FDER approved the permit application for the proposed combustion turbine and issued a set of draft permit conditions for the City of Lakeland's review. These conditions include a 25 percent annual capacity limit for No. 2 fuel oil firing and no capacity restrictions for natural gas firing.

Representatives from the City of Lakeland and Black & Veatch met with the FDER in Tallahassee on April 23, 1991 to propose some changes to the draft permit conditions. The main change was to increase the oil firing annual capacity from 25 percent to one-third capacity (four months per year). At that meeting, FDER requested additional information to support the capacity change. The remainder of this document provides the justification for this request.

The change in capacity would be consistent with the permit conditions currently being revised for the City of Vero Beach's proposed combustion turbine application. That permit will include a provision for raising the capacity to 33 percent if low NO_x burners are installed and compliance testing establishes a NO_x emission rate of 42 ppmvd or less. The City of Lakeland Project already has this lower NO_x emission limit and therefore, one-third capacity would also be appropriate.

Other Florida combustion turbine projects have recently received PSD permits that included annual capacity restrictions for No. 2 oil firing. For example, Hardee County combustion turbine project has an annual lifetime capacity of 25 percent. That project has associated NO_x emission limits of 42 ppmvd (natural gas) and 65 ppmvd (No. 2 fuel oil). Another example is Florida Power & Light's Lauderdale Repowering project. This project also has a 25 percent capacity for oil firing with an emission rate of 65 ppmvd. Considering the 25 percent capacity limit and the higher NO_x emission rate, these example projects have the potential to emit more annual NO_x emissions (65 ppmvd at 25 percent capacity) compared to the City of Lakeland's project (42 ppmvd at one-third capacity). Therefore, increasing the annual capacity slightly would not impose significant environmental concerns.

The importance of the City of Lakeland's concern regarding interruptible gas supply has become more evident recently. As of May 1, 1991, Florida Gas Transmission (FGT) interrupted the gas supply to several Florida utilities. These utilities are now required to utilize an alternative fuel for an unspecified period. Similar situations have occurred during extreme weather periods.

In addition, there is over 3,500 MW of new gas fired generation planned in the State of Florida during the next 8 to 10 years. This firing will exceed the present and projected capacity of the FGT system, thereby ensuring limited available of natural gas in the future. Gas interruption cannot be predicted and this makes it nearly impossible for utilities to anticipate the backup fuel requirements. Since this type of interruption has occurred throughout the year, the City of Lakeland wants to allow for a little more operating flexibility in providing electric customers with reliable service.

The City of Lakeland feels that this request is consistent with FDER's concept of limiting potential emissions. Also, the City of Lakeland's Larsen combustion turbine represents a "state-of-the-art" facility with low NO_x burner design and low sulfur fuel oil (0.2 percent maximum). It can be shown that this Project will generate less potential emissions during oil firing than similar projects that have been recently permitted. Also, the City of Lakeland has a concern with their obligation to provide reliability electrical service during unpredicted periods of interruptible gas supply.

Harry

State of Florida
Department of Environmental Regulation

District Routing Slip

To: *Bill Thomas*

Date: *5-21-91*

CC. To:

Pensacola	Northwest District	
Panama City	Northwest District Branch Office	
Tallahassee	Northwest District Branch Office	
Apalachicola	Northwest District Satellite Office	
<input checked="" type="checkbox"/> Tampa	Southwest District	
Punta Gorda	Southwest District Branch Office	
Bartow	Southwest District Satellite Office	
Orlando	Central District	
Melbourne	Central District Satellite Office	
Jacksonville	Northeast District	
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Marathon	South District Branch Office	
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Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐
Date Due _____

Reply Required ☐
Date Due: _____

Info Only ☐

Comments:

D. E. R.

MAY 22 1991
SOUTHWEST DISTRICT
TAMPA

From: *C. H. Zancy*

Tel.: *278-1341*



G. A. Rodriguez
MANAGER OF
ENVIRONMENTAL AFFAIRS

RECEIVED

MAY 17 1991

Division of Air
Resources Management
May 15, 1991

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

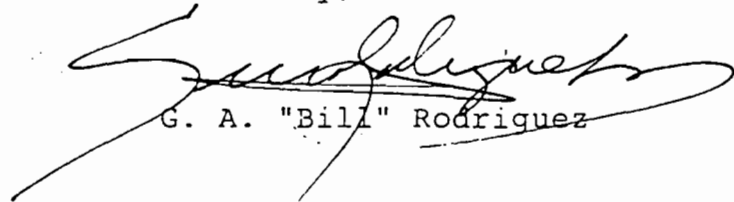
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/bls
Enclosure

xc: S. Day, Black & Veatch (w/Encl.)
A. Dodd, Lakeland (w/Encl.)
C. Fancy, FDER (w/Encl.)
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C. Holladay
B. Thomas, SW Dist ✓
Q. Harper, EPA
C. Hauer, NPS

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OFFICE OF GENERAL COUNSEL
NOTIFICATION OF CASE ASSIGNMENT/TRACKING SYSTEM ENTRY

ASSIGNMENT DATE: 5/16/91
DISTRICT DATE OPEN: _____
REASSIGNMENT DATE: _____
OGC FILE NUMBER: 90-1099

TO: Doug Brason
THROUGH: _____
FROM: Carol Firthman

THE BELOW REFERENCED CASE HAS BEEN ASSIGNED/REASSIGNED TO YOU.
PLEASE HANDLE. ALL FURTHER INQUIRIES FROM DEPARTMENT STAFF WILL
BE DIRECTED TO YOU.

CC: District Manager

CASE NAME: City of Lakeland
N. DER

MODE: P PROGRAM(S): AP 1 1

DISTRICT: SWD COUNTY: 53-Polk

PERMIT/APPLICATION/FACILITY ID #: AC 53-190437

Petition for Administrative Hearing Received: _____

Request for Extension of Time to File

Petition for Administrative Hearing Received: 5/16/91

Draft Consent Order Received: _____

Short-Form/Model Consent Order Received: _____

Draft Notice of Violation Received: _____

Case Report Received: _____

Other: _____

Item Subject: New OGC ~~C~~ Assignments

TO: Duane Revell

Bill

FROM: Iris - OGC - Tallahassee

Received 5/16/91 request for an Administrative Hearing from Eagle Point Homeowners, Inc. concerning permit IO08-177592.

Received 5/16/91 request for an Extension of Time from the City of Lakeland concerning permit AC53-190437.

Received 5/15/91 request for an Extension of Time from Lake Gibson Estates WWTP concerning permit DO53-188985.

Received 5/15/91 request for an Extension of Time from Coca Cola Foods concerning permit IO53-190551.

Item Subject: New OGC C Assignments

TO: Duane Revell

FROM: Iris - OGC - Tallahassee

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Harry
Lary

Barry

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Bill Thomas Date: 5-9-91

CC. To:

<input type="checkbox"/>	Pensacola	Northwest District	
<input type="checkbox"/>	Panama City	Northwest District Branch Office	
<input type="checkbox"/>	Tallahassee	Northwest District Branch Office	
<input type="checkbox"/>	Apalachicola	Northwest District Satellite Office	
<input checked="" type="checkbox"/>	Tampa	Southwest District	
<input type="checkbox"/>	Punta Gorda	Southwest District Branch Office	
<input type="checkbox"/>	Bartow	Southwest District Satellite Office	
<input type="checkbox"/>	Orlando	Central District	
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<input type="checkbox"/>	Gainesville	Northeast District Branch Office	
<input type="checkbox"/>	Fort Myers	South District	
<input type="checkbox"/>	Marathon	South District Branch Office	
<input type="checkbox"/>	West Palm Beach	Southeast District	
<input type="checkbox"/>	Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐
Date Due _____

Reply Required ☐
Date Due: _____

Info Only ☐

Comments:

D.E.R.

MAY 13 1991

SOUTHWEST DISTRICT TAMPA

From:

Barry Andrews

Tel.:

278-1344



United States Department of the Interior
FISH AND WILDLIFE SERVICE



IN REPLY REFER TO:

RW Air Quality
Mail Stop 60130

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

MAY 03 1991

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

RECEIVED

MAY 7 1991

Division of Air
Resources Management

Dear Mr. Fancy:

We have completed our review of the City of Lakeland's PSD permit application and the Florida Department of Environmental Regulation's (FDER) Technical Evaluation and Preliminary Determination Document for the proposed construction of a combined cycle combustion turbine generator at the existing Charles Larsen Power Plant. The facility is located approximately 90 km SE of the Chassahowitzka Wilderness Area, a class I area administered by the U.S. Fish and Wildlife Service. Our comments on the best available control technology (BACT), air quality modeling, and air quality related values analyses are discussed below.

We agree that combustion controls and firing of low sulfur fuels (natural gas as the primary fuel and 0.20 percent sulfur fuel oil as the backup fuel) represent BACT to minimize particulate matter and sulfur dioxide (SO₂) emissions from the proposed turbine. The City of Lakeland proposes to control nitrogen oxide (NO_x) emissions by using a "low NO_x combustor" turbine design, in combination with wet (water or steam injection) controls. The resulting NO_x rate proposed for the turbine is 25 parts per million (ppm) for gas firing, and 42 ppm for oil firing.

The City of Lakeland and the FDER also considered Selective Catalytic Reduction (SCR) as an alternative NO_x control system. The SCR technology could reduce NO_x emissions from the proposed turbine to less than 9 ppm, but at a substantial cost. The FDER calculated a cost effectiveness of \$6,441 per ton of NO_x removed to reduce the turbine NO_x emissions from the proposed 25 ppm level to 9 ppm. Based on this cost effectiveness value, the FDER determined that the use of SCR technology is not justified at this time.

If the proposed "low NO_x combustor" design, rather than a standard combustor design (42 ppm NO_x for gas firing), is used as the base case in the BACT determination, we agree that SCR technology is not cost effective on a dollars per ton basis. However, although SCR will not be required for the City of Lakeland's turbine project, we believe that this technology

should be given serious consideration for future permit applications for combined-cycle gas turbine projects.

It is interesting to note that if the cost effectiveness calculation for SCR is made assuming a standard combustor turbine design, the use of SCR could be considered reasonable. For example, using the SCR costs provided by the City of Lakeland, the cost effectiveness to reduce NO_x emissions from 42 ppm to 9 ppm with SCR would only be \$3,883 per ton. In essence, by choosing an "intermediate" NO_x control strategy, and using this strategy as the base case, the City of Lakeland is not being required to use SCR. However, it is also evident that the BACT process is driving emissions downward, and that applicants are looking for ways to inherently lower emissions, rather than opting for add-on flue gas cleaning technologies. Assuming this process continues, and inherently lower emitting systems are developed, such an approach may be preferred from a total environmental standpoint.

Visibility impairment was calculated using the VISCREEN model. The proposed project passed the Level 1 analysis, which indicates that plume impacts at the Chassahowitzka Wilderness Area are unlikely. The VISCREEN analysis calculated a delta E of 0.70 which is under the screening criteria of 2.0, and a plume contrast of 0.001 which is under the screening criteria of 0.50.

The EPA dispersion model Industrial Source Complex Short Term, (ISCST) was applied to calculate impacts of SO_2 and NO_x to the Chassahowitzka Wilderness Area. Five years of National Weather Service surface and upper air data from Tampa, Florida were used in the modeling analysis. Worst case emissions assuming 100 percent fuel oil firing were used in the modeling, and the regulatory default option in ISCST was employed. The results of the modeling indicate that the City of Lakeland project will not consume a large portion of the PSD Class I increments at the wilderness area. The Class I SO_2 increment impacts are 0.93 ug/m^3 for the 3-hour average, 0.2 ug/m^3 for the 24-hour average, and 0.015 ug/m^3 for the annual average. The Class I NO_x increment impact is 0.011 ug/m^3 for the annual average. The Class I particulate matter increment impacts are 0.012 ug/m^3 for the 24-hour average, and 0.001 ug/m^3 for the annual average. Ozone impacts from the volatile organic compound emissions were not modeled because the emissions are below the PSD de minimis level.

We found the dispersion modeling analysis to be deficient in that there was no cumulative class I increment analysis performed that included all increment consuming sources in the airshed impacting the Chassahowitzka Wilderness Area. Therefore, we cannot be certain that the class I increments would not be exceeded. Also, there was no cumulative ambient air quality analysis performed. A cumulative ambient analysis should include an assessment of the impacts from all increment-consuming plus background sources. The cumulative ambient concentrations are necessary to evaluate potential air quality related impacts on sensitive resources in the wilderness area.

Chassahowitzka National Wildlife Refuge was established in 1943 for the purpose of migratory bird conservation. The refuge provides habitat for a number of federally threatened and endangered species including the American alligator, bald eagle, eastern brown pelican, eastern indigo snake, Florida manatee, and three species of sea turtle. We are becoming increasingly concerned about the cumulative impact of emissions on resources, such as lichens and bryophytes, that are known to be particularly sensitive to SO₂. We are also concerned about the potential acidification of surface water in the wilderness area due to increased sulfur and nitrogen deposition. Acidification could have serious implications not only for the invertebrates and fish that would be directly affected, but also for species higher up the food chain that depend on them for food, species such as the alligator, pelican, and bald eagle.

In conclusion, we ask that the FDER require future applicants to perform a cumulative analysis that includes all increment consuming sources having the potential of impacting the Chassahowitzka Wilderness Area. In addition, to assess potential impacts on sensitive air quality related values, it is important for us to know the total ambient concentrations (increment plus background) at the class I area. Recent analyses have revealed that large portions of the 3-hour, 24-hour, and annual SO₂ class I increments in the wilderness area have been consumed. Therefore, FDER permitting decisions are likely to become more difficult and complex in the near future. Early coordination and consultation between our agencies will be critical to carrying out our mutual responsibility of protecting the Chassahowitzka Wilderness Area from adverse air quality impacts.

If you have any questions regarding this matter, please contact Tonnie Maniero of our Air Quality Branch in Denver at (303) 969-2071.

Sincerely,



Wilbur N. Ladd, Jr.
Assistant Regional Director
Refuges and Wildlife, Region 6

cc - P. Lewis
R. Andrews
C. Halladay
B. Thomas, SW Dist
C. Samples, EPA

Yan

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Bill Thomas

Date: 4-9-91

C.C. To:

	Pensacola	Northwest District	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
✓	Tampa	Southwest District	
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Reply Optional <input type="checkbox"/>		Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>
Date Due _____		Date Due _____	

Comments:

D.E.R.

APR 12 1991

SOUTHWEST DISTRICT TAMPA

From: Patthy Adams

Tel.: 278-1344



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)

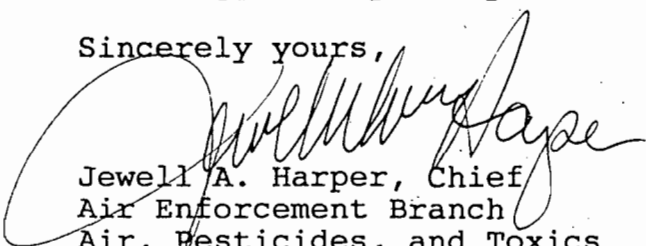
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Thank you for the opportunity to review and comment on this package. If you have any questions or comments on this package, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,


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

cc: P. Lewis

B. Andrews

C. Holladay

B. Thomas, SW Dist. ✓

C. Hauer, NPS



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

- o 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. Halladay

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-121 thru 47; 1991

5340345, Sheriff Lawrence W. Crow, Jr. reserves the right to accept or reject any or all bids.
/s/ Sheriff Lawrence W. Crow, Jr.
C-67 — 41 thru 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. Require 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 I. 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 A.M.
WEBB'S TOWING AND RECOVERY
2005 GARY ROAD, U.S. 92 EAST
LAKELAND, FLORIDA 338012444
(813) 687-0304
FAX: 688-0926
1. 70 OLDSMOBILE, 4 DOOR, VIN 386690M227400
2. 80 DODGE, 4 DOOR, VIN ZL44AAD232941
3. 78 PONTIAC, FIREBIRD, 2187A8N13948D
4. 81 PLYMOUTH HORIZON, VIN 1P3BL14AX8D225952
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 338820711, application #2-105011BAUVM. 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 Section 19, Township 27 SOUTH, Range 27 East; NE 1/4 OF SE 1/4 OF SW 1/4 OF Section 19, Township 27 SOUTH, Range 27 East; NW 1/4 OF SE 1/4 OF SW 1/4 OF Section 19, Township 27 SOUTH, Range 27 East; The file(s) containing each of the abovesetlisted 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 32078-1429. 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 of 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 at 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:

(a) 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;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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

OFFICE OF GENERAL COUNSEL
NOTIFICATION OF CASE ASSIGNMENT/TRACKING SYSTEM ENTRY

ASSIGNMENT DATE: 4.2.91

DISTRICT DATE OPEN: _____

REASSIGNMENT DATE: _____

OGC FILE NUMBER: 91-0754

TO: Doug Beason

THROUGH: _____

FROM: Carol Forchman

THE BELOW REFERENCED CASE HAS BEEN ASSIGNED/REASSIGNED TO YOU.
PLEASE HANDLE. ALL FURTHER INQUIRIES FROM DEPARTMENT STAFF WILL
BE DIRECTED TO YOU.

CC: District Manager

CASE NAME: City of Lakeland, Charles Larsen Power
Plant; U. DER

MODE: D PROGRAM(S): AP 1

DISTRICT: S.W.D. COUNTY: 53- Polk

PERMIT/APPLICATION/FACILITY ID #: AC 53-190437

Petition for Administrative Hearing Received: _____

Request for Extension of Time to File
Petition for Administrative Hearing Received: 3.29.91

Draft Consent Order Received: _____

Short-Form/Model Consent Order Received: _____

Draft Notice of Violation Received: _____

Case Report Received: _____

Other: _____

Item Subject: Petitions rec'd

Rick:

Received an extension of time request 4/1/91 from James Langford vs. DER, #DF41-189089-3. Also an extension of of time request on 3/29/91 from City of Lakeland, Charles Larsen Power Plant; v. DER AC53-190437.

Item Subject: Petitions c'd

Rick:

Received an extension of time request 4/1/91 from James Langford vs. DER, #DF41-189089-3. Also an extension of of time request on 3/29/91 from City of Lakeland, Charles Larsen Power Plant; v. DER AC53-190437.

Bill

State of Florida
Department of Environmental Regulation

District Routing Slip

To: A. Kerns Date: 3-15

C.C. To:

Pensacola	Northwest District	
Panama City	Northwest District Branch Office	
Tallahassee	Northwest District Branch Office	
Apalachicola	Northwest District Satellite Office	
Tampa	Southwest District	
Bartow	Southwest District Satellite Office	
Venice	Southwest District Satellite Office	
Orlando	Central District	
Melbourne	Central District Satellite Office	
Jacksonville	Northeast District	
Gainesville	Northeast District Branch Office	
Fort Myers	South District	
Punta Gorda	South District Branch Office	
Marathon	South District Branch Office	
West Palm Beach	Southeast District	
Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐ Reply Required ☐ Info Only ☐
Date Due _____ Date Due _____

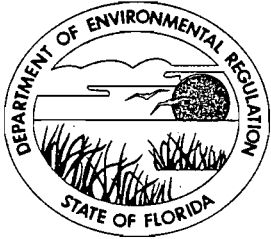
Comments:

RECEIVED
MAR 19 1991

Department of Environmental Regulation
SOUTH WEST DISTRICT

BY _____

From: Clair Fancer Tel.: _____



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

March 15, 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Alfred M. Dodd, P.E.
E & W Engineering Manager
City of Lakeland
Department of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Mr. Dodd:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct and operate a 120 MW combined cycle gas turbine system.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Barry Andrews of the Bureau of Air Regulation.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/PL/plm

Attachments

c: Harry Kerns, SWD ✓
Jewell Harper, EPA

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

City of Lakeland Department of
Electric and Water Utilities
501 E. Lemon Street
Lakeland, Florida 33801-5050

DER File No. AC 53-190437
PSD-FL-166

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue an air construction permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, City of Lakeland-Charles Larson Power Plant, applied on December 17, 1990, to the Department of Environmental Regulation for a permit to construct and operate a 120 MW combined cycle gas turbine generator.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at the address specified within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of receipt of this intent, whichever first occurs. 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:

- (a) 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) 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(s) 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 in 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.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

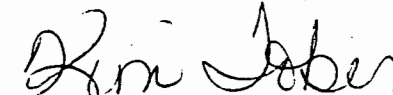
Copies furnished to:

Harry Kerns, SWD
Jewell Harper, EPA

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on 3-15-91.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statute, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.


Clerk

3-15-91
Date

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, 501 E. Lemon Street, Lakeland, Polk County, Florida 33801-5050, 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:

- (a) 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;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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.

Technical Evaluation
and
Preliminary Determination

City of Lakeland-Charles Larsen Power Plant
Lakeland, Florida

120 MW Combined Cycle Gas Turbine System

Permit Number: AC 53-190437
PSD-FL-166

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

March 15, 1991

SYNOPSIS OF APPLICATION

I. NAME AND ADDRESS OF APPLICANT

City of Lakeland
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: December 17, 1990.

III. FACILITY INFORMATION

III.1 Facility Location

This facility is located at S.R. 92 and East Lake Parker Drive in the city of Lakeland, Polk County, Florida. The UTM coordinates are 409.185 km East and 3102.754 km North.

III.2 Facility Identification Code (SIC)

Major Group No. 49 - Electric, Gas and Sanitary Services.

Industry Group No. 493 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4931 - Electric and Other Services Combined.

III.3 Facility Category

The City of Lakeland-Charles Larsen Power Plant is classified as a major emitting facility. The proposed project will emit approximately 425 (gas) and 732 (oil) tons per year (TPY) of nitrogen oxides (NO_x), 2.6 (gas) and 920 (oil) TPY of sulfur dioxide (SO₂), 22 (gas) and 66 (oil) TPY of particulate matter (PM), and 20 (oil) TPY of volatile organic compounds (VOC), 0.01 (oil) TPY of beryllium, 0.12 (oil) TPY of lead, 0.01 (oil) TPY of mercury, and 27.6 (oil) TPY of sulfuric acid mist.

IV. PROJECT DESCRIPTION

The City of Lakeland-Charles Larsen Power Plant proposes to construct and operate a 120 MW combined cycle gas turbine system. The unit will be located at the Charles Larsen Power Plant. The combustion turbine (CT) will be capable of generating approximately 80 MW while operating in simple cycle and 120 MW when in combined cycle operation. While in the combined cycle the heat recovery steam generator (HRSG) will power the existing Larsen Unit 5 steam turbine-generator. The primary fuel will be natural gas and No. 2 fuel oil with a sulfur content of 0.2 percent.

V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code (F.A.C.).

The plant is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 17-2.420.

The proposed project will be reviewed under F.A.C. Rule 17-2.500, Prevention of Significant Deterioration (PSD), because it will be a major modification to a major facility. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, an analysis of the air quality impact of the increased emissions. No air quality impact analysis is required for ozone, even though there will be a significant increase in VOC emissions, because this increase is less than 100 TPY. The review also includes an analysis of the project's impacts on soils, vegetation and visibility; along with air quality impacts resulting from associated commercial, residential and industrial growth.

This source shall comply with the New Source Performance Standards for Gas Turbines, Subpart GG, Appendix A, which is contained in 40 CFR 60, and is adopted by reference in F.A.C. Rule 17-2.660. The proposed source shall also comply with applicable provisions of F.A.C. Rule 17-2.700, Stack Test Procedures, and F.A.C. Rule 17-2.630, Best Available Control Technology.

VI. SOURCE IMPACT ANALYSIS

VI.1 Emission Limitations

The operation of the combined cycle plant will produce emissions of NO_x, SO₂, CO, HC, sulfuric acid mist, PM, PM₁₀, Be, Pb and Hg. The impact of these pollutant emissions are below the Florida ambient air quality standards (AAQS) and/or the acceptable ambient concentration levels (AAC). Table 1 lists each contaminant and its maximum expected emission rate, along with the proposed increase of emissions.

VI.2 Air Toxics Evaluation

The operation of this source will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the acceptable ambient concentrations (AAC) as shown below. Determination of the AAC for these organic compounds shall be determined by Department approved dispersion modeling or ambient monitoring.

$$AAC = \frac{OEL}{\text{Safety Factor}}$$

Where,

AAC = acceptable ambient concentration

Safety Factor = 50 for category B substances and 8 hrs/day
100 for category A substances and 8 hrs/day
210 for category B substances and 24 hrs/day
420 for category A substances and 24 hrs/day

OEL = Occupational exposure level such as ACGIH, ASHA and NIOSH published standards for toxic materials.

MSDS = Material Safety Data Sheets

VI.3 Air Quality Analysis

a. Introduction

The operation of the proposed 120 MW combined cycle gas turbine system will result in emissions increases which are projected to be greater than the PSD significant emission rates for the following pollutants: CO, NO_x, SO₂, PM, PM₁₀, Be, and H₂SO₄ mist. Therefore, the project is subject to the PSD review requirements contained in F.A.C. Rule 17-2.500 for these pollutants. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality;
- A PSD increment analysis (for SO₂, PM, PM₁₀, and NO_x);
- An ambient Air Quality Standards analysis (AAQS);
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts; and
- A Good Engineering Practice (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the combined cycle gas turbine system, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A brief description of the modeling methods used and results of the required analyses follow. A more complete description is contained in the permit application on file.

b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for each pollutant subject to PSD review is given below:

	<u>CO</u>	<u>SO₂</u>	<u>TSP & PM₁₀</u>	<u>NO_x</u>	<u>Be</u>
PSD de minimus Concentration (ug/m ³)	575	13	10	14	.001
Averaging Time	8-hr	24-hr	24-hr	Annual	24-hr
Maximum Predicted Impact (ug/m ³)	2.7	4.7	0.3	0.2	.000005

There are no monitoring de minimus concentrations for H₂SO₄ mist. As shown above, the predicted impacts are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for any pollutant.

c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST) dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Direction-specific downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa, Florida National Weather Service (NWS) station collected during 1982 through 1986 were used in the model. Since five years for data were used, the highest-second-high short-term predicted concentrations are compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards.

For this project emissions from fuel oil burning are significantly higher than those from natural gas combustion, while the gas flow characteristics are fairly similar thus resulting in higher predicted ground level-pollutant impacts from fuel oil combustion. All modeling impacts were, therefore, based on fuel oil consumption. Dispersion modeling for emissions from the HRSG (height of 155 feet) and bypass stacks (height of 100 feet) were performed.

pollutants with Class I increments. The maximum predicted SO₂ increases are 0.015 ug/m³ for the annual averaging time, 0.20 ug/m³ for the 24-hr averaging time and 0.93 for the 3-hr averaging time. The maximum predicted PM increases are 0.001 ug/m³ for the annual averaging time and 0.012 for the 24-hr averaging time. The maximum predicted NO₂ increase is 0.011 ug/m³ for the annual averaging time. These predicted values are all much less than the corresponding Class I increments.

e. Additional Impacts Analysis

The increased emissions at the City of Lakeland Power Plant are not expected to affect the visibility in the Chassahowitzka National Wilderness area located 94 km away because of the very small maximum predicted impacts. Because the impacts from the proposed pollutants are predicted to be less than PSD significance levels, no harmful effects on soils and vegetation is expected. In addition, the proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

VII. CONCLUSION

Based on the information provided by the City of Lakeland Power Plant, the Department has reasonable assurance that the proposed installation of the 120 MW combined cycle gas turbine system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.

Barry D. Adams
#36024
3-15-91

d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would be greater than specified PSD significant impact levels for CO, SO₂, NO_x, PM and PM₁₀. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed source at the following downwind distances: 100 meter intervals from 100 to 1000 meters, 250 meter intervals from 1,250 to 3,000 meters, and 1,000 meter intervals from 4,000 to 10,000 meters. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for CO, SO₂, NO_x, PM and PM₁₀.

<u>Pollutant</u>	<u>Averaging Time</u>	<u>PSD Significance Level (ug/m3)</u>	<u>Ambient Concentration Increase (ug/m3)</u>
CO	8-hour	500	2.7
	1-hour	2000	9.4
SO ₂	Annual	1.0	0.2
	3-hour	25.0	19.7
	24-hour	5.0	4.7
NO ₂	Annual	1.0	0.2
PM/PM ₁₀	Annual	1.0	0.01
	24-hour	5.0	0.3

Therefore, further dispersion modeling for comparison with AAQS and PSD increment consumption were not required in this case.

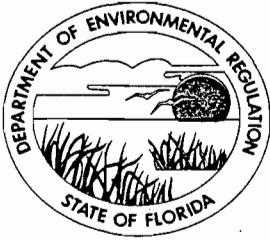
The applicant did not model emissions from the noncriteria regulated pollutants Be and H₂SO₄ for which no ambient air quality standards have been defined under PSD rules. However, based on modeling results provided by the applicant for SO₂ and pertinent information supplied by the applicant for Be and H₂SO₄ mist emissions, the Department calculated predicted ambient air quality impacts, for informational purposes, for comparison with Department-derived de minimus concentration levels (AAC). The calculated value for Be is .000002 ug/m³, annual average, which is less than the de minimus level of .0004 ug/m³, annual average, while the calculated value for H₂SO₄ mist is 0.14 ug/m³, 24-hr average, which is less than the de minimus level of 2.4 ug/m³, 24-hr average.

The Department performed dispersion modeling to determine the predicted ambient concentration increases in the Class I Chassahowitzka National Wilderness Area located 94 km away for the

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	181	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	230	BACT
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	16.5	BACT
VOC	-	-	9	5.0	BACT
CO	-	-	232	59.3	BACT
Mercury (Hg)	-	-	3.0×10^{-6} lbs/MMBtu	.003	Est. by Appl.
Lead (Pb)	-	-	2.8×10^{-6} lbs/MMBtu	0.03	" "
Beryllium (be)	-	-	2.5×10^{-6} lbs/MMBtu	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	1.9×10^{-5} lbs/MMBtu	1.7×10^{-3}	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 25 percent capacity factor for oil firing.



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

City of Lakeland
501 E. Lemon Street
Lakeland, Florida 32961

Permit Number: AC 53-190437

Expiration Date: March 30, 1993

County: Polk

Latitude/Longitude: 28°02'56"N
81°55'25"W

Project: 120 MW Combined Cycle
Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 120 MW combined cycle gas turbine to be located at the City of Lakeland-Charles Larsen Power Plant in Lakeland, Florida. The UTM coordinates are 409.185 km East and 3102.754 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. City of Lakeland-Charles Larsen Power Plant's application dated December 17, 1990.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (x) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from this facility shall not exceed the emission rates listed in Table 1.
2. Unless the Department has determined other concentrations are required to protect public health and safety, predicted acceptable ambient air concentrations (AAC) of the following pollutants shall not be exceeded:

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Pollutant	Acceptable Ambient Concentrations		
	8-hrs	24-hrs	Annual
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Mercury: allyl compounds	0.1	0.024	- RAC = 2
• all forms of vapor			
except allyl	0.5	0.12	-
• allyl & organic			
compounds	1	0.24	-

3. Visible emissions shall not exceed 10% opacity.

Operating Rates

4. This source is allowed to operate continuously (8760 hours per year).

5. This source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 6 below).

6. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:

- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 8,190 gals/hr; 17,936,100 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the oil shall not exceed 0.20 percent by weight.
- Maximum heat input shall not exceed 1055 MMBtu/hr (gas) or 1040 MMBtu/hr (oil).

7. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation and Southwest District offices.

8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Compliance Determination

9. Compliance with the NO_x, SO₂, CO, PM, and VOC standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1990) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

10. Method 5 must be used to determine the initial compliance status of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

11. Compliance with the SO₂ emission limit can also be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid fuels and ASTM D1072-80, D3031-81, D4084-82 or D3246-81 for sulfur content of gaseous fuels.

12. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

13. During performance tests, to determine compliance with the proposed NO_x standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$\text{NO}_x = (\text{NO}_x \text{ obs}) \left(\frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} e^{19} (H_{\text{obs}} - 0.00633) \left(\frac{288^\circ\text{K}}{T_{\text{AMB}}} \right)^{1.53}$$

where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

$NO_x \text{ obs}$ = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in advance of the compliance test. The source shall operate between 90% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. Water injection shall be utilized for NO_x control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. In addition, the Permittee shall install a duct module suitable for future installation of SCR equipment.

16. To determine compliance with the capacity factor condition for oil firing, the Permittee shall maintain daily records of fuel usage. All records shall be maintained for a minimum of three years after the date of each record and shall be made available to representatives of the Department upon request.

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded daily. These records shall also be kept by the company for at least three years and made available for regulatory agency's inspection.

18. Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions shall be demonstrated based on calculations certified by a Professional Engineer registered in Florida, using actual operating conditions. Determination of the ambient concentrations for chemical compounds shall be determined by Department approved dispersion modeling. This compliance determination shall be made available upon request.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes and Chapters 17-2 and 17-4, Florida Administrative Code.

20. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

21. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

22. This source shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

23. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur, nitrogen content and lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office.

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

25. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

Issued this _____ day
of _____, 1991

**STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION**

Carol M. Browner, Secretary

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)			Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year			
			Gas	Oil		
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	181	BACT	
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	230	BACT	
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	16.5	BACT	
VOC	-	-	9	5.0	BACT	
CO	-	-	232	59.3	BACT	
Mercury (Hg)	-	-	3.0×10^{-6} lbs/MMBtu	.003	Est. by Appl.	
Lead (Pb)	-	-	2.8×10^{-6} lbs/MMBtu	0.03	" "	
Beryllium (be)	-	-	2.5×10^{-6} lbs/MMBtu	.003	BACT	
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	1.9×10^{-5} lbs/MMBtu	1.7×10^{-3}	BACT	

(a) Emissions rates based on 100 percent capacity factor for natural gas and 25 percent capacity factor for oil firing.

Best Available Control Technology (BACT) Determination
City of Lakeland-Charles Larsen Power Plant
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Lakeland. The generator system will consist of a single nominal 80 megawatt (MW) combustion turbine, and a single heat recovery steam generator (HRS) which will be used to repower an existing nominal 40 MW steam turbine.

The combustion turbine will be capable of both combined cycle and simple cycle operation. The applicant requested that the combustion turbine use either natural gas or distillate oil. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity and type of fuel fired at ISO conditions to be as follows:

Pollutant	Potential Emissions (tons/yr)		PSD Significant Emission Rate (tons/yr)
	Natural Gas	Fuel Oil	
NOx	425	732	40
SO ₂	2.6	920	40
PM	22.0	66	25
PM ₁₀	22.0	66	15
CO	232	237	100
VOC	9	20.0	40
H ₂ SO ₄	0.8	27.4	7
Be	0.0	0.01	0.0004
Hg	0.0	0.01	0.1
Pb	0.0	0.12	0.6

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 17, 1990

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Determination</u>
NOx	25 ppmvd @ 15% O ₂ (natural gas burning) 42 ppmvd @ 15% O ₂ (diesel oil firing)
SO ₂	Firing of natural gas or No. 2 fuel oil with a maximum sulfur content of 0.20%
PM and PM ₁₀	Combustion control
H ₂ SO ₄	Firing of No. 2 fuel oil with a maximum sulfur content of 0.20%.
Be	Firing of No. 2 fuel oil

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determinations of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- o Combustion Products (Particulates and Heavy Metals). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (CO, VOC, Toxic Organic Compounds). Control is largely achieved by proper combustion techniques.
- o Acid Gases (SOx, NOx, HCl, F1). Controlled generally by gaseous control devices.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "nonregulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., particulates, sulfur dioxide, fluorides, sulfuric acid mist, etc.), if a reduction in "nonregulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

Combustion Products

The City of Lakeland's projected emissions of particulate matter, PM₁₀, and beryllium surpass the significant emission rates given in Florida Administrative Code Rule 17-2.500, Table 500-2 for No. 2 fuel oil firing only.

A PM/PM₁₀ emissions limitation of 0.014 lb/MMBtu for No. 2 fuel oil firing is reasonable as BACT for the Lakeland facility.

In general, the BACT/LAER Clearinghouse does not contain specific emission limits for beryllium from turbines. BACT for these heavy metals is typically represented by the level of particulate control. As this is the case, the emission factor of 0.014 lb/MMbtu for particulate matter PM₁₀ is judged to also represent BACT for beryllium.

Products of Incomplete Combustion

The emissions of carbon monoxide and volatile organic compounds are each below the significant level and therefore do not require a BACT analysis.

Acid Gases

The emissions of sulfur dioxide, nitrogen oxides, and sulfuric acid mist, represent a significant proportion of the total emissions and need to be controlled if deemed appropriate. Sulfur dioxide emissions from combustion turbines are directly related to the sulfur content of the fuel being combusted.

The applicant has proposed the use of natural gas and No. 2 fuel oil with a maximum sulfur content of 0.20% to control sulfur dioxide emissions. A review of the latest edition (1990) of the BACT/LAER Clearinghouse indicates that sulfur dioxide emissions from combustion turbines have been controlled by limiting fuel oil sulfur content to a range of 0.1 to 0.3%, with the average for the facilities listed being approximately 0.24 percent. As this is the case, the applicant's proposal to use No. 2 fuel oil with a maximum sulfur content of 0.20% is judged to represent BACT.

The applicant has stated that BACT for nitrogen oxides will be met by using wet (water or steam) injection necessary to limit emissions to 42 ppmvd or 25 ppmvd at 15% oxygen when burning No. 2 fuel oil or natural gas, respectively.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NOx emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NOx emissions. The SCR process combines vaporized ammonia with NOx in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NOx with a new catalyst. As the catalyst ages, the maximum NOx reduction will decrease to approximately 86 percent.

Given the applicant's proposed BACT level for nitrogen oxides control stated above, an evaluation can be made of the cost and associated benefit of using SCR as follows:

The applicant has indicated that the total levelized annual cost (operating plus amortized capital cost) to install SCR for natural gas firing at 100 percent capacity factor is \$2,190,000. Taking into consideration the total levelized annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NOx emissions with wet injection from the Lakeland facility will be 425 tons/year. Assuming that SCR would reduce the NOx emissions by an additional 80-85%, the SCR would

control at least 340 tons of NOx annually for natural gas firing. When this reduction is taken into consideration with the total levelized annual cost of \$2,190,000, the cost per ton of controlling NOx is \$6,441. This calculated cost is higher than has previously been approved as BACT.

Since SCR has been determined to be BACT for several combined cycle facilities, the EPA has clearly stated that there must be unique circumstances to consider the rejection of such control on the basis of economics.

In a recent letter from EPA Region IV to the Department regarding the permitting of a combined cycle facility (Tropicana Products, Inc.), the following statement was made:

"In order to reject a control option on the basis of economic considerations, the applicant must show why the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant."

A review of the combined cycle facilities in which SCR has been established as a BACT requirement indicates that the majority of these facilities are also intended to operate at high capacity factors. As this is the case, the proposed project is similar to other facilities in which SCR has been established as BACT, thereby supporting SCR as BACT for the proposed facility.

For fuel oil firing, the cost associated with controlling NOx emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

A concern associated with the use of SCR on combined cycle projects is the formation of ammonium bisulfate. For the SCR process, ammonium bisulfate can be formed due to the reaction of sulfur in the fuel and the ammonia injected. The ammonium bisulfate formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible for oil firing in some previous BACT determinations.

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. For natural gas firing operation NOx emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NOx emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 476 tons (65% of 732 tons/yr) of NOx annually for oil firing. When this reduction is taken into consideration with the total annual cost of \$2,190,000, the cost per ton of controlling NOx is \$4,600. This cost is lower than that determined for natural gas firing and is more consistent with what has been accepted as BACT.

Environmental Impact Analysis

The predominant environmental impacts associated with this proposal are related to the use of SCR for NOx control. The use of SCR results in emissions of ammonia, which may increase with increasing levels of NOx control. In addition, some catalysts may contain substances which are listed as hazardous waste, thereby creating an additional environmental burden. Although the use of SCR does have some environmental impacts, the disadvantages do not outweigh the benefit which would be provided by reducing nitrogen oxide emissions by 80 percent. The overwhelming benefit of NOx control by using SCR is substantiated by the fact that nearly one half of all BACT determinations have established SCR as the control measure for nitrogen oxides over the last five years.

In addition to the criteria pollutants, the impacts of toxic pollutants associated with the combustion of natural gas and No. 2 fuel oil have been evaluated. Beryllium for oil fired operation exceeds PSD significant levels. Other toxics are expected to be emitted in minimal amounts, with the total emissions combined to be less than 0.1 tons per year.

Although the emissions of the toxic pollutants could be controlled by particulate control devices such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of the toxic pollutants associated with the firing of natural gas or No. 2 fuel oil.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

1. SCR would reduce output of combustion turbines by one percent.
2. SCR could result in the release of unreacted quantities of ammonia to the atmosphere.

3. SCR would require handling of ammonia by plant operators. Since it is a hazardous material, there is a concern about safety and productivity of operators.
4. SCR results in contaminated catalyst from flue gas trace elements which could be considered hazardous. Safety of operators and disposal of spent catalyst is a concern.

BACT Determination by DER

NOx Control

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, capacity factors ranging from low to high). However, the cost and other concerns expressed by the applicant are valid.

The information that the applicant presented and Department calculations indicates that the incremental cost of controlling NOx (\$6,441/ton) for natural gas is high compared to other BACT determinations which require SCR. However, the cost of controlling NOx emissions for oil firing (\$4,600/ton) could be considered reasonable. Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable at this time as BACT. Therefore, the Department is willing to accept low NOx combustors with the firing of natural gas as the primary fuel. However, No. 2 distillate oil firing must be limited to 25% of the annual capacity factor. The applicant is also expected to design the facility to accomodate SCR should additional oil usage become necessary and SCR becomes a BACT requirement in the future.

SO₂ Control

For sulfur dioxide BACT is represented by firing natural gas or No. 2 fuel oil with an average sulfur content not to exceed 0.20 percent.

Other Emissions Control

The emission limitations for PM and PM₁₀, are based on previous BACT determinations for similar facilities, with the heavy metal beryllium being addressed through the particulate limitation and sulfuric acid mist being addressed through the sulfur dioxide limitation.

The emission limits for the City of Lakeland project are thereby established as follows:

<u>Pollutant</u>	<u>Emission Limit</u>	
	<u>Natural Gas Firing</u>	<u>No. 2 Fuel Oil Firing</u>
NOx	25 ppmvd @ 15% O ₂	42 ppmvd @ 15% O ₂ *
SO ₂	Natural gas as fuel	Sulfur content not to exceed 0.20%
PM & PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu
Sulfuric Acid Mist	Emissions limited by natural gas and No. 2 fuel oil firing	
Beryllium	Emissions limited by natural gas and No. 2 fuel oil firing	

* No. 2 fuel oil usage limited to 25% of the total heat input on an annual basis.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

Approved by:

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

Carol M. Browner, Secretary
Dept. of Environmental Regulation

Date 1991

Date 1991

State of Florida
Department of Environmental Regulation

Harry Gary

District Routing Slip

To: *B. Thomas*

Date: *2-13*

CC. To:

	Pensacola	Northwest District	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
<i>4</i>	Tampa	Southwest District	
	Bartow	Southwest District Satellite Office	
	Venice	Southwest District Satellite Office	
	Orlando	Central District	
	Melbourne	Central District Satellite Office	
	Jacksonville	Northeast District	
	Gainesville	Northeast District Branch Office	
	Fort Myers	South District	
	Punta Gorda	South District Branch Office	
	Marathon	South District Branch Office	
	West Palm Beach	Southeast District	
	Port St. Lucie	Southeast District Branch Office	
Reply Optional <input type="checkbox"/>		Reply Required <input type="checkbox"/>	Info Only <input type="checkbox"/>
Date Due _____		Date Due _____	

Comments:

RECEIVED

FEB 14 1991

Department of Environmental Regulation
SOUTH WEST DISTRICT

BY _____

From:

Clair Fancey

Tel.:



BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

RECEIVED

City of Lakeland, Florida
Combustion Turbine Project

FEB 7 1991

B&V Project 16587
B&V File 32.0402
February 6, 1991

DER-BAQM

FEDERAL EXPRESS

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

Subject: Additional Information
to Support PSD Application

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

Gentlemen:

Mr. Preston Lewis recently requested some general information regarding the existing units at the City of Lakeland's Larsen Power Plant. This information is being sent directly to Mr. Lewis. He requested this information to assist him with the review of the City of Lakeland's recent combustion turbine PSD application.

The provided information includes a larger site arrangement drawing, a summary table of existing unit parameters, and the current DER permits for Units 4 through 7. If there are questions based on this information, please contact Dan Nelson (B&V) at 913-339-2149.

Very truly yours,

BLACK & VEATCH

Steven M. Day

dwn
Enclosures

cc: Mr. Preston Lewis, FDER
Mr. G. A. Rodriguez, COL
C. Holladay
B. Andrews
B. Thomas, sec Gen
G. Harper, EPA
C. Blawie, NPS

TABLE 1. EXISTING UNITS AT THE CITY OF LAKE LAND'S LARSEN POWER PLANT

<u>Unit</u>	<u>Size</u> MW	<u>DER Permit Number</u>	<u>Maximum Heat Input</u>		<u>Emission Limit</u>	
			<u>No. 6 Oil</u> MBtu/h	<u>Natural Gas</u> MBtu/h	<u>Particulate</u> lb/MBtu	<u>Sulfur Dioxide</u> lb/MBtu
1	11.5	A053- 150455	69.7 (Diesel Peaking Unit)	69.7	20 Percent Opacity Limit	0.5 percent
2	11.5	A053- 150455	69.7 (Diesel Peaking Unit)	69.7	20 Percent Opacity Limit	0.5 percent
3	11.5	A053- 150455	69.7 (Diesel Peaking Unit)	69.7	20 Percent Opacity Limit	0.5 percent
4	20	A053- 175869	277.2	278.8	0.1	2.75
5	25	A053- 175868	300.5	320.8	0.1	2.75
6	25	A053- 175871	305.9	286.5	0.1	2.75
7	50	A053- 175870	597.6	615.6	0.1	2.75

PERMITS

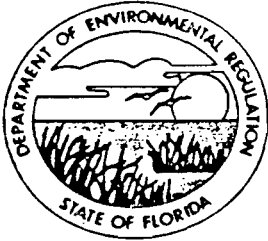
Unit No. 4 - DER Permit Number AO53-175869

Unit No. 5 - DER Permit Number AO53-175868

Unit No. 6 - DER Permit Number AO53-175871

Unit No. 7 - DER Permit Number AO53-175870

IMPORTANT PAPERS



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

NOTICE OF PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT ISSUANCE

April 27, 1990

In the Matter of an Application
for Permit by:

DER File No. A053-175869

Polk County

Mr. Harlan C. Proctor, Superintendent
City of Lakeland
Department of Electric and Water Utilities
Charles Larsen Power Plant - Unit No. 4
2002 East U.S. Highway 92
Lakeland, Florida 33801

Enclosed is Permit Number A053-175869 to Operate Unit #4 at the Charles Larsen Power Plant located at 2002 East U.S. Highway 92, Lakeland, issued pursuant to Section 403, Florida Statutes.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

(a) 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;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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 permit. 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 receipt 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Gary A. Maier

Gary A. Maier, BS ChE, JD
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561 x360

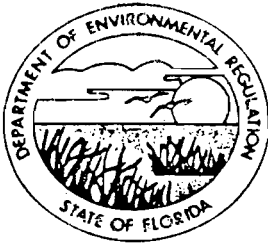
CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all
copies were mailed before the close of business on
APR 30 1990 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant
to Section 120.52(9), Florida
Statutes, with the designated
Department Clerk, receipt of
which is hereby acknowledged.

Marilyn Quispe
Clerk

APR 30 1990
Date



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175869
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #4

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For Operation of the nominal 20 MW (electric) Steam Generator designated as Charles Larsen Memorial Power Plant Unit #4. This source is fired on No. 6 fuel oil with a maximum heat input of 277.2 MMBTU per hour, or natural gas with a maximum heat input of 278.8 MMBTU per hour.

Location: 2002 East U.S. Highway 92, Lakeland, Polk County

UTM: 17-409.0 E 3106.3 N NEDS NO: 0003 Point ID: 01

Replaces Permit No.: AO53-99003

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175869
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #4

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. Visible Emissions shall not exceed 20% opacity except for one two-minute period per hour during which opacity shall not exceed 40%. (Rule 17-2.600(5)(a)1., F.A.C.).
3. Particulate Matter Emissions shall not exceed 0.1 pound per million Btu heat input. (Rule 17-2.600(5)(a)2., F.A.C.).
4. Sulfur Dioxide Emissions shall not exceed 2.75 pounds per million Btu heat input. (Rule 17-2.600(5)(a)3.a.(xi), F.A.C.).
5. Excess emissions from boiler cleaning (soot blowing) or load change are permitted provided that,
 - (A) the duration of such excess emissions shall not exceed 3 hours in any 24 hour period,
 - (B) the visible emissions shall not exceed 60% opacity,
 - (C) the particulate emissions shall not exceed an average of 0.3 pound per million BTU heat input during the 3 hour period,
 - (D) best operational practices to minimize emissions are adhered to, AND
 - (E) the duration of excess emissions shall be minimized. (Rule 17-2.250, F.A.C.)
6. The heat input rate shall not exceed 277.2 MM Btu per hour when burning fuel oil. The heat input rate shall not exceed 278.8 MM Btu per hour when burning natural gas. If fuel oil and natural gas are burned simultaneously in any combination, then the maximum permitted heat input rate shall be determined by proration.
7. This source is permitted to operate 24 hours/day, 7 days/week, and 52 weeks/year (8760 hours/year).

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175869
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #4

SPECIFIC CONDITIONS:

8. Test the emissions, under both normal and soot blowing conditions, for the following pollutants at intervals of 12 months from the date March 28, 1989 and submit a copy of the test data to the Air Section of the Southwest District Office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700, F.A.C. The duration of each opacity test shall be 60 minutes. Opacity tests shall be conducted using DER Method 9.

- (X) Particulates *
- (X) Sulfur Oxides **
- () Fluorides
- () Nitrogen Oxides
- (X) Opacity
- () Hydrocarbons
- () Total Reduced Sulfur

* An annual compliance test for particulate is not required for any fuel burning source that, in a federal fiscal year (October 1 - September 30), does not burn liquid or solid fuel, other than during startup, for a total of more than 400 hours.

** A Fuel analysis of a representative fuel sample taken during the particulate compliance test and a calculation of the sulfur dioxide emission rate which is based upon the fuel analysis may be submitted in lieu of the required sulfur oxides emission test.

9. If the source is on cold standby when an annual compliance test is required by Specific Condition No. 8, then the compliance test may be postponed until after startup. Compliance testing shall be conducted within 30 days of startup. Testing, notification, and reporting, shall be consistent with all the requirements of Specific Conditions Nos. 8 through 15. The base date for future annual testing under Specific Condition No. 8 shall be automatically amended to the date of the compliance test conducted after startup.

10. Except as provided in Specific Conditions No. 11 or 12, compliance testing shall be conducted while burning fuel oil.

11. If the source is burning natural gas when a compliance test is required, then the compliance test may be conducted while burning natural gas.

12. If the source is burning a mixture of natural gas and fuel oil simultaneously when a compliance test is required, then the compliance test may be conducted while burning that mixture of natural gas and fuel oil simultaneously.

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175869
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit. #4

SPECIFIC CONDITIONS:

13. If the most recent compliance test was conducted pursuant to Specific Condition No. 11 or 12, and the fuel input is changed for a total of more than 15 days such that the percentage of total heat input derived from fuel oil increases by 10% or more (using the most recent compliance test as a basis), then the results from new compliance tests shall be submitted to the Air Section of the Southwest District Office within 45 days of the 15th day that the source is fired with the changed fuel input. (Rule 17-4.070(3), F.A.C.)

14. Compliance testing shall be conducted while operating within $\pm 10\%$ of the maximum permitted heat input rate. A compliance test submitted at operating levels less than 90% of the maximum permitted heat input rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance at a higher rate is submitted. The permittee shall submit a statement of the actual heat input rate as a part of each compliance test. Failure to include the actual heat input rate in the results may invalidate the tests and fail to provide reasonable assurance of compliance. (Rule 17-4.070(3), F.A.C.)

15. The permittee shall notify the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. (Rule 17-2.700(2)(a)9., F.A.C.)

16. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Section 403.061(13), Florida Statutes:

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

17. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. (Rule 17-2.210, F.A.C.)

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175869
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #4

SPECIFIC CONDITIONS:

18. Four applications to renew this operating permit shall be submitted to the Southwest District Office of the Department by March 18, 1995.

Issued this 30 day of
April, 1995.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561

GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and are binding and enforceable pursuant to the authority of Section 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal or plant life or property caused by the construction or operation of this permitted source or from penalties therefore, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credential or other documents as maybe required by law and at reasonable times, access to the premises, where the permitted activity is located or conducted:

GENERAL CONDITIONS (con't):

7. (con't):

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department (17-6.130) with the following information:

- (a) a description of and cause of noncompliance; and
- (b) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedures and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

GENERAL CONDITIONS (con't):

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)
- () Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation); copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

NOTICE OF PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT ISSUANCE

April 27, 1990

In the Matter of an Application
for Permit by:
Mr. Harlan C. Proctor, Superintendent
City of Lakeland
Department of Electric and Water Utilities
Charles Larsen Power Plant - Unit No. 5
2002 East U.S. Highway 92
Lakeland, Florida 33801

DER File No. A053-175868
Polk County

RECEIVED
APR 30 1990

H. C. PROCTOR, Supt., Larsen Plant
DEPT. OF ELECTRIC & WATER UTILITIES
CITY OF LAKELAND
LAKELAND, FLORIDA

Enclosed is Permit Number A053-175868 to Operate Unit #5 at the Charles Larsen Power Plant located at 2002 East U.S. Highway 92, Lakeland, issued pursuant to Section 403, Florida Statutes.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

(a) 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;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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 permit. 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 receipt 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Gary A. Maier

Gary A. Maier, BS ChE, JD
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561 x360

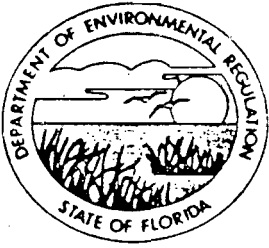
CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all
copies were mailed before the close of business on
APR 27 1990 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant
to Section 120.52(9), Florida
Statutes, with the designated
Department Clerk, receipt of
which is hereby acknowledged.

Amarilyn Quispe
Clerk

APR 27 1990
Date



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175868
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #5

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For Operation of the nominal 25 MW (electric) Steam Generator designated as Charles Larsen Memorial Power Plant Unit #5. This source is fired on No. 6 fuel oil with a maximum heat input of 300.5 MMBTU per hour, or natural gas with a maximum heat input of 320.8 MMBTU per hour.

Location: 2002 East U.S. Highway 92, Lakeland, Polk County

UTM: 17-409.0 E 3106.3 N NEDS NO: 0003 Point ID: 02

Replaces Permit No.: A053-99001

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175868
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #5

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. Visible Emissions shall not exceed 20% opacity except for one two-minute period per hour during which opacity shall not exceed 40%. (Rule 17-2.600(5)(a)1., F.A.C.).
3. Particulate Matter Emissions shall not exceed 0.1 pound per million Btu heat input. (Rule 17-2.600(5)(a)2., F.A.C.).
4. Sulfur Dioxide Emissions shall not exceed 2.75 pounds per million Btu heat input. (Rule 17-2.600(5)(a)3.a.(xi), F.A.C.).
5. Excess emissions from boiler cleaning (soot blowing) or load change are permitted provided that,
 - (A) the duration of such excess emissions shall not exceed 3 hours in any 24 hour period,
 - (B) the visible emissions shall not exceed 60% opacity,
 - (C) the particulate emissions shall not exceed an average of 0.3 pound per million BTU heat input during the 3 hour period,
 - (D) best operational practices to minimize emissions are adhered to, AND
 - (E) the duration of excess emissions shall be minimized. (Rule 17-2.250, F.A.C.)
6. The heat input rate shall not exceed 300.5 MM Btu per hour when burning fuel oil. The heat input rate shall not exceed 320.8 MM Btu per hour when burning natural gas. If fuel oil and natural gas are burned simultaneously in any combination, then the maximum permitted heat input rate shall be determined by proration.
7. This source is permitted to operate 24 hours/day, 7 days/week, and 52 weeks/year (8760 hours/year).

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175868
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #5

SPECIFIC CONDITIONS:

8. Test the emissions, under both normal and soot blowing conditions, for the following pollutants at intervals of 12 months from the date November 8, 1990 and submit a copy of the test data to the Air Section of the Southwest District Office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700, F.A.C. The duration of each opacity test shall be 60 minutes. Opacity tests shall be conducted using DER Method 9.

- (X) Particulates *
- (X) Sulfur Oxides **
- () Fluorides
- () Nitrogen Oxides
- (X) Opacity
- () Hydrocarbons
- () Total Reduced Sulfur

* An annual compliance test for particulate is not required for any fuel burning source that, in a federal fiscal year (October 1 - September 30), does not burn liquid or solid fuel, other than during startup, for a total of more than 400 hours.

** A Fuel analysis of a representative fuel sample taken during the particulate compliance test and a calculation of the sulfur dioxide emission rate which is based upon the fuel analysis may be submitted in lieu of the required sulfur oxides emission test.

9. If the source is on cold standby when an annual compliance test is required by Specific Condition No. 8, then the compliance test may be postponed until after startup. Compliance testing shall be conducted within 30 days of startup. Testing, notification, and reporting, shall be consistent with all the requirements of Specific Conditions Nos. 8 through 15. The base date for future annual testing under Specific Condition No. 8 shall be automatically amended to the date of the compliance test conducted after startup.

10. Except as provided in Specific Conditions No. 11 or 12, compliance testing shall be conducted while burning fuel oil.

11. If the source is burning natural gas when a compliance test is required, then the compliance test may be conducted while burning natural gas.

12. If the source is burning a mixture of natural gas and fuel oil simultaneously when a compliance test is required, then the compliance test may be conducted while burning that mixture of natural gas and fuel oil simultaneously.

PERMITTEE:
City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION
Permit No: AO53-175868
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #5

SPECIFIC CONDITIONS:

13. If the most recent compliance test was conducted pursuant to Specific Condition No. 11 or 12, and the fuel input is changed for a total of more than 15 days such that the percentage of total heat input derived from fuel oil increases by 10% or more (using the most recent compliance test as a basis), then the results from new compliance tests shall be submitted to the Air Section of the Southwest District Office within 45 days of the 15th day that the source is fired with the changed fuel input. (Rule 17-4.070(3), F.A.C.)

14. Compliance testing shall be conducted while operating within $\pm 10\%$ of the maximum permitted heat input rate. A compliance test submitted at operating levels less than 90% of the maximum permitted heat input rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance at a higher rate is submitted. The permittee shall submit a statement of the actual heat input rate as a part of each compliance test. Failure to include the actual heat input rate in the results may invalidate the tests and fail to provide reasonable assurance of compliance. (Rule 17-4.070(3), F.A.C.)

15. The permittee shall notify the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. (Rule 17-2.700(2)(a)9., F.A.C.)

16. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Section 403.061(13), Florida Statutes:

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

17. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. (Rule 17-2.210, F.A.C.)

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

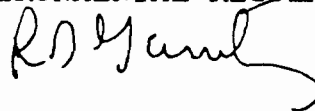
Permit No: AO53-175868
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #5

SPECIFIC CONDITIONS:

18. Four applications to renew this operating permit shall be submitted to the Southwest District Office of the Department by March 18, 1995.

Issued this 27 day of
April, 1996.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561

GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and are binding and enforceable pursuant to the authority of Section 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal or plant life or property caused by the construction or operation of this permitted source or from penalties therefore, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credential or other documents as maybe required by law and at reasonable times, access to the premises, where the permitted activity is located or conducted:

GENERAL CONDITIONS (con't):

7. (con't):

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department (17-6.130) with the following information:

- (a) a description of and cause of noncompliance; and
- (b) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedures and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

GENERAL CONDITIONS (con't):

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

() Determination of Best Available Control Technology (BACT)

() Determination of Prevention of Significant Deterioration (PSD)

() Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)

() Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

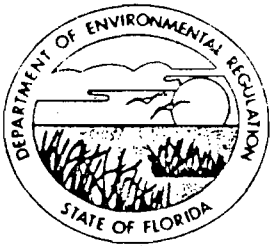
a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation); copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

NOTICE OF PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT ISSUANCE

April 27, 1990

In the Matter of an Application
for Permit by:

DER File No. A053-175871
Polk County

Mr. Harlan C. Proctor, Superintendent
City of Lakeland
Department of Electric and Water Utilities
Charles Larsen Power Plant - Unit No. 6
2002 East U.S. Highway 92
Lakeland, Florida 33801

Enclosed is Permit Number A053-175871 to Operate Unit #6 at the Charles Larsen Power Plant located at 2002 East U.S. Highway 92, Lakeland, issued pursuant to Section 403, Florida Statutes.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

(a) 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;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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 permit. 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 receipt 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION.

Gary A. Maier

Gary A. Maier, BS ChE, JD
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561 x360

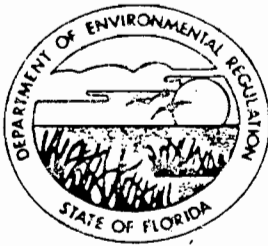
CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all
copies were mailed before the close of business on
APR 30 1990 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant
to Section 120.52(9), Florida
Statutes, with the designated
Department Clerk, receipt of
which is hereby acknowledged.

Marilyn Quispe
Clerk

APR 30 1990
Date



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garniy, Deputy Assistant Secretary

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175871
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #6

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For Operation of the nominal 25 MW (electric) Steam Generator designated as Charles Larsen Memorial Power Plant Unit #6. This source is fired on No. 6 fuel oil with a maximum heat input of 305.9 MMBTU per hour, or natural gas with a maximum heat input of 286.5 MMBTU per hour.

Location: 2002 East U.S. Highway 92, Lakeland, Polk County

UTM: 17-409.0 E 3106.3 N NEDS NO: 0003 Point ID: 03

Replaces Permit No.: AO53-102240

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175871
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #6

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. Visible Emissions shall not exceed 20% opacity except for one two-minute period per hour during which opacity shall not exceed 40%. (Rule 17-2.600(5)(a)1., F.A.C.).
3. Particulate Matter Emissions shall not exceed 0.1 pound per million Btu heat input. (Rule 17-2.600(5)(a)2., F.A.C.).
4. Sulfur Dioxide Emissions shall not exceed 2.75 pounds per million Btu heat input. (Rule 17-2.600(5)(a)3.a.(xi), F.A.C.).
5. Excess emissions from boiler cleaning (soot blowing) or load change are permitted provided that,
 - (A) the duration of such excess emissions shall not exceed 3 hours in any 24 hour period,
 - (B) the visible emissions shall not exceed 60% opacity,
 - (C) the particulate emissions shall not exceed an average of 0.3 pound per million BTU heat input during the 3 hour period,
 - (D) best operational practices to minimize emissions are adhered to, AND
 - (E) the duration of excess emissions shall be minimized. (Rule 17-2.250, F.A.C.)
6. The heat input rate shall not exceed 305.9 MM Btu per hour when burning fuel oil. The heat input rate shall not exceed 286.5 MM Btu per hour when burning natural gas. If fuel oil and natural gas are burned simultaneously in any combination, then the maximum permitted heat input rate shall be determined by proration.
7. This source is permitted to operate 24 hours/day, 7 days/week, and 52 weeks/year (8760 hours/year).

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175871
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #6

SPECIFIC CONDITIONS:

8. Test the emissions, under both normal and soot blowing conditions, for the following pollutants at intervals of 12 months from the date November 1, 1989 and submit a copy of the test data to the Air Section of the Southwest District Office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700, F.A.C. The duration of each opacity test shall be 60 minutes. Opacity tests shall be conducted using DER Method 9.

- (X) Particulates *
- (X) Sulfur Oxides **
- () Fluorides
- () Nitrogen Oxides
- (X) Opacity
- () Hydrocarbons
- () Total Reduced Sulfur

* An annual compliance test for particulate is not required for any fuel burning source that, in a federal fiscal year (October 1 - September 30), does not burn liquid or solid fuel, other than during startup, for a total of more than 400 hours.

** A Fuel analysis of a representative fuel sample taken during the particulate compliance test and a calculation of the sulfur dioxide emission rate which is based upon the fuel analysis may be submitted in lieu of the required sulfur oxides emission test.

9. If the source is on cold standby when an annual compliance test is required by Specific Condition No. 8, then the compliance test may be postponed until after startup. Compliance testing shall be conducted within 30 days of startup. Testing, notification, and reporting, shall be consistent with all the requirements of Specific Conditions Nos. 8 through 15. The base date for future annual testing under Specific Condition No. 8 shall be automatically amended to the date of the compliance test conducted after startup.

10. Except as provided in Specific Conditions No. 11 or 12, compliance testing shall be conducted while burning fuel oil.

11. If the source is burning natural gas when a compliance test is required, then the compliance test may be conducted while burning natural gas.

12. If the source is burning a mixture of natural gas and fuel oil simultaneously when a compliance test is required, then the compliance test may be conducted while burning that mixture of natural gas and fuel oil simultaneously.

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175871
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #6

SPECIFIC CONDITIONS:

13. If the most recent compliance test was conducted pursuant to Specific Condition No. 11 or 12, and the fuel input is changed for a total of more than 15 days such that the percentage of total heat input derived from fuel oil increases by 10% or more (using the most recent compliance test as a basis), then the results from new compliance tests shall be submitted to the Air Section of the Southwest District Office within 45 days of the 15th day that the source is fired with the changed fuel input. (Rule 17-4.070(3), F.A.C.)

14. Compliance testing shall be conducted while operating within $\pm 10\%$ of the maximum permitted heat input rate. A compliance test submitted at operating levels less than 90% of the maximum permitted heat input rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance at a higher rate is submitted. The permittee shall submit a statement of the actual heat input rate as a part of each compliance test. Failure to include the actual heat input rate in the results may invalidate the tests and fail to provide reasonable assurance of compliance. (Rule 17-4.070(3), F.A.C.)

15. The permittee shall notify the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. (Rule 17-2.700(2)(a)9., F.A.C.)

16. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Section 403.061(13), Florida Statutes:

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

17. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. (Rule 17-2.210, F.A.C.)

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION


Permit No: AO53-175871
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #6

SPECIFIC CONDITIONS:

18. Four applications to renew this operating permit shall be submitted to the Southwest District Office of the Department by March 18, 1995.

Issued this 30 day of
April, 1995.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561

GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and are binding and enforceable pursuant to the authority of Section 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal or plant life or property caused by the construction or operation of this permitted source or from penalties therefore, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credential or other documents as maybe required by law and at reasonable times, access to the premises, where the permitted activity is located or conducted:

GENERAL CONDITIONS (con't):

7. (con't):

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department (17-6.130) with the following information:

- (a) a description of and cause of noncompliance; and
- (b) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedures and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

GENERAL CONDITIONS (con't):

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
- () Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

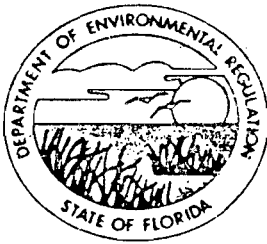
a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garnity, Deputy Assistant Secretary

NOTICE OF PERMIT

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT ISSUANCE

April 27, 1990

In the Matter of an Application
for Permit by:

DER File No. A053-175870
Polk County

Mr. Harlan C. Proctor, Superintendent
City of Lakeland
Department of Electric and Water Utilities
Charles Larsen Power Plant - Unit No. 7
2002 East U.S. Highway 92
Lakeland, Florida 33801

Enclosed is Permit Number A053-175870 to Operate Unit #7 at the Charles Larsen Power Plant located at 2002 East U.S. Highway 92, Lakeland, issued pursuant to Section 403, Florida Statutes.

A person whose substantial interests are affected by this permit 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 14 days of receipt of this permit. 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;

(a) 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;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) 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 permit. 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 receipt 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.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Gary A. Maier

Gary A. Maier, BS ChE, JD
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561 x360

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all
copies were mailed before the close of business on
APR 30 1990 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant
to Section 120.52(9), Florida
Statutes, with the designated
Department Clerk, receipt of
which is hereby acknowledged.

Harilyn Quispe APR 30 1990
Clerk Date



Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175870
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #7

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For Operation of the nominal 50 MW (electric) Steam Generator designated as Charles Larsen Memorial Power Plant Unit #7. This source is fired on No. 6 fuel oil with a maximum heat input of 597.6 MMBTU per hour, or natural gas with a maximum heat input of 615.6 MMBTU per hour.

Location: 2002 East U.S. Highway 92, Lakeland, Polk County

UTM: 17-409.0 E 3106.3 N NEDS NO: 0003 Point ID: 04

Replaces Permit No.: A053-102239

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: A053-175870
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #7

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.
2. Visible Emissions shall not exceed 20% opacity except for one two-minute period per hour during which opacity shall not exceed 40%. (Rule 17-2.600(5)(a)1., F.A.C.).
3. Particulate Matter Emissions shall not exceed 0.1 pound per million Btu heat input. (Rule 17-2.600(5)(a)2., F.A.C.).
4. Sulfur Dioxide Emissions shall not exceed 2.75 pounds per million Btu heat input. (Rule 17-2.600(5)(a)3.a.(xi), F.A.C.).
5. Excess emissions from boiler cleaning (soot blowing) or load change are permitted provided that,
 - (A) the duration of such excess emissions shall not exceed 3 hours in any 24 hour period,
 - (B) the visible emissions shall not exceed 60% opacity,
 - (C) the particulate emissions shall not exceed an average of 0.3 pound per million BTU heat input during the 3 hour period,
 - (D) best operational practices to minimize emissions are adhered to, AND
 - (E) the duration of excess emissions shall be minimized. (Rule 17-2.250, F.A.C.)
6. The heat input rate shall not exceed 597.6 MM Btu per hour when burning fuel oil. The heat input rate shall not exceed 615.6 MM Btu per hour when burning natural gas. If fuel oil and natural gas are burned simultaneously in any combination, then the maximum permitted heat input rate shall be determined by proration.
7. This source is permitted to operate 24 hours/day, 7 days/week, and 52 weeks/year (8760 hours/year).

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Permit No: A053-175870
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #7

SPECIFIC CONDITIONS:

8. Test the emissions, under both normal and soot blowing conditions, for the following pollutants at intervals of 12 months from the date December 6, 1989 and submit a copy of the test data to the Air Section of the Southwest District Office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700, F.A.C. The duration of each opacity test shall be 60 minutes. Opacity tests shall be conducted using DER Method 9.

- (X) Particulates *
- (X) Sulfur Oxides **
- () Fluorides
- () Nitrogen Oxides
- (X) Opacity
- () Hydrocarbons
- () Total Reduced Sulfur

* An annual compliance test for particulate is not required for any fuel burning source that, in a federal fiscal year (October 1 - September 30), does not burn liquid or solid fuel, other than during startup, for a total of more than 400 hours.

** A Fuel analysis of a representative fuel sample taken during the particulate compliance test and a calculation of the sulfur dioxide emission rate which is based upon the fuel analysis may be submitted in lieu of the required sulfur oxides emission test.

9. If the source is on cold standby when an annual compliance test is required by Specific Condition No. 8, then the compliance test may be postponed until after startup. Compliance testing shall be conducted within 30 days of startup. Testing, notification, and reporting, shall be consistent with all the requirements of Specific Conditions Nos. 8 through 15. The base date for future annual testing under Specific Condition No. 8 shall be automatically amended to the date of the compliance test conducted after startup.

10. Except as provided in Specific Conditions No. 11 or 12, compliance testing shall be conducted while burning fuel oil.

11. If the source is burning natural gas when a compliance test is required, then the compliance test may be conducted while burning natural gas.

12. If the source is burning a mixture of natural gas and fuel oil simultaneously when a compliance test is required, then the compliance test may be conducted while burning that mixture of natural gas and fuel oil simultaneously.

PERMITTEE:

City of Lakeland Department of
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1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175870
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #7

SPECIFIC CONDITIONS:

13. If the most recent compliance test was conducted pursuant to Specific Condition No. 11 or 12, and the fuel input is changed for a total of more than 15 days such that the percentage of total heat input derived from fuel oil increases by 10% or more (using the most recent compliance test as a basis), then the results from new compliance tests shall be submitted to the Air Section of the Southwest District Office within 45 days of the 15th day that the source is fired with the changed fuel input. (Rule 17-4.070(3), F.A.C.)
14. Compliance testing shall be conducted while operating within $\pm 10\%$ of the maximum permitted heat input rate. A compliance test submitted at operating levels less than 90% of the maximum permitted heat input rate will automatically constitute an amended permit at the lesser rate until another test, showing compliance at a higher rate is submitted. The permittee shall submit a statement of the actual heat input rate as a part of each compliance test. Failure to include the actual heat input rate in the results may invalidate the tests and fail to provide reasonable assurance of compliance. (Rule 17-4.070(3), F.A.C.)
15. The permittee shall notify the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted. (Rule 17-2.700(2)(a)9., F.A.C.)
16. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Section 403.061(13), Florida Statutes:
- (A) Annual amount of materials and/or fuels utilized.
 - (B) Annual emissions (note calculation basis).
 - (C) Any changes in the information contained in the permit application.
17. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. (Rule 17-2.210, F.A.C.)

PERMITTEE:

City of Lakeland Department of
Electric and Water Utilities
1000 East Parker St.
Lakeland, FL. 33801

PERMIT/CERTIFICATION

Permit No: AO53-175870
County: Polk
Expiration Date: 05/17/95
Project: Charles Larsen
Power Plant, Unit #7

SPECIFIC CONDITIONS:

18. Four applications to renew this operating permit shall be submitted to the Southwest District Office of the Department by March 18, 1995.

Issued this 30 day of
April, 1990.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Richard D. Garrity

Dr. Richard D. Garrity
Deputy Assistant Secretary
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347
Phone (813) 623-5561

GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and are binding and enforceable pursuant to the authority of Section 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
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3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
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GENERAL CONDITIONS (con't):

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)
- () Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 149730

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from City of Lakeland Date 2/5/90

Address _____ Dollars \$ 6000.00

Applicant Name & Address same

Source of Revenue 4 Sources

Revenue Code 1032 Application Number A053-175568/A053-175569

ck 35842 By Carrie King A053-175570
A053-175571

