Memorandum

Florida Department of
Environmental Protection

BAR

TO: Howard L. Rhodes

THRU: Clair H. Fancy
Scott Sheplak

FROM: Edward Svec

DATE: March 27, 2001

SUBJECT: Vero Beach Municipal Power Plant
DEP File No: 0610029-004-AC (PSD-FL-152C)

Attached is the final PSD permit modification package for the compressor inlet evaporative cooler project at the Vero Beach Municipal Power Plant. The application is for the installation of an inlet evaporative cooler ahead of the compressor inlet of the combined cycle combustion turbine-electrical generator (Unit 005). The evaporative cooler will operate on hot days and days of relatively low humidity. The evaporative cooling effect will allow the unit to operate closer to the rated capacity.

Both short-term and annual emissions will increase because the heat rate through the unit will increase when the evaporative cooler is operated. Maximum short-term emissions will still occur during cold days when use of the evaporative cooler is not feasible. The unit already complies with 40 CFR 60, Subpart GG, so NSPS applicability is not an issue. PSD is not triggered by their use.

I recommend your signature and approval of the cover letter and the final permit modification letter.

SMS/es

Attachments

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Applicant

City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

Authorized Representative: Rex Taylor, City Manager, Utilities Director

2. Source Name and Location

City of Vero Beach Municipal Utilities
100 17th Street
Vero Beach, Florida 32960

UTM Coordinates: Zone 17, 561.4 km East and 3056.5 km North

3. Source Description

The City of Vero Beach Municipal Utilities Plant holds a Title V operating permit for four fossil fuel fired steam generators (Units 1-4), and one combined cycle gas turbine (Unit 5). Also included in this permit are two unregulated emissions units identified as fuel oil, gasoline and lube oil storage tanks and a wastewater treatment plant. Based on the Title V application, this facility is a major source of hazardous air pollutants (HAPs).

Fossil Fuel Steam Generator, Unit 1, rated at 13 MW, 202 mmBtu/hr for natural gas and 140 mmBtu/hr for fuel oil, capable of burning any combination of natural gas and numbers 2, 4 and 6 fuel oil, with emissions exhausted through a 200 ft. stack shared with Emissions Unit 002. The emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 1 began commercial operation in 1961.

Fossil Fuel Steam Generator, Unit 2, rated at 17 MW, 248 mmBtu/hr for natural gas and 243 mmBtu/hr for fuel oil, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack shared with Emissions Unit 001. The emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 2 began commercial operation in 1964.

Fossil Fuel Steam Generator, Unit 3, rated at 34 MW, 417 mmBtu/hr for natural gas and 410 mmBtu/hr for fuel oil, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack. The emissions unit is regulated under Acid Rain, Phase II and Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 3 began commercial operation in 1971.

Fossil Fuel Steam Generator, Unit 4, rated at 56 MW, 685 mmBtu/hr, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack. The emissions unit is regulated under Acid Rain, Phase II, and is subject to 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971. Fossil fuel fired steam generator Unit 4 began commercial operation in 1976.

Combined Cycle Gas Turbine, Unit 5, a General Electric Model PG6541B, is rated at 38 MW, 455 mmBtu/hr for number 2 fuel oil and 414 mmBtu/hr for natural gas, capable of burning any combination of, number 2 fuel oil, and natural gas, with emissions exhausted through a 125 ft. stack. This emissions unit is regulated under Acid Rain, Phase II and is subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. This unit underwent a BACT Determination dated June 28, 1991. BACT Limits were incorporated into the subsequent PSD permits including AC 31-253502 (PSD-FL-152B). Exhaust is vented through the heat recovery steam generator that is not equipped with duct burners and then through a 125 ft. stack. Emissions are controlled by dry low-NOx burners when firing natural gas, and by water injection when firing fuel oil. The turbine exhaust may also be vented through a bypass stack for simple cycle operation. The turbine began commercial operation in 1992.

4. Current Permit and Major Regulatory Program Status

City of Vero Beach Municipal Utilities Units 1,2, and 3 were granted operating permits as existing units by the Department. Construction of Unit 4 was authorized by the Department under permit AC31-2182. Unit 5 was authorized construction under AC31-184928 and Permit.PSD-FL-152. Unit 5 was modified by permits AC31-184928A and PSD-FL-152A on March 27, 1995 and again by permits AC31-253502 and PSD-FL-152B on September 21, 1995. AC31-253502/ PSD-FL-152B effectively superseded the previous construction permits.

The facility operates under Title V Air Operation Permit No. 0610029-002-AV effective January 1, 1998. This facility is a major source of hazardous air pollutants (HAPs) based on information submitted in the Title V application.

The combustion turbine is subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. The combined cycle unit and the fossil fuel steam generators are regulated under the Title IV of the Clean Air Act, Acid Rain, Phase II.

5. Permit Modification Request

On November 1, 2000 the Department received a request from the City of Vero Beach for modification of its permits to install direct water spray fogging systems in the inlet duct of Combustion Turbine (CT) Unit 5 (ARMS Emissions Unit 005). The project is a performance enhancement that can improve both the turbine power output and the heat rate of the unit. The principle is based on evaporative cooling of the incoming, filtered, ambient air to lower its temperature and increase its density.

The combustion turbine is typically rated by General Electric at approximately 38 MW at 59 degrees when firing gas. The combustion turbines (exclusive of the steam cycle) normally achieve their maximum rated output on cold (32 degrees) days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is only about 32 MW on hot (100 degrees) days because of the lower compressor inlet air density. The evaporative coolers can increase hot-day power output (under dry conditions) by around 6 MW, thus almost restoring the units to their nominal rating. The evaporative coolers provide no benefit under humid or cold (less than approximately 50 degrees) conditions and will not be used when they occur. The maximum output of approximately 38 MW will continue to occur at low ambient temperature.

Inlet evaporative coolers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. Emissions Increases Due to Modification/Method of Operation

The evaporative coolers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the evaporative coolers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

Assuming a design condition for Florida of 95 degrees (°F) and 50 percent (%) relative humidity, evaporative cooling to the point of saturation of the incoming gas stream results in a temperature decrease of approximately 16 °F to 79 °F. This represents an increase of roughly 5% in power output or on the order of 2 MW. Under average annually averaged conditions, the reduction typically possible is on the order of 5.5 °F, with an associated power increase of about 1 MW.

Refer to attached Heat Input versus Ambient Temperature Curve. The City of Vero Beach estimated that that heat input to the combustion turbine will increase by approximately 1.2 mmBtu per hour per degree of temperature reduction (mmBtu/hr/°F) by evaporative cooling, when firing natural gas. If emissions rates are known in terms of pounds per mmBtu (lb/mmBtu), the increase on hourly emissions can be estimated.

The City of Vero Beach assumed that the unit will be operated 8,760 hours per year gas and 2,871 hours on oil. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit (°F) times the emissions rate in lb/mmBtu for the number of °F –hours proposed for the turbine. The °F –hours/year represents the maximum potential amount of annual temperature reduction of evaporative cooling and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the °F –hours for gas firing are calculated by multiplying 8,760 hours by 10 °F, or 87,600 °F –hours. For Unit 5, a maximum of 58,890 °F-hours of operation on natural gas and 28,710 °F-hours of operation firing distillate fuel oil was used as the basis for the annual emissions estimate. Annual emissions are estimated as detailed in the following table.

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET EVAPORATIVE COOLER

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (gas)	Emission Increase ton/yr (oil)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.1070	0.1736	5.56	3.25	6.98	40
PM/PM_{10}	0.0060	0.0250	0.31	0.47	0.68	25/15
CO	0.0224	0.0226	1.16	0.42	1.20	100
VOC	0.0112	0.0113	0.58	0.21	0.60	40
SO_2	0.0030	0.2700	0.16	5.05	5.16	40

Source: Application submitted on November 1, 2000.

Limiting the unit to 5,889 hours of operation on gas and 2,871 hours of operation on oil will not effectively insure that annual emissions increases will not exceed the values given above. This is because the hours of operation will be chosen with a bias toward the days when the possible temperature decrease is greater than that assumed in the calculation. However, because the annual increases are so far below PSD thresholds, restriction to the current fuel use restrictions contained in the current Title V permit will ensure the thresholds will not be exceeded.

The emissions increases calculated are the direct result from the physical change in or change in method of operation such as is the installation of the inlet evaporative coolers. These assume that the ability to achieve greater power output when the evaporative coolers are used does not result in emissions increases outside the turbines original power curve. The rationale is discussed below.

The emissions characteristics (GE performance curves) do not change as a result of the use of the evaporative coolers from what would normally occur throughout the entire range of temperatures and relative humidity. Rather, the evaporative coolers move the operating points along the same curve toward the power and emissions that normally occur at lower temperatures. The worst case emissions scenario will still occur during the winter months and will occur with the evaporative coolers off. According to GE (reference: Brooks, 1996), evaporative cooling is limited to ambient temperatures of 59 °F and above because of the potential for icing the compressor.

7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Unit 5 resulting in **significant net emissions increases** is subject to PSD review. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

> *Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a **net emissions increase** equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included (see PSD Threshold) in the Table above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as:

> *Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the **actual emissions** of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

> *Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:*
>
> *(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.*
>
> *(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.*

(c) *For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun* ***normal operations*** *on a particular date, actual emissions shall equal the* ***potential*** *emissions of the emissions unit on that date.*

(d) ***For an electric utility steam generating unit*** *(other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical-or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.*

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1994 are as follows:

Annual Operating Hours 1994 - 1999

1994	1995	1996	1997	1998	1999
7,212	7,302	7,794	4,073	2,540	3,324

The operation can be characterized as "baseload." The evaporative coolers will be allowed to operate continuously but will be limited in terms of "degree-hours." As previously mentioned, if the average temperature drop is in fact 10 °F, they can operate 5,889 hours on gas and 2,871 hours on oil for a total of 8,760 hours per year.

The combustion turbines have clearly begun *normal operation.* As modern combined cycle units, they are very efficient in comparison with conventional boiler-based steam-electrical units. The combustion turbine-electrical generator produces 38 MW (nominal) of electrical power. Therefore, the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

The City of Vero Beach asserts and the Department accepts that use of the inlet evaporative coolers will not affect the hours of operation of the unit. As mentioned previously, they are already baseload units and any downtime is more likely due to maintenance than to demand. Most likely the combined cycle unit will continue their normal baseload operation within the recent historical hours per year per unit. The emissions are directly related to the hours of operation.

The modification project can be isolated from the normal operation of the units and its effects can be directly predicted and measured without having to make annual comparisons of actual emissions

from the combined cycle units before and after the change. The modification itself (i.e. installation and operation of the evaporative coolers), however, has not yet begun normal operation. The future actual emissions caused by the modification are equal to the potential-to-emit, which is based on the increases in heat input associated with the use of the fogging system.

The number of days during which the evaporative coolers can economically operate probably limits actual emissions increases to levels below significance for the purposes of PSD applicability. However, the City of Vero Beach sample calculations proposes to limit operation of the evaporative coolers to the equivalent of 5,889 (gas) when 2,871 (oil) hours per year on the basis of a 10 °F average compressor are used. This equates to 58,890 °F-hr on gas and 28,710 °F-hr on oil. If, for example, the average temperature drop is actually 20 °F, the evaporative coolers will only be allowed to operate half as many hours as the base case. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates. The Department concludes, therefore, that PSD does not apply to this project.

8. **Proposed Addition of New Conditions to PSD-FL-152**

The combustion turbine was constructed under the authority of PSD permit No. PSD-FL-152 issued on July 1,1991. This permit was modified on March 27, 1995 and September 21, 1995. The Department will amend PSD-FL-152 adding a new condition authorizing installation and operation of the inlet evaporative cooler.

The new condition applicable to the inlet evaporative cooler proposed for Unit 5 (ARMS Emissions Unit 005) is shown in the draft PSD permit modifications. It does not limit operation of the inlet evaporative cooler..

9. **Conclusions**

The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the evaporative coolers.

The Department concludes that PSD is not applicable to this project since this project as presented will not result in significant net emissions increase to major facility. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than combined cycle unit inlet evaporative cooler installations. It does not set precedents related to any physical changes within the compressors, combustors, rotors, or other key components at such units. The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, New Source Performance Standards.

For further details regarding this review, contact:

Scott Sheplak, P.E. Administrator
Edward Svec, Review Engineer
Title V Section
Bureau of Air Regulation
850/488-1344

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PSD PERMIT MODIFICATION

In the Matter of an
Application for Permit Modification by:

City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

Authorized Representative:
Rex Taylor, City Manager, Utilities Director

DEP File No.	PSD-FL-152 C
Permit No.	0610029-004-AC
Project	Evaporative Cooling System
SIC No.	4911
Expires:	December 31, 2001

Enclosed is the Final Permit Number 0610029-004 AC (PSD-FL-152C) for a PSD permit modification to an evaporative cooling system on the existing 38 MW combined cycle General Electric PG6541B combustion turbine-electrical-generator designated as City of Vero Beach Municipal Utilities Unit 5. This permit is a re-issuance of the original air construction permit authorizing the construction of Unit 5 and incorporating subsequent modifications including the present project. The unit is located at the as City of Vero Beach Municipal Utilities Plant, 100 17th Street, Vero Beach, Indian River County. The UTM coordinates are: Zone 17; 561.4 km E and 3056.5 km N.

This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., 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 Legal Office; 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 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PSD PERMIT MODIFICATION (including the FINAL permit modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 4/4/01 to the person(s) listed:

Rex Taylor, City of Vero Beach*
Richard Siefert, City of Vero Beach
Ken Kosky P.E., Golder Associates
Len Kozlov, CD
Gregg Worley, EPA

Clerk Stamp

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

Barbara K. Friday 4/4/01
(Clerk) (Date)

FINAL DETERMINATION

City of Vero Beach
Vero Beach Municipal Power Plant, Indian River County
Evaporative Cooling System Installation
DEP File No: 0610029-004-AC (PSD-FL-152C)

An Intent to Issue an air construction permit modification, authorizing the addition of an inlet Evaporative Cooler to the combined cycle combustion turbine-electrical generator (Unit 005) at the City of Vero Beach Municipal Utilities plant in Indian River County was distributed on January 18, 2001. The unit is located at the as City of Vero Beach Municipal Utilities Plant, 100 17th Street, Vero Beach, Indian River County, Florida.

The Public Notice of Intent to Issue Air Construction Permit was published in The Press Journal, Indian River County on February 7, 2001. Comments were received from the City of Vero Beach.

The comments solely concerned the substitution of the term "evaporative cooling" for the term "fogger", which was used to describe the project throughout the Technical Evaluation and Preliminary Determination and the Draft of the Permit. Since this terminology change does not constitute a significant change, the substitution of terms was made throughout the affected documents.

The final action of the Department will be to issue the permit modification as noted above.

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

PERMITTEE:

City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

Authorized Representative:

Rex Taylor
City Manager, Utilities Director

DEP File No.	PSD-FL-152 C
Permit No.	0610029-004-AC
Project	Evaporative Cooling System
SIC No.	4911
Expires:	December 31, 2001

PROJECT AND LOCATION:

Installation of an evaporative cooling system on the existing 38 MW combined cycle General Electric PG6541B combustion turbine-electrical generator designated as City of Vero Beach Municipal Utilities Unit 5. This permit is a re-issuance of the original air construction permit authorizing the construction of Unit 5 and incorporating subsequent modifications including the present project.

The unit is located at the as City of Vero Beach Municipal Utilities Plant, 100 17th Street, Vero Beach, Indian River County.

The UTM coordinates are: Zone 17; 561.4 km E and 3056.5 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC	Construction Permit General Conditions
Appendix SC	Specific Conditions including Permits PSD-FL-152 (AC31-184928), PSD-FL-152A (AC31-184928A) and PSD-FL-152B (AC31-253502)

Howard L. Rhodes, Director
Division of Air Resources Management

G.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.

G.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 or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and 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 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.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment 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.

G.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.

G.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.

G.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 and 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.

G.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.

G.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 extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.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.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, 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.

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

G.13 This re-issued permit incorporates previous determinations for:

a) Best Available Control Technology (X)
b) Prevention of Significant Deterioration (X); and
c) New Source Performance Standards (X).

G.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 or 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; and
6. The results of such analyses.

G.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.

1. This permit, PSD-FL-152C (DEP File 0610029-004-AC), supersedes PSD permit PSD-FL-152B (DEP File AC31-253502) issued on September 21, 1995.
2. The provisions of air construction permit PSD-FL-152 (AC31-184928) issued on July 1, 1991 to construct Unit 5 and subsequent revisions PSD-FL-152A (AC31-184928A) issued on March 27, 1995 and PSD-FL-152B (AC31-253502) issued on September 21, 1995 are attached and incorporated into this air construction permit in addition to the change that follows in Specific Condition 3 below.
3. An evaporative cooling system may be installed at the compressor inlet of the City of Vero Beach Municipal Utilities Unit 5. The system may be operated at any time that Unit 5 is in operation.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT AMENDMENT

In the matter of an
Application for Permit Amendment by:

DEP File No. AC 31-253502
PSD-FL-152B
Indian River County

Mr. Mike Siefert
City of Vero Beach
100 - 17th Street
Post Office Box 1389
Vero Beach, Florida 32961-1389

Enclosed is amended permit No. AC 31-253502, PSD-FL-152B, to incorporate permit changes to reflect the installation of new dry low-NOx combustors. This permit amendment is issued pursuant to Section 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 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 14 days from the date this Notice is filed with the Clerk of the Department.

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 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **NOTICE OF PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 9-27-95 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 9-27-95
Date

Copies furnished to:
T. R. Nason, CVB
Gary Perko, HGSS
Charles Collins, CD
Jewell Harper, EPA
John Bunyak, NPS

Final Determination

Vero Beach Municipal Power Plant
Power Plant Unit 5
Indian River County, Florida

Construction Permit No.
AC 31-253502
PSD-FL-152B

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

September 21, 1995

Final Determination

Vero Beach Municipal Power Plant
Power Plant Unit 5

AC 31-253502
PSD-FL-152B

The City of Vero Beach's request for permit modifications at its facility in Vero Beach, Indian River County, Florida, has been reviewed by the Bureau of Air Regulation in Tallahassee. The Notice of Intent to Issue was distributed on August 4, 1995. Copies of the evaluation were available for inspection at the Department's offices in Orlando and Tallahassee.

Comments were submitted Mr. Gary V. Perko, Esq., on behalf of the City of Vero Beach. The Bureau has considered Mr. Perko's comments and has agreed on the changes he requested. In addition, the changes that were pointed out were the changes that were being made in this permitting action; however, the transposition of some of the changes did not happen in the proposed permit for some reason. Specific Condition No. 7 will be changed as follows:

A. Specific Condition No. 7.:

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

To: 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 3,482 gals/hr.

- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed **33%** of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

B. Attachments to be incorporated:

o Mr. Gary V. Perko's letter with attachment received August 18, 1995.
o Mr. Shuler W. Massey's letter with enclosure dated August 28, 1995.

It is recommended that the proposed construction permit/amended federal construction permit, No. AC 31-253502/PSD-FL-152B, be issued with the above changes made.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

APIS No: 30ORL310005
Permit Number: AC31-253502/PSD-FL-152B
Expiration Date: August 15, 1996
County: Indian River
Latitude/Longitude: 27°37'59"N 80°22'41"W
Project: Modification of Power Plant Unit 5: 60 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). 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 of Environmental Protection (Department) and specifically described as follows:

For authorization to increase the allowable sulfur dioxide (SO_2) emissions from the existing 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, Florida. The increase is due to the installation of dry low-NO_x burners and an increase in the potential fuel oil consumption rate. The UTM coordinates are 561.385 km East and 3056.538 km North.

The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and an associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded. The original BACT determination does not require revision.

Attachments are listed below:

1. Construction permits, Nos. AC 31-184928/PSD-FL-152, and revised BACT issued June 28, 1991.
2. Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
3. Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.
4. **Mr. C. H. Fancy's letter with attachments dated August 4, 1995.**
5. **Mr. Gary V. Perko's letter with attachment received August 18, 1995.**
6. **Mr. Shuler W. Massey's letter with enclosure dated August 28, 1995.**

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, F.S. 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 acknowledgment 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 F.S. 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

GENERAL CONDITIONS:

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.

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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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): AC 31-184928
(X) Determination of Prevention of Significant Deterioration (PSD): PSD-FL-152
(X) Compliance with New Source Performance Standards (NSPS): 40 CFR 60, Subpart GG

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:

- 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.

SPECIFIC CONDITIONS:

1. The permittee shall maintain the construction required duct modules for the potential installation of a selective catalytic reduction (SCR) system.

2. The Department acknowledges that the permittee installed dry low-NO_x combustors. Based on the compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table 5, which replaces Tables 1 thru 4. In the event a SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised determination of BACT. If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient reference concentrations (ARC) of the following pollutants shall not be exceeded:

Pollutant	Ambient Reference 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

4. Visible emissions shall not exceed 10% opacity.

5. This source/emissions unit is allowed to operate continuously (8760 hours per year).

6. This source/emissions unit is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,482 gals/hr.
- Maximum annual No. 2 fuel oil consumption shall not exceed 10,000,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 33% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.

SPECIFIC CONDITIONS:

- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

8. Any change in the method of operation, equipment or operating hours shall be submitted to the Department's Bureau of Air Regulation office and Central District office.

9. 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.

10. Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval is received in writing.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

13. During performance tests, to determine compliance with the NSPS NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following equation:

$$NO_X = (NO_{XO}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_X = emission rate of NO_X at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{XO} = observed/measured NO_X concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

14. Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is impracticable to test at permitted capacity, the source/ emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to

the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion.

15. After the installation of low NO_X combustors or SCR, the permittee shall determine compliance with the NO_X standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 (now Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the Department's Central District office. The continuous

SPECIFIC CONDITIONS:

emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Assurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. EPA Method 7E or equivalent (requires Department approval in writing) shall be used for the Determination of Nitrogen Oxide Emissions.

17. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

18. This source/**emissions unit** shall comply with all applicable provisions of Chapter 403, F.S., and Chapters 17-2 and 17-4 **(now Chapters 62-210 thru 62-297 and 62-4, respectively)**, F.A.C.

19. This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

20. 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 62-2.210(1)).

21. This source/**emissions unit** shall comply with F.A.C. Rule 62-2.700 **(now Chapters 62-296 and 62-297)**, Stationary Point Source Emission Test Procedure.

22. Pursuant to Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but is not limited to, the following: sulfur and nitrogen contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and represents the previous calendar year's operation.

23. The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are printed in bold type.

SPECIFIC CONDITIONS:

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

25. If Florida is granted interim or full approval for the Title V operation permit program prior to December 1, 1995, this condition is negated. An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the permittee 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. (Rules 62-4.055 and 62-4.220, F.A.C.)

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director
Division of Air Resources
Management

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rex Taylor
City Manager, Utilities Director
City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery 4/9

C. Signature
X ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7099 3400 0000 1453 2238

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

7099 3400 0000 1453 2238

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. Rex Taylor

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (to be completed by mailer)
Mr. Rex Taylor
Street, Apt. No., or PO Box No.
100 17th Street
City, State, ZIP+4
Vero Beach, Florida 32960

PS Form 3800, July 1999 See Reverse for Instructions

Memorandum

Florida Department of
Environmental Protection

TO: C. H. Fancy

THRU: Scott Sheplak

FROM: Edward Svec

DATE: January 17, 2001

SUBJECT: City of Vero Beach Municipal Utilities Plant
DEP File No. 0610029-004-AC

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the compressor inlet fogger project at the City of Vero Beach Municipal Utilities Plant. The application is to install an inlet fogger ahead of the compressor inlet of a combined cycle combustion turbine. The fogger will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the fogger will allow the unit to operate closer to its rated capacity.

Both short-term and annual emissions will increase because the heat rate through the unit will increase when the fogger is operational. Maximum short-term emissions will still occur during cold days when use of the fogger is not feasible. The unit already complies with 40 CFR 60, Subpart GG, so NSPS applicability is not an issue. The City of Vero Beach will not have to limit the operation of the fogger to insure PSD is not triggered by their use.

I recommend your signature and approval of the cover letter and Intent to Issue.

SS/es

Attachments

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:
City of Vero Beach
Municipal Utilities Plant

DRAFT Permit No.: 0610029-004-AC

Project type: PSD Permit Modification

I HEREBY CERTIFY *that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

Scott M. Sheplak, P.E. date
Registration Number: 48866

Permitting Authority:
Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/921-9532
Fax: 850/922-6979

Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Jeb Bush
Governor

David B. Struhs
Secretary

January 18, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Rex Taylor, City Manager, Utilities Director
City of Vero Beach
Post Office Box 1389
Vero Beach, Florida 32961-1389

Re: DEP File No. 0610029-004-AC (PSD-FL-152C)
City of Vero Beach Municipal Utilities
Inlet Fogger Installation

Dear Mr. Taylor:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination, for the referenced project in Indian River County. The Department's Intent to Issue PSD Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION" are also included.

The "Public Notice of Intent to Issue PSD Permit Modification" must be published one time only, as soon as possible, the legal advertising section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (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 modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Scott Sheplak, P.E., Administrator, Title V Section at the above letterhead address. If you have any questions, please call Mr. Edward J. Svec at 850/921-8985.

Sincerely,

Scott Sheplak

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

CHF/es

Enclosures

In the Matter of an
Application for Permit by:

Mr. Rex Taylor
City Manager, Utilities Director
City of Vero Beach
Post Office Box 1389
Vero Beach, Florida 32961-1389

DEP File No. 0610029-004-AC (PSD-FL-152C)
Combustion Turbine 005
Inlet Evaporative Cooler Installation
City of Vero Beach Municipal Utilities
Indian River County

/

INTENT TO ISSUE PSD PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue a PSD permit modification (copy of DRAFT PSD Permit Modification attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, City of Vero Beach, applied on November 1, 2000, to the Department to add an inlet Evaporative Cooler to the combined cycle combustion turbine-electrical generator (Units 005) at the City of Vero Beach Municipal Utilities plant in Indian River County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212, and 40 CFR 52.21. The above actions are not exempt from permitting procedures. The action is not a modification of the facility with respect to the rules for the Prevention of Significant Deterioration (PSD). However, the Department has determined that a modification of the existing PSD permit (PSD permit modification) is required to conduct the work.

The Department intends to issue this PSD permit modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed ""Public Notice of Intent to Issue PSD Permit Modification." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final PSD Permit Modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue PSD Permit Modification." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the PSD Permit Modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the 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 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE PSD PERMIT MODIFICATION (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, and the DRAFT PSD Permit Modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on _____ to the person(s) listed:

Rex Taylor, City of Vero Beach*
Richard Siefert, City of Vero Beach
Ken Kosky P.E., Golder Associates
Len Kozlov, CD
Gregg Worley, EPA

Clerk Stamp

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

_____ _____
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0610029-004-AC (PSD-FL-152C)

City of Vero Beach Municipal Utilities Plant
Inlet Evaporative Cooler Project
Indian River County

The Department of Environmental Protection (Department) gives notice of its intent to issue a PSD permit modification to the City of Vero Beach. The permit is to install a Evaporative Cooler at the compressor inlet of a natural gas and No. 2 fuel oil-fired General Electric PG6541B combined cycle combustion turbine-electrical generator at the City of Vero Beach Municipal Utilities Plant in Indian River County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are City of Vero Beach, 100 17th Street, Vero Beach, Florida 32960.

The primary mover is the combustion turbine, which is typically nominally rated by General Electric at approximately 38 MW at 59 degrees when firing gas. The combustion turbine normally achieves its maximum rated output on cold (32 degrees) days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is only about 32 MW on hot (100 degrees) days because of the lower compressor inlet air density. The Evaporative Coolers can increase hot-day power output (under very dry conditions) by as much as 6 MW, thus almost restoring the units to their nominal rating.

The Evaporative Coolers provide no benefit under humid or cold (less than approximately 50 degrees) conditions and will not be used when they occur. The maximum output of approximately 38 MW will continue to occur at low ambient temperature. The result is that maximum hourly emissions will not increase although actual annual emissions will increase within their permitted limits because more fuel will be used on hot, relatively dry days.

Although the number of days during which the Evaporative Coolers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, the City of Vero Beach proposes enforceable conditions to insure non-applicability. The City of Vero Beach asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle unit. The unit is allowed to operate continuously and already have a very high availability factor. The maximum increase in annual emissions caused by the project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	0.68	25/15
SO_2	5.16	40
NO_X	6.98	40
VOC	0.60	40
CO	1.20	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to

Issue a PSD Permit Modification." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the 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 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project 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 Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: 850/488-1344
Fax: 850/922-6979

Department of Environmental Protection
Central District Office
3319 Maguire Boulevard, Suite 232
Orlando, Florida 33401
Telephone: 407/894-7555
Fax: 407/897-5963

The complete project file includes the application, technical evaluation, Draft PSD Permit Modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, Title V Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Applicant

City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

Authorized Representative: Rex Taylor, City Manager, Utilities Director

2. Source Name and Location

City of Vero Beach Municipal Utilities
100 17th Street
Vero Beach, Florida 32960

UTM Coordinates: Zone 17, 561.4 km East and 3056.5 km North

3. Source Description

The City of Vero Beach Municipal Utilities Plant holds a Title V operating permit for four fossil fuel fired steam generators (Units 1-4), and one combined cycle gas turbine (Unit 5). Also included in this permit are two unregulated emissions units identified as fuel oil, gasoline and lube oil storage tanks and a wastewater treatment plant. Based on the Title V application, this facility is a major source of hazardous air pollutants (HAPs).

Fossil Fuel Steam Generator, Unit 1, rated at 13 MW, 202 mmBtu/hr for natural gas and 140 mmBtu/hr for fuel oil, capable of burning any combination of natural gas and numbers 2, 4 and 6 fuel oil, with emissions exhausted through a 200 ft. stack shared with Emissions Unit 002. The emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 1 began commercial operation in 1961.

Fossil Fuel Steam Generator, Unit 2, rated at 17 MW, 248 mmBtu/hr for natural gas and 243 mmBtu/hr for fuel oil, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack shared with Emissions Unit 001. The emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 2 began commercial operation in 1964.

Fossil Fuel Steam Generator, Unit 3, rated at 34 MW, 417 mmBtu/hr for natural gas and 410 mmBtu/hr for fuel oil, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack. The emissions unit is regulated under Acid Rain, Phase II and Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input. Fossil fuel fired steam generator Unit 3 began commercial operation in 1971.

Fossil Fuel Steam Generator, Unit 4, rated at 56 MW, 685 mmBtu/hr, capable of burning any combination of natural gas, numbers 2, 4 and 6 fuel oil, and propane as an ignitor fuel, with emissions exhausted through a 200 ft. stack. The emissions unit is regulated under Acid Rain, Phase II, and is subject to 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971. Fossil fuel fired steam generator Unit 4 began commercial operation in 1976.

Combined Cycle Gas Turbine, Unit 5, a General Electric Model PG6541B, is rated at 38 MW, 455 mmBtu/hr for number 2 fuel oil and 414 mmBtu/hr for natural gas, capable of burning any combination of, number 2 fuel oil, and natural gas, with emissions exhausted through a 125 ft. stack. This emissions unit is regulated under Acid Rain, Phase II and is subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. This unit underwent a BACT Determination dated June 28, 1991. BACT Limits were incorporated into the subsequent PSD permits including AC 31-253502 (PSD-FL-152B). Exhaust is vented through the heat recovery steam generator that is not equipped with duct burners and then through a 125 ft. stack. Emissions are controlled by dry low-NOx burners when firing natural gas, and by water injection when firing fuel oil. The turbine exhaust may also be vented through a bypass stack for simple cycle operation. The turbine began commercial operation in 1992.

4. Current Permit and Major Regulatory Program Status

City of Vero Beach Municipal Utilities Units 1,2, and 3 were granted operating permits as existing units by the Department. Construction of Unit 4 was authorized by the Department under permit AC31-2182. Unit 5 was authorized construction under AC31-184928 and Permit.PSD-FL-152. Unit 5 was modified by permits AC31-184928A and PSD-FL-152A on March 27, 1995 and again by permits AC31-253502 and PSD-FL-152B on September 21, 1995. AC31-253502/ PSD-FL-152B effectively superseded the previous construction permits.

The facility operates under Title V Air Operation Permit No. 0610029-002-AV effective January 1, 1998. This facility is a major source of hazardous air pollutants (HAPs) based on information submitted in the Title V application.

The combustion turbine is subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. The combined cycle unit and the fossil fuel steam generators are regulated under the Title IV of the Clean Air Act, Acid Rain, Phase II.

5. Permit Modification Request

On November 1, 2000 the Department received a request from the City of Vero Beach for modification of its permits to install direct water spray fogging systems in the inlet duct of Combustion Turbine (CT) Unit 5 (ARMS Emissions Unit 005). The project is a performance enhancement that can improve both the turbine power output and the heat rate of the unit. The principle is based on evaporative cooling of the incoming, filtered, ambient air to lower its temperature and increase its density.

The combustion turbine is typically rated by General Electric at approximately 38 MW at 59 degrees when firing gas. The combustion turbines (exclusive of the steam cycle) normally achieve their maximum rated output on cold (32 degrees) days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is only about 32 MW on hot (100 degrees) days because of the lower compressor inlet air density. The foggers can increase hot-day power output (under dry conditions) by around 6 MW, thus almost restoring the units to their nominal rating. The foggers provide no benefit under humid or cold (less than approximately 50 degrees) conditions and will not be used when they occur. The maximum output of approximately 38 MW will continue to occur at low ambient temperature.

Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. Emissions Increases Due to Modification/Method of Operation

The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

Assuming a design condition for Florida of 95 degrees (°F) and 50 percent (%) relative humidity, evaporative cooling to the point of saturation of the incoming gas stream results in a temperature decrease of approximately 16 °F to 79 °F. This represents an increase of roughly 5% in power output or on the order of 2 MW. Under average annually averaged conditions, the reduction typically possible is on the order of 5.5 °F, with an associated power increase of about 1 MW.

Refer to attached Heat Input versus Ambient Temperature Curve. The City of Vero Beach estimated that that heat input to the combustion turbine will increase by approximately 1.2 mmBtu per hour per degree of temperature reduction (mmBtu/hr/°F) by evaporative cooling, when firing natural gas. If emissions rates are known in terms of pounds per mmBtu (lb/mmBtu), the increase on hourly emissions can be estimated.

The City of Vero Beach assumed that the unit will be operated 8,760 hours per year gas and 2,871 hours on oil. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit (°F) times the emissions rate in lb/mmBtu for the number of °F –hours proposed for the turbine. The °F –hours/year represents the maximum potential amount of annual temperature reduction of evaporative cooling and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the °F –hours for gas firing are calculated by multiplying 8,760 hours by 10 °F, or 87,600 °F –hours. For Unit 5, a maximum of 58,890 °F-hours of operation on natural gas and 28,710 °F-hours of operation firing distillate fuel oil was used as the basis for the annual emissions estimate. Annual emissions are estimated as detailed in the following table.

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET FOGGERS AT FOUR UNITS

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (gas)	Emission Increase ton/yr (oil)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.1070	0.1736	5.56	3.25	6.98	40
PM/PM_{10}	0.0060	0.0250	0.31	0.47	0.68	25/15
CO	0.0224	0.0226	1.16	0.42	1.20	100
VOC	0.0112	0.0113	0.58	0.21	0.60	40
SO_2	0.0030	0.2700	0.16	5.05	5.16	40

Source: Application submitted on November 1, 2000.

Limiting the unit to 5,889 hours of operation on gas and 2,871 hours of operation on oil will not effectively insure that annual emissions increases will not exceed the values given above. This is because the hours of operation will be chosen with a bias toward the days when the possible temperature decrease is greater than that assumed in the calculation. However, because the annual increases are so far below PSD thresholds, restriction to the current fuel use restrictions contained in the current Title V permit will ensure the thresholds will not be exceeded.

The emissions increases calculated are the direct result from the physical change in or change in method of operation such as is the installation of the inlet foggers. These assume that the ability to achieve greater power output when the foggers are used does not result in emissions increases outside the turbines original power curve. The rationale is discussed below.

The emissions characteristics (GE performance curves) do not change as a result of the use of the foggers from what would normally occur throughout the entire range of temperatures and relative humidity. Rather, the foggers move the operating points along the same curve toward the power and emissions that normally occur at lower temperatures. The worst case emissions scenario will still occur during the winter months and will occur with the foggers off. According to GE (reference: Brooks, 1996), evaporative cooling is limited to ambient temperatures of 59 °F and above because of the potential for icing the compressor.

7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Unit 5 resulting in **significant net emissions increases** is subject to PSD review. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

> *Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a net **emissions increase** equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included (see PSD Threshold) in the Table above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as:

> *Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the **actual emissions** of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

> *Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:*
>
> *(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.*
>
> *(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.*

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun ***normal operations*** *on a particular date, actual emissions shall equal the* ***potential*** *emissions of the emissions unit on that date.*

(d) ***For an electric utility steam generating unit*** *(other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.*

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1994 are as follows:

Annual Operating Hours 1994 - 1999

1994	1995	1996	1997	1998	1999
7,212	7,302	7,794	4,073	2,540	3,324

The operation can be characterized as "baseload." The foggers will be allowed to operate continuously but will be limited in terms of "degree-hours." As previously mentioned, if the average temperature drop is in fact 10 °F, they can operate 5,889 hours on gas and 2,871 hours on oil for a total of 8,70 hours per year.

The combustion turbines have clearly begun *normal operation.* As modern combined cycle units, they are very efficient in comparison with conventional boiler-based steam-electrical units. The combustion turbine-electrical generator produces 38 MW (nominal) of electrical power. Therefore, the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

The City of Vero Beach asserts and the Department accepts that use of the inlet foggers will not affect the hours of operation of the unit. As mentioned previously, they are already baseload units and any downtime is more likely due to maintenance than to demand. Most likely the combined cycle unit will continue their normal baseload operation within the recent historical hours per year per unit. The emissions are directly related to the hours of operation.

The modification project can be isolated from the normal operation of the units and its effects can be directly predicted and measured without having to make annual comparisons of actual emissions

from the combined cycle units before and after the change. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation. The future actual emissions caused by the modification are equal to the potential-to-emit, which is based on the increases in heat input associated with the use of the fogging system.

The number of days during which the foggers can economically operate probably limits actual emissions increases to levels below significance for the purposes of PSD applicability. However, the City of Vero Beach sample calculations proposes to limit operation of the foggers to the equivalent of 5,889 (gas) when 2,871 (oil) hours per year on the basis of a 10 °F average compressor are used. This equates to 58,890 °F-hr on gas and 28,710 °F-hr on oil. If, for example, the average temperature drop is actually 20 °F, the foggers will only be allowed to operate half as many hours as the base case. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates. The Department concludes, therefore, that PSD does not apply to this project.

8. **Proposed Addition of New Conditions to PSD-FL-152**

The combustion turbine was constructed under the authority of PSD permit No. PSD-FL-152 issued on July 1,1991. This permit was modified on March 27, 1995 and September 21, 1995. The Department will amend PSD-FL-152 adding a new condition authorizing installation and operation of the inlet fogger.

The new condition applicable to the inlet fogger proposed for Unit 5 (ARMS Emissions Unit 005) is shown in the draft PSD permit modifications. It does not limit operation of the inlet fogger..

9. **Conclusions**

The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers.

The Department concludes that PSD is not applicable to this project since this project as presented will not result in significant net emissions increase to major facility. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than combined cycle unit inlet fogger installations. It does not set precedents related to any physical changes within the compressors, combustors, rotors, or other key components at such units. The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, New Source Performance Standards.

For further details regarding this review, contact:

Scott Sheplak, P.E. Administrator
Edward Svec, Review Engineer
Title V Section
Bureau of Air Regulation
850/488-1344

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

PERMITTEE:

City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

Authorized Representative:

Rex Taylor
City Manager, Utilities Director

DEP File No.	PSD-FL-152 C
Permit No.	0610029-004-AC
Project	Evaporative Cooling System
SIC No.	4911
Expires:	December 31, 2001

PROJECT AND LOCATION:

Installation of an evaporative cooling system on the existing 38 MW combined cycle General Electric PG6541B combustion turbine-electrical generator designated as City of Vero Beach Municipal Utilities Unit 5. This permit is a re-issuance of the original air construction permit authorizing the construction of Unit 5 and incorporating subsequent modifications including the present project.

The unit is located at the as City of Vero Beach Municipal Utilities Plant, 100 17th Street, Vero Beach, Indian River County.

The UTM coordinates are: Zone 17; 561.4 km E and 3056.5 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC	Construction Permit General Conditions
Appendix SC	Specific Conditions including Permits PSD-FL-152 (AC31-184928), PSD-FL-152A (AC31-184928A) and PSD-FL-152B (AC31-253502)

Howard L. Rhodes, Director
Division of Air Resources
Management

APPENDIX SC

SPECIFIC CONDITIONS

1. This permit, PSD-FL-152C (DEP File 0610029-004-AC), supersedes PSD permit PSD-FL-152B (DEP File AC31-253502) issued on September 21, 1995.
2. The provisions of air construction permit PSD-FL-152 (AC31-184928) issued on July 1, 1991 to construct Unit 5 and subsequent revisions PSD-FL-152A (AC31-184928A) issued on March 27, 1995 and PSD-FL-152B (AC31-253502) issued on September 21, 1995 are attached and incorporated into this air construction permit in addition to the change that follows in Specific Condition 3 below.
3. An evaporative cooling system may be installed at the compressor inlet of the City of Vero Beach Municipal Utilities Unit 5. The system may be operated at any time that Unit 5 is in operation.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

G.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.

G.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 or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and 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 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.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment 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.

G.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.

G.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.

G.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 and 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.

G.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.

G.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 extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.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.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, 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.

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

G.13 This re-issued permit incorporates previous determinations for:

a) Best Available Control Technology (X)
b) Prevention of Significant Deterioration (X); and
c) New Source Performance Standards (X).

G.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 or 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; and
6. The results of such analyses.

G.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.

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rex Taylor, City Manager
Utilities Director
City of Vero Beach
P. O. Box 1389
Vero Beach, FL 32961-1389

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery 1/22

C. Signature
X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7099 3400 0000 1453 2740

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

7099 3400 0000 1453 2740

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. Rex Taylor, City Manager

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
1/18/01

Name (Please Print Clearly) (to be completed by mailer)
City of Vero Beach
Street, Apt. No.; or PO Box No.
P.O. Box 1389
City, State, ZIP+4
Vero Beach, FL 32961-1389

PS Form 3800, July 1999 See Reverse for Instructions

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT AMENDMENT

In the matter of an
Application for Permit Amendment by:

DEP File No. AC 31-253502
PSD-FL-152B
Indian River County

Mr. Mike Siefert
City of Vero Beach
100 - 17th Street
Post Office Box 1389
Vero Beach, Florida 32961-1389

Enclosed is amended permit No. AC 31-253502, PSD-FL-152B, to incorporate permit changes to reflect the installation of new dry low-NOx combustors. This permit amendment is issued pursuant to Section 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 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 14 days from the date this Notice is filed with the Clerk of the Department.

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 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **NOTICE OF PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 9-27-95 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 9-27-95
Date

Copies furnished to:
T. R. Nason, CVB
Gary Perko, HGSS
Charles Collins, CD
Jewell Harper, EPA
John Bunyak, NPS

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 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.

3. Article Addressed to:
Mike Siefert
City of Vero Bch
100-17th Street
PO Box 1389
Vero Beach, Fl 32961-1389

4a. Article Number
Z 127 632 523

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
10-2-95

5. Signature (Addressee)

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

6. Signature (Agent)
[signature]

PS Form 3811, December 1991 *U.S.G.P.O. 1993—352-714 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 127 632 523

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

UNITED STATES POSTAL SERVICE

Sent to: Mike Siefert	
Street and No.: City of Vero Bch	
P.O., State and ZIP Code: Vero Bch, Fl	
Postage	$
Certified Fee	
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: AC31-253502 PSD-Fl-152B. 9-27-95	

PS Form 3800, March 1993

Final Determination

Vero Beach Municipal Power Plant
Power Plant Unit 5
Indian River County, Florida

Construction Permit No.
AC 31-253502
PSD-FL-152B

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

September 21, 1995

Final Determination

Vero Beach Municipal Power Plant
Power Plant Unit 5

AC 31-253502
PSD-FL-152B

The City of Vero Beach's request for permit modifications at its facility in Vero Beach, Indian River County, Florida, has been reviewed by the Bureau of Air Regulation in Tallahassee. The Notice of Intent to Issue was distributed on August 4, 1995. Copies of the evaluation were available for inspection at the Department's offices in Orlando and Tallahassee.

Comments were submitted Mr. Gary V. Perko, Esq., on behalf of the City of Vero Beach. The Bureau has considered Mr. Perko's comments and has agreed on the changes he requested. In addition, the changes that were pointed out were the changes that were being made in this permitting action; however, the transposition of some of the changes did not happen in the proposed permit for some reason. Specific Condition No. 7 will be changed as follows:

A. **Specific Condition No. 7.**:

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

To: 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 3,**482** gals/hr.

- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed **33%** of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or **455** MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

B. **Attachments to be incorporated**:

o Mr. Gary V. Perko's letter with attachment received August 18, 1995.
o Mr. Shuler W. Massey's letter with enclosure dated August 28, 1995.

It is recommended that the proposed construction permit/amended federal construction permit, No. AC 31-253502/PSD-FL-152B, be issued with the above changes made.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

APIS No: 30ORL310005
Permit Number: AC31-253502/PSD-FL-152B
Expiration Date: August 15, 1996
County: Indian River
Latitude/Longitude: 27°37'59"N 80°22'41"W
Project: Modification of Power Plant Unit 5: 60 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). 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 of Environmental Protection (Department) and specifically described as follows:

For authorization to increase the allowable sulfur dioxide (SO_2) emissions from the existing 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, Florida. The increase is due to the installation of dry low-NO_x burners and an increase in the potential fuel oil consumption rate. The UTM coordinates are 561.385 km East and 3056.538 km North.

The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and an associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded. The original BACT determination does not require revision.

Attachments are listed below:

1. Construction permits, Nos. AC 31-184928/PSD-FL-152, and revised BACT issued June 28, 1991.
2. Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
3. Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.
4. **Mr. C. H. Fancy's letter with attachments dated August 4, 1995.**
5. **Mr. Gary V. Perko's letter with attachment received August 18, 1995.**
6. **Mr. Shuler W. Massey's letter with enclosure dated August 28, 1995.**

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, F.S. 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 acknowledgment 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 F.S. 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

GENERAL CONDITIONS:

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.

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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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): AC 31-184928
(X) Determination of Prevention of Significant Deterioration (PSD): PSD-FL-152
(X) Compliance with New Source Performance Standards (NSPS): 40 CFR 60, Subpart GG

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:

- 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.

SPECIFIC CONDITIONS:

1. **The permittee shall maintain the construction required duct modules for the potential installation of a selective catalytic reduction (SCR) system.**

2. The Department acknowledges that the permittee installed dry low-NO_x combustors. Based on the compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table 5, which replaces Tables 1 thru 4. In the event a SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised determination of BACT. If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient **reference** concentrations (ARC) of the following pollutants shall not be exceeded:

	Ambient **Reference** Concentrations ug/m^3		
Pollutant	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

4. Visible emissions shall not exceed 10% opacity.

5. This source/**emissions unit** is allowed to operate continuously (8760 hours per year).

6. This source/**emissions unit** is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed **33%** of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.

SPECIFIC CONDITIONS:

- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

8. Any change in the method of operation, equipment or operating hours shall be submitted to the Department's Bureau of Air Regulation office and Central District office.

9. 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.

10. Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval is received in writing.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

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

$$NO_x = (NO_{xo}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{xo} = observed/measured NO_x concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

14. Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is **impracticable** to test at permitted capacity, the source/ emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to

the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion.

15. After the installation of low NO_X combustors or SCR, the permittee shall determine compliance with the NO_X standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 (now Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the Department's Central District office. The continuous

SPECIFIC CONDITIONS:

emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Assurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. EPA Method 7E or equivalent (requires Department approval in writing) shall be used for the Determination of Nitrogen Oxide Emissions.

17. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

18. This source/**emissions unit** shall comply with all applicable provisions of Chapter 403, F.S., and Chapters 17-2 and 17-4 **(now Chapters 62-210 thru 62-297 and 62-4, respectively)**, F.A.C.

19. This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

20. 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 62-2.210(1)).

21. This source/**emissions unit** shall comply with F.A.C. Rule 62-2.700 **(now Chapters 62-296 and 62-297)**, Stationary Point Source Emission Test Procedure.

22. Pursuant to Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but is not limited to, the following: sulfur and nitrogen contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and represents the previous calendar year's operation.

23. The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are printed in bold type.

SPECIFIC CONDITIONS:

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

25. **If Florida is granted interim or full approval for the Title V operation permit program prior to December 1, 1995, this condition is negated.** An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the permittee 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. (Rules 62-4.055 and 62-4.220, F.A.C.)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director
Division of Air Resources Management

ATTACHMENTS

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 567-5151
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

August 28, 1995

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

RE: Unit 5 Construction Permit AC31-253502; PSD-FL-152B

Mr. Fancy:

Please find enclosed, a copy of the Notice of Intent to Issue Permit for the Unit 5 Combustion Turbine, which was published in the August 25, 1995, issue of the Press Journal, the City's local newspaper.

If you have any questions regarding this matter, please contact Mike Siefert at (407) 562-7231.

Sincerely,

Shuler W. Massey
Director of Power Resources

SWM/ms

Mail Certified No. Z 115 133 075

cc:	Mike Siefert	CVB
	T. R. Nason	CVB
	Gary Perko	HGSS
	Charles Collins	FDEP Central District

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT
AC 31-253502
PSD-FL-152B

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit to Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, FL 32961, for a modification to Unit 5, which is an existing 60 MW combined cycle gas turbine. The existing facility is located in Indian River County, Florida. A determination of Best Available Control Technology was required in the original permitting activity, issued June 28, 1991, and will not be revised. The modification is associated with the installation of dry low-NOx burners for NOx emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO^2. SINCE THE REquested changes are a modification, (i.e., emission related and federally enforceable), issuance of a new state construction permit/amended federal construction permit is deemed necessary. For the SO^2 EMISSIONS IMPACT, THE PROPOSED LEVEL W A S evaluated by modeling during the original permitting activity and is acceptable. The Department is issuing this intent to issue for the reasons stated above and in the transmittal letter.

Any 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 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, F.A.C.

The 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
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bruce Mitchell at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Aug. 25, 1995 1227875

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
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KRISTIN M. CONROY
CONNIE C. DURRENCE
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

August 18, 1995

RECEIVED
AUG 18 1995
Bureau of
Air Regulation

BY HAND DELIVERY

Mr. Bruce Mitchell
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Construction Permit Issuance/Amendment
Permit No. AC 31-253502, PSD-FL-152B

Dear Mr. Mitchell:

I am writing on behalf of the City of Vero Beach regarding the above-referenced permit which the Department (re)issued by letter dated August 4, 1995. As discussed by telephone, most of the changes to the original permit discussed in the Department's letter are consistent with our letter of May 16, 1995, and are, therefore, acceptable to the City of Vero Beach. Unfortunately, due to apparent typographical errors, some of the agreed-upon changes were not made in the attached permit. In that regard, Specific Condition 7 should read as follows (bolded items indicate agreed-upon changes that were not made in the attached permit):

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 3,482 gals/hr.
- Maximum annual No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceedy **33%** of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopasacals presure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

In addition, the permit attached to the Department's letter fail to include minor revisions to certain annual emission limits which are necessitated by the new oil-firing capacity factor limit of 33% (rather than 25% in the original permit). The correct annual emission limits as indicated in the attached table, which was provided with our letter of May 16, 1995.

As discussed by telephone, the City is prepared to accept the new (reissued) permit once the typographical errors noted above. Your consideration in this matter is very much appreciated. If you any questions, please do not hesitate to call.

Sincerely,

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Peter Cunningham (HGSS)
Mike Siefert (CVB)

$E_{SO_2} = 3,482 \frac{gal}{hr} \frac{142 (0.25)}{1000} = 123.6 \frac{lbs\ SO_2}{hr}$

TABLE A
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG: Tons Per Year[a][b]	Basis
NOx[c]	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	239	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	178.2	BACT
PM	0.006 lb/MMBtu .06 #/hr	0.025 lb/MMBtu 11.4 #/hr	23.7	BACT
VOC	0.0112 lb/MMBtu 4.6	0.0113 lb/MMBtu ≤1	21.0	BACT
CO	0.0224 lb/MMBtu 9.3	0.0226 lb/MMBtu 10.3	45.0	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu .0014	0.002	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu .013	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu .0013	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu 3.69	5.33	BACT

(a) Tons per year figures based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas): 414 MMBtu/hr
Base Load (oil): 455 MMBtu/hr

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

414mm Btu/hr gas
455mm Btu/hr oil

CITY OF VERO BEACH MUNICIPAL POWER PLANT UNIT 5 (AC31-253502/PSD-FL-152B)

Table 5 (New: replaces Tables 1 thru 4)
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year (a)(b)	Basis
NO_x(c)	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25% S by weight	178.2	BACT
PM	0.006 lbs/MMBtu	0.025 lbs/MMBtu	23.7	BACT
VOC	0.0112 lbs/MMBtu	0.0113 lbs/MMBtu	21.0	BACT
CO	0.0224 lbs/MMBtu	0.0226 lbs/MMBtu	42.1	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0019	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (Be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.3	BACT

(a) Tons per year figures based on 67 percent capacity factor for natural gas firing; 33 percent capacity factor for No. 2 fuel oil firing. Maximum sulfur content of the No. 2 fuel oil shall not exceed 0.25%, by weight.

(b) Based on following heat input rates while firing: Natural Gas - 414 MMBtu/hr; and, Fuel Oil - 455 MMBtu/hr.

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

August 4, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Construction Permit Issuance/Amendment
AC 31-253502/PSD-FL-152B
City of Vero Beach Municipal Power Plant Unit 5

The Department has reviewed Mr. Peter C. Cunningham's letter with attachments requesting changes to previously issued state/federal construction permits, Nos. AC 31-184928/PSD-FL-152. The majority of the issues are related to the installation of "dry low-NO_x burners" to control NO_x emissions and many of these issues were addressed in a March 27, 1995 amendment letter (AC 31-184928A/PSD-FL-152A). However, since some of the changes are a modification to what was originally issued (i.e., emissions related and federally enforceable), issuance of a new state construction permit is deemed necessary, while amending the federal permit, and includes a public notice requirement. Based on the above, the following is the Department's response (R) to the issues contained in "Attachment A" and will be in the order that they are addressed (changes will be bolded). In addition, Specific Condition No. 1 will be revised since the duct modules for future potential SCR installation were installed during construction.

1. Specific Condition No. 1.: Since the ducts for future potential SCR installation were installed during construction, then the condition will be revised as follows:

From: During the first year of commercial operation of Unit 5, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1. In addition, when constructing the combined cycle generating unit, the permittee shall install duct modules suitable for later installation of a selective catalytic reduction (SCR) system.

To: **The permittee shall maintain the construction required duct modules for the potential** installation of a selective catalytic reduction (SCR) system.

2. Specific Condition No. 2.: Request was to revise the condition to delete any references of SCR and reflect a new Table A to replace Table 5.

R: There will be no change made because the issue regarding SCR was construction related and addressed in the amendment letter of March 27, 1995; and, the table "ID" will not be changed since the ID was also established in the amendment letter.

3. Specific Condition No. 7.: Request was to revise the condition to increase the allowable fuel oil consumption to 3,482 gals/hr, to increase the annual consumption rate of fuel oil to 10.0 million gallons, to limit the maximum annual capacity factor while firing fuel oil to 33%, and increase the allowable heat input while on fuel oil to 455 MMBtu/hr.

R: Based on the installation of the "dry low-NO_x burners" and their operation, the resultant changes and requests are acceptable to the Department and the following changes will be made. In addition, the requested annual 10.0 million gallons of fuel oil usage was approved during the original permitting exercise with a stipulation that dry low-NO_x burners be installed.

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

To: 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or **455** MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

4. Specific Condition No. 10.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R: No change is necessary.

5. Specific Condition No. 13.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R. No change is necessary.

6. Specific Condition No. 14.: Request was to make changes that were handled in the March 27, 1995 amendment letter and to point out the misspelling of "impracticable".

R. The Department will make the spelling change from "impractable" to "impracticable" in the text.

7. Specific Condition No. 16.: Request was to change the citing of "Chapter 17-2" to "Chapter 62-297" contained in No. 16.b. This rule renumbering was recognized in the March 27, 1995 amendment letter.

R.: No change is necessary.

8. Specific Condition No. 17.: Request was to delete the requirement to record the nitrogen content in the fuel oil.

R.: The request is denied as this is a specific requirement pursuant to 40 CFR 60.334.

9. Specific Condition No. 19.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R.: No change is necessary.

10. Specific Condition No. 22.: Request was to delete the requirement to report the nitrogen content in the fuel oil in the AOR.

R.: The request is denied as this parameter is a requirement to be measured daily pursuant to 40 CFR 60.334. Since nitrogen has to be measured daily, it is not impractical to ask that it be reported once a year.

11. The request is to revise Table 5 to reflect the fuel firing capacity factors (i.e., 67% for gas-firing and 33% for fuel oil-firing) and the SO_2 limitation of 178.2 TPY, which reflects the annual fuel oil consumption.

R. The requests are acceptable and the changes will be made. In addition, the impact of the requested SO_2 limitation was previously evaluated by modeling at the time of the original permitting activity and is acceptable.

12. **Attachments to be Incorporated**:

- Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
- Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

The proposed new state construction permit/amended federal construction permit (Nos. AC 31-253502/PSD-FL-152B) and the Notice of Intent (Public Notice) are enclosed. If there are any questions, please call Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/BM/m

Attachments

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS
D. Beason, Esq., DEP
P. Cunningham, Esq., HGS&S

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Request for Permit by:

DEP File No. AC 31-253502
PSD-FL-152B
Indian River County

Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, FL 32961

_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit (copy enclosed) for the proposed project as detailed in the request specified above, for the reasons stated in the enclosed permit. A revision to the original Best Available Control Technology determination issued on June 28, 1991, is not required.

The applicant, Vero Beach Municipal Power Plant, applied on May 16, 1995, to the Department of Environmental Protection for a modification to the existing Unit 5, which is a 60 MW combined cycle gas turbine. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The facility is located in the Vero Beach, Indian River County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.) and Florida Administrative Code (F.A.C.) Chapters 62-212 and 62-4. The proposal is not exempt from permitting procedures. The Department has determined that a construction permit 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. 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be the one with significant circulation in the area that may be affected by the permitting action. If you are

uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 (904-488-1344), 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, 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 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

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

c: C. Collins, CD
J. Bunyak, NPS
P. Cunningham, Esq., HGS&S
J. Harper, EPA
D. Beason, Esq., DEP

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 8-4-95 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 8-4-95
Date

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 31-253502
PSD-FL-152B

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit to Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, FL 32961, for a modification to Unit 5, which is an existing 60 MW combined cycle gas turbine. The existing facility is located Indian River County, Florida. A determination of Best Available Control Technology was required in the original permitting activity, issued June 28, 1991, and will not be revised. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. Since the requested changes are a modification, (i.e., emission related and federally enforceable), issuance of a new state construction permit/amended federal construction permit is deemed necessary. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The Department is issuing this Intent to Issue for the reasons stated above and in the transmittal letter.

Any 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 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, F.A.C.

The 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
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bruce Mitchell at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

APIS No: 30ORL310005
Permit Number: AC31-253502/PSD-FL-152B
Expiration Date: March 1, 1996
County: Indian River
Latitude/Longitude: 27°37'59"N 80°22'41"W
Project: Modification of Power Plant Unit 5: 60 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). 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 of Environmental Protection (Department) and specifically described as follows:

For authorization to increase the allowable sulfur dioxide (SO_2) emissions from the existing 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, Florida. The increase is due to the installation of dry low-NO_x burners and an increase in the potential fuel oil consumption rate. The UTM coordinates are 561.385 km East and 3056.538 km North.

The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and an associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded. The original BACT determination does not require revision.

Attachments are listed below:

1. Construction permits, Nos. AC 31-184928/PSD-FL-152, and revised BACT issued June 28, 1991.
2. Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
3. Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

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, F.S. 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 acknowledgment 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 F.S. 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

GENERAL CONDITIONS:

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.

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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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): AC 31-184928
(X) Determination of Prevention of Significant Deterioration (PSD): PSD-FL-152
(X) Compliance with New Source Performance Standards (NSPS): 40 CFR 60, Subpart GG

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:

- 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.

SPECIFIC CONDITIONS:

1. **The permittee shall maintain the construction required duct modules for the potential installation of a selective catalytic reduction (SCR) system.**

2. The Department acknowledges that the permittee installed dry low-NO_x combustors. Based on the compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table 5, which replaces Tables 1 thru 4. In the event a SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised determination of BACT. If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient **reference** concentrations (ARC) of the following pollutants shall not be exceeded:

	Ambient **Reference** Concentrations ug/m^3		
Pollutant	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

4. Visible emissions shall not exceed 10% opacity.

5. This source/**emissions unit** is allowed to operate continuously (8760 hours per year).

6. This source/**emissions unit** is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.

SPECIFIC CONDITIONS:

- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

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

9. 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.

10. Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval is received in writing.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

13. During performance tests, to determine compliance with the NSPS NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following equation:

$$NO_X = (NO_{XO}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_X = emission rate of NO_X at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{XO} = observed/measured NO_X concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

14. Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is **impracticable** to test at permitted capacity, the source/ emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to

the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion.

15. After the installation of low NO_X combustors or SCR, the permittee shall determine compliance with the NO_X standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 (now Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the Department's Central District office. The continuous

SPECIFIC CONDITIONS:

emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Assurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. EPA Method 7E or equivalent (requires Department approval in writing) shall be used for the Determination of Nitrogen Oxide Emissions.

17. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

18. This source/**emissions unit** shall comply with all applicable provisions of Chapter 403, F.S., and Chapters 17-2 and 17-4 **(now Chapters 62-210 thru 62-297 and 62-4, respectively)**, F.A.C.

19. This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

20. 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 62-2.210(1)).

21. This source/**emissions unit** shall comply with F.A.C. Rule 62-2.700 **(now Chapters 62-296 and 62-297)**, Stationary Point Source Emission Test Procedure.

22. Pursuant to Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but is not limited to, the following: sulfur and nitrogen contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and represents the previous calendar year's operation.

23. The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded.

SPECIFIC CONDITIONS:

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

25. **If Florida is granted interim or full approval for the Title V operation permit program prior to December 1, 1995, this condition is negated.** An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the permittee 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. (Rules 62-4.055 and 62-4.220, F.A.C.)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____

Howard L. Rhodes, Director
Division of Air Resources Management

CITY OF VERO BEACH MUNICIPAL POWER PLANT UNIT 5 (AC31-253502/PSD-FL-152B)

Table 5 (New: replaces Tables 1 thru 4)
ALLOWABLE EMISSION LIMITS

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year (a)(b)	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x(c)	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25% S by weight	178.2	BACT
PM	0.006 lbs/MMBtu	0.025 lbs/MMBtu	20.1	BACT
VOC	0.0112 lbs/MMBtu	0.0113 lbs/MMBtu	20.7	BACT
CO	0.0224 lbs/MMBtu	0.0226 lbs/MMBtu	41.3	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (Be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.9	BACT

(a) Tons per year figures based on 67 percent capacity factor for natural gas firing; 33 percent capacity factor for No. 2 fuel oil firing. Maximum sulfur content of the No. 2 fuel oil shall not exceed 0.25%, by weight.

(b) Based on following heat input rates while firing: Natural Gas - 414 MMBtu/hr; and, Fuel Oil - 455 MMBtu/hr.

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

ATTACHMENTS AVAILABLE UPON REQUEST

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: September 21, 1995

SUBJECT: Approval of Construction Permit/Amendment
AC 31-253502/PSD-FL-152B
Vero Beach Municipal Power Plant
Power Plant Unit 5

Attached for your approval and signature is a construction permit/amended federal construction permit to incorporate permit changes to reflect the installation of new dry low-NO_x combustors. The proposed permitting action was prepared by the Bureau of Air Regulation.

The Unit 5 is a 60 MW combined cycle gas turbine, which can fire both natural gas and low sulfur fuel oil. The new combustors are capable of firing more fuel oil than the original combustors and will increase SO_2 emissions by a small amount.

The facility is located in Vero Beach, Indian River County, Florida.

I recommend your approval and signature.

CHF/bm/m

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 567-5151
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

August 28, 1995

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

RE: Unit 5 Construction Permit AC31-253502; PSD-FL-152B

Mr. Fancy:

Please find enclosed, a copy of the Notice of Intent to Issue Permit for the Unit 5 Combustion Turbine, which was published in the August 25, 1995, issue of the Press Journal, the City's local newspaper.

If you have any questions regarding this matter, please contact Mike Siefert at (407) 562-7231.

Sincerely,

Shuler W. Massey
Director of Power Resources

SWM/ms

Mail Certified No. Z 115 133 075

cc:	Mike Siefert	CVB
	T. R. Nason	CVB
	Gary Perko	HGSS
	Charles Collins	FDEP Central District

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT
AC 31-253502
PSD-FL-152B

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Any 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 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, F.A.C.

The 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
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bruce Mitchell at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Aug. 25, 1995 1227875

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF VERO BEACH, Municipal Power Plant, Unit 5,

Petitioner,

vs.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Respondent.

OGC CASE NO. 95-_____

REQUEST FOR EXTENSION OF TIME

Petitioner, CITY OF VERO BEACH ("City"), by and through undersigned counsel, hereby requests an extension of time, through October 29, 1995, to file a petition for formal administrative proceedings in accordance with Section 120.57(1), Florida Statutes, in response to a proposed issuance of an amended air construction permit [File No. AC 31-253502/PSD-FL-152B] for Unit 5, a 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Indian River County. This request for an extension of time is filed pursuant to Rule 62-103.070, Florida Administrative Code. In support of the request, the City states:

1. On April 3, 1995, the City received a proposed letter amendment to the above-referenced permit [DEP File No. 31-184928A, PSD-FL-152A]. By order dated August 2, 1995, the Department extended the deadline for filing a petition for administrative proceedings on the proposed letter amendment until October 29, 1995 [OGC Case No. 95-0896].

2. After negotiations with representatives of the City, the Department issued the above-referenced amended permit by letter dated August 4, 1995. (Copy attached as Exhibit "1"). The City received the Notice of Intent to Issue Permit on August 7, 1995. Accordingly,

under the terms of the Notice of Intent to Issue Permit, the deadline for filing a petition for administrative proceedings on the above-referenced amended permit is August 21, 1995.

3. Although the Department's letter indicates that certain changes requested by the City are acceptable to the City, some of those changes were not made in the attached permit due to apparent typographical errors. Department staff have been advised of these apparent errors and have indicated that a corrected permit will be issued in the near future. (See Exhibit "2" hereto).

4. This request is filed simply as a protective measure to avoid waiver of the City's right to challenge objectionable conditions in the proposed letter amendment. 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 attempted to confer with W. Douglas Beason of the Department's Office of General Counsel, but was not able to reach Mr. Beason to determine the Department's position on the requested extension.

WHEREFORE, Petitioner respectfully requests that the Department enter an order granting it through and until October 29, 1995, to file a petition for formal administrative proceedings regarding the amended air construction permit for Unit 5 at the Vero Beach Municipal Power Plant [File No. AC 31-253502/PSD-FL-152B]

Respectfully submitted this 18th day of August, 1995.

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
Gary V. Perko
Post Office Box 6526
123 South Calhoun Street
Tallahassee, FL 32314
Attorneys for Petitioner, CITY OF VERO BEACH.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the original and one true and correct copy of the foregoing motion was hand-delivered to Kathy Carter, Clerk, Department of Environmental Protection, 3900 Commonwealth Blvd., Tallahassee, FL 32399-2400, and a true and correct copy was sent to the following this 18th day of August, 1995.

BY HAND-DELIVERY

Douglas Beason, Esquire
Office of General Counsel
Department of Environmental Protection
3900 Commonwealth Blvd., Room 353-3
Tallahassee, Florida 32399-3000

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
111 South Magnolia, Suite 4
Tallahassee, FL 32301

BY U.S. MAIL

Vivian F. Garfein
District Director
Department of Environmental Protection
Central Florida District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Attorney

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
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WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

KRISTIN M. CONROY
CONNIE C. DURRENCE
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

August 18, 1995

BY HAND DELIVERY

Mr. Bruce Mitchell
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Construction Permit Issuance/Amendment
Permit No. AC 31-253502, PSD-FL-152B

Dear Mr. Mitchell:

I am writing on behalf of the City of Vero Beach regarding the above-referenced permit which the Department (re)issued by letter dated August 4, 1995. As discussed by telephone, most of the changes to the original permit discussed in the Department's letter are consistent with our letter of May 16, 1995, and are, therefore, acceptable to the City of Vero Beach. Unfortunately, due to apparent typographical errors, some of the agreed-upon changes were not made in the attached permit. In that regard, Specific Condition 7 should read as follows (bolded items indicate agreed-upon changes that were not made in the attached permit):

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 3,482 gals/hr.
- Maximum annual No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceedy **33%** of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopasacals presure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

In addition, the permit attached to the Department's letter fail to include minor revisions to certain annual emission limits which are necessitated by the new oil-firing capacity factor limit of 33% (rather than 25% in the original permit). The correct annual emission limits as indicated in the attached table, which was provided with our letter of May 16, 1995.

As discussed by telephone, the City is prepared to accept the new (reissued) permit once the typographical errors noted above. Your consideration in this matter is very much appreciated. If you any questions, please do not hesitate to call.

Sincerely,

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Peter Cunningham (HGSS)
Mike Siefert (CVB)

TABLE A
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year[a][b]	Basis
NOx[c]	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	239	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	178.2	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	23.7	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.0	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	45.0	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.002	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.33	BACT

(a) Tons per year figures based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas): 414 MMBtu/hr
Base Load (oil): 455 MMBtu/hr

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

August 4, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Construction Permit Issuance/Amendment
AC 31-253502/PSD-FL-152B
City of Vero Beach Municipal Power Plant Unit 5

The Department has reviewed Mr. Peter C. Cunningham's letter with attachments requesting changes to previously issued state/federal construction permits, Nos. AC 31-184928/PSD-FL-152. The majority of the issues are related to the installation of "dry low-NO_x burners" to control NO_x emissions and many of these issues were addressed in a March 27, 1995 amendment letter (AC 31-184928A/PSD-FL-152A). However, since some of the changes are a modification to what was originally issued (i.e., emissions related and federally enforceable), issuance of a new state construction permit is deemed necessary, while amending the federal permit, and includes a public notice requirement. Based on the above, the following is the Department's response (R) to the issues contained in "Attachment A" and will be in the order that they are addressed (changes will be bolded). In addition, Specific Condition No. 1 will be revised since the duct modules for future potential SCR installation were installed during construction.

1. Specific Condition No. 1.: Since the ducts for future potential SCR installation were installed during construction, then the condition will be revised as follows:

From: During the first year of commercial operation of Unit 5, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1. In addition, when constructing the combined cycle generating unit, the permittee shall install duct modules suitable for later installation of a selective catalytic reduction (SCR) system.

To: **The permittee shall maintain the construction required duct modules for the potential** installation of a selective catalytic reduction (SCR) system.

2. Specific Condition No. 2.: Request was to revise the condition to delete any references of SCR and reflect a new Table A to replace Table 5.

R: There will be no change made because the issue regarding SCR was construction related and addressed in the amendment letter of March 27, 1995; and, the table "ID" will not be changed since the ID was also established in the amendment letter.

3. Specific Condition No. 7.: Request was to revise the condition to increase the allowable fuel oil consumption to 3,482 gals/hr, to increase the annual consumption rate of fuel oil to 10.0 million gallons, to limit the maximum annual capacity factor while firing fuel oil to 33%, and increase the allowable heat input while on fuel oil to 455 MMBtu/hr.

R: Based on the installation of the "dry low-NO_x burners" and their operation, the resultant changes and requests are acceptable to the Department and the following changes will be made. In addition, the requested annual 10.0 million gallons of fuel oil usage was approved during the original permitting exercise with a stipulation that dry low-NO_x burners be installed.

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

To: 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

4. Specific Condition No. 10.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R: No change is necessary.

5. Specific Condition No. 13.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R. No change is necessary.

6. Specific Condition No. 14.: Request was to make changes that were handled in the March 27, 1995 amendment letter and to point out the misspelling of "impracticable".

R. The Department will make the spelling change from "impractable" to "impracticable" in the text.

7. Specific Condition No. 16.: Request was to change the citing of "Chapter 17-2" to "Chapter 62-297" contained in No. 16.b. This rule renumbering was recognized in the March 27, 1995 amendment letter.

R.: No change is necessary.

8. Specific Condition No. 17.: Request was to delete the requirement to record the nitrogen content in the fuel oil.

R.: The request is denied as this is a specific requirement pursuant to 40 CFR 60.334.

9. Specific Condition No. 19.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R.: No change is necessary.

10. Specific Condition No. 22.: Request was to delete the requirement to report the nitrogen content in the fuel oil in the AOR.

R.: The request is denied as this parameter is a requirement to be measured daily pursuant to 40 CFR 60.334. Since nitrogen has to be measured daily, it is not impractical to ask that it be reported once a year.

11. The request is to revise Table 5 to reflect the fuel firing capacity factors (i.e., 67% for gas-firing and 33% for fuel oil-firing) and the SO_2 limitation of 178.2 TPY, which reflects the annual fuel oil consumption.

R. The requests are acceptable and the changes will be made. In addition, the impact of the requested SO_2 limitation was previously evaluated by modeling at the time of the original permitting activity and is acceptable.

12. **Attachments to be Incorporated**:

- Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
- Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

The proposed new state construction permit/amended federal construction permit (Nos. AC 31-253502/PSD-FL-152B) and the Notice of Intent (Public Notice) are enclosed. If there are any questions, please call Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/BM/m

Attachments

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS
D. Beason, Esq., DEP
P. Cunningham, Esq., HGS&S

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Request for Permit by:

DEP File No. AC 31-253502
PSD-FL-152B
Indian River County

Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, FL 32961

_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit (copy enclosed) for the proposed project as detailed in the request specified above, for the reasons stated in the enclosed permit. A revision to the original Best Available Control Technology determination issued on June 28, 1991, is not required.

The applicant, Vero Beach Municipal Power Plant, applied on May 16, 1995, to the Department of Environmental Protection for a modification to the existing Unit 5, which is a 60 MW combined cycle gas turbine. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The facility is located in the Vero Beach, Indian River County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.) and Florida Administrative Code (F.A.C.) Chapters 62-212 and 62-4. The proposal is not exempt from permitting procedures. The Department has determined that a construction permit 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. 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be the one with significant circulation in the area that may be affected by the permitting action. If you are

uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 (904-488-1344), 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, 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 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

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

c: C. Collins, CD
J. Bunyak, NPS
P. Cunningham, Esq., HGS&S
J. Harper, EPA
D. Beason, Esq., DEP

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 8-4-95 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 8-4-95
Date

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 31-253502
PSD-FL-152B

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit to Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, FL 32961, for a modification to Unit 5, which is an existing 60 MW combined cycle gas turbine. The existing facility is located Indian River County, Florida. A determination of Best Available Control Technology was required in the original permitting activity, issued June 28, 1991, and will not be revised. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. Since the requested changes are a modification, (i.e., emission related and federally enforceable), issuance of a new state construction permit/amended federal construction permit is deemed necessary. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The Department is issuing this Intent to Issue for the reasons stated above and in the transmittal letter.

Any 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 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, F.A.C.

The 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
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bruce Mitchell at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

APIS No: 30ORL310005
Permit Number: AC31-253502/PSD-FL-152B
Expiration Date: March 1, 1996
County: Indian River
Latitude/Longitude: 27°37'59"N 80°22'41"W
Project: Modification of Power Plant Unit 5: 60 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). 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 of Environmental Protection (Department) and specifically described as follows:

For authorization to increase the allowable sulfur dioxide (SO_2) emissions from the existing 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, Florida. The increase is due to the installation of dry low-NO_x burners and an increase in the potential fuel oil consumption rate. The UTM coordinates are 561.385 km East and 3056.538 km North.

The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and an associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded. The original BACT determination does not require revision.

Attachments are listed below:

1. Construction permits, Nos. AC 31-184928/PSD-FL-152, and revised BACT issued June 28, 1991.
2. Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
3. Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

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, F.S. 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 acknowledgment 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 F.S. 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

GENERAL CONDITIONS:

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.

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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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): AC 31-184928
(X) Determination of Prevention of Significant Deterioration (PSD): PSD-FL-152
(X) Compliance with New Source Performance Standards (NSPS): 40 CFR 60, Subpart GG

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:

- 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.

SPECIFIC CONDITIONS:

1. The permittee shall maintain the construction required duct modules for the potential installation of a selective catalytic reduction (SCR) system.

2. The Department acknowledges that the permittee installed dry low-NO_x combustors. Based on the compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table 5, which replaces Tables 1 thru 4. In the event a SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised determination of BACT. If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient reference concentrations (ARC) of the following pollutants shall not be exceeded:

Pollutant	Ambient Reference 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

4. Visible emissions shall not exceed 10% opacity.

5. This source/emissions unit is allowed to operate continuously (8760 hours per year).

6. This source/emissions unit is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,482 gals/hr.
- Maximum annual No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.

SPECIFIC CONDITIONS:

- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

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

9. 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.

10. Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval is received in writing.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

13. During performance tests, to determine compliance with the NSPS NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following equation:

$$NO_X = (NO_{Xo}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_X = emission rate of NO_X at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{Xo} = observed/measured NO_X concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

14. Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is impracticable to test at permitted capacity, the source/ emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to

the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion.

15. After the installation of low NO_x combustors or SCR, the permittee shall determine compliance with the NO_x standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 (now Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the Department's Central District office. The continuous

emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Assurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. EPA Method 7E or equivalent (requires Department approval in writing) shall be used for the Determination of Nitrogen Oxide Emissions.

17. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

18. This source/**emissions unit** shall comply with all applicable provisions of Chapter 403, F.S., and Chapters 17-2 and 17-4 **(now Chapters 62-210 thru 62-297 and 62-4, respectively)**, F.A.C.

19. This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

20. 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 62-2.210(1)).

21. This source/**emissions unit** shall comply with F.A.C. Rule 62-2.700 **(now Chapters 62-296 and 62-297)**, Stationary Point Source Emission Test Procedure.

22. Pursuant to Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but is not limited to, the following: sulfur and nitrogen contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and represents the previous calendar year's operation.

23. The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded.

SPECIFIC CONDITIONS:

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

25. **If Florida is granted interim or full approval for the Title V operation permit program prior to December 1, 1995, this condition is negated.** An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the permittee 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. (Rules 62-4.055 and 62-4.220, F.A.C.)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Howard L. Rhodes, Director
Division of Air Resources Management

CITY OF VERO BEACH MUNICIPAL POWER PLANT UNIT 5 (AC31-253502/PSD-FL-152B)

Table 5 (New: replaces Tables 1 thru 4)
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year (a)(b)	Basis
NO_x(c)	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25% S by weight	178.2	BACT
PM	0.006 lbs/MMBtu	0.025 lbs/MMBtu	20.1 23.7	BACT
VOC	0.0112 lbs/MMBtu	0.0113 lbs/MMBtu	20.7 21.0	BACT
CO	0.0224 lbs/MMBtu	0.0226 lbs/MMBtu	41.3 42.1	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015 0.0019	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014 0.018	Est. by Appl.
Beryllium (Be)		2.5×10^{-6} lbs/MMBtu	0.0012 0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.9 5.3	BACT

(a) Tons per year figures based on 67 percent capacity factor for natural gas firing; 33 percent capacity factor for No. 2 fuel oil firing. Maximum sulfur content of the No. 2 fuel oil shall not exceed 0.25%, by weight.

(b) Based on following heat input rates while firing: Natural Gas - 414 MMBtu/hr; and, Fuel Oil - 455 MMBtu/hr.

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

August 4, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Construction Permit Issuance/Amendment
AC 31-253502/PSD-FL-152B
City of Vero Beach Municipal Power Plant Unit 5

The Department has reviewed Mr. Peter C. Cunningham's letter with attachments requesting changes to previously issued state/federal construction permits, Nos. AC 31-184928/PSD-FL-152. The majority of the issues are related to the installation of "dry low-NO_x burners" to control NO_x emissions and many of these issues were addressed in a March 27, 1995 amendment letter (AC 31-184928A/PSD-FL-152A). However, since some of the changes are a modification to what was originally issued (i.e., emissions related and federally enforceable), issuance of a new state construction permit is deemed necessary, while amending the federal permit, and includes a public notice requirement. Based on the above, the following is the Department's response (R) to the issues contained in "Attachment A" and will be in the order that they are addressed (changes will be bolded). In addition, Specific Condition No. 1 will be revised since the duct modules for future potential SCR installation were installed during construction.

1. Specific Condition No. 1.: Since the ducts for future potential SCR installation were installed during construction, then the condition will be revised as follows:

From: During the first year of commercial operation of Unit 5, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1. In addition, when constructing the combined cycle generating unit, the permittee shall install duct modules suitable for later installation of a selective catalytic reduction (SCR) system.

To: **The permittee shall maintain the construction required duct modules for the potential** installation of a selective catalytic reduction (SCR) system.

Is your RETURN ADDRESS completed on the reverse side?

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 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.

3. Article Addressed to:
Mike Siefert
Vero Bch Municipal Power Plt
PO Box 1389
Vero Beach, Fl 32961

4a. Article Number
Z 392 979 017

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
8-7-95

5. Signature (Addressee)

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

6. Signature (Agent)
8-7-95

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Z 392 979 017

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

UNITED STATES POSTAL SERVICE

PS Form **3800**, March 1993

Sent to: Mike Siefert	
Street and No. Vero Bch Mun PP	
P.O., State and ZIP Code. Vero Bch Fl	
Postage	$
Certified Fee	
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 8-4-95	

AC31-253502
PSD-FI-152B

2. Specific Condition No. 2.: Request was to revise the condition to delete any references of SCR and reflect a new Table A to replace Table 5.

R: There will be no change made because the issue regarding SCR was construction related and addressed in the amendment letter of March 27, 1995; and, the table "ID" will not be changed since the ID was also established in the amendment letter.

3. Specific Condition No. 7.: Request was to revise the condition to increase the allowable fuel oil consumption to 3,482 gals/hr, to increase the annual consumption rate of fuel oil to 10.0 million gallons, to limit the maximum annual capacity factor while firing fuel oil to 33%, and increase the allowable heat input while on fuel oil to 455 MMBtu/hr.

R: Based on the installation of the "dry low-NO_x burners" and their operation, the resultant changes and requests are acceptable to the Department and the following changes will be made. In addition, the requested annual 10.0 million gallons of fuel oil usage was approved during the original permitting exercise with a stipulation that dry low-NO_x burners be installed.

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

To: 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed **10,000,000** gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or **455** MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

4. Specific Condition No. 10.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R: No change is necessary.

5. Specific Condition No. 13.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R. No change is necessary.

6. Specific Condition No. 14.: Request was to make changes that were handled in the March 27, 1995 amendment letter and to point out the misspelling of "impracticable".

R. The Department will make the spelling change from "impractable" to "impracticable" in the text.

7. Specific Condition No. 16.: Request was to change the citing of "Chapter 17-2" to "Chapter 62-297" contained in No. 16.b. This rule renumbering was recognized in the March 27, 1995 amendment letter.

R.: No change is necessary.

8. Specific Condition No. 17.: Request was to delete the requirement to record the nitrogen content in the fuel oil.

R.: The request is denied as this is a specific requirement pursuant to 40 CFR 60.334.

9. Specific Condition No. 19.: Request was to make changes that were handled in the March 27, 1995 amendment letter.

R.: No change is necessary.

10. Specific Condition No. 22.: Request was to delete the requirement to report the nitrogen content in the fuel oil in the AOR.

R.: The request is denied as this parameter is a requirement to be measured daily pursuant to 40 CFR 60.334. Since nitrogen has to be measured daily, it is not impractical to ask that it be reported once a year.

11. The request is to revise Table 5 to reflect the fuel firing capacity factors (i.e., 67% for gas-firing and 33% for fuel oil-firing) and the SO_2 limitation of 178.2 TPY, which reflects the annual fuel oil consumption.

R. The requests are acceptable and the changes will be made. In addition, the impact of the requested SO_2 limitation was previously evaluated by modeling at the time of the original permitting activity and is acceptable.

12. **Attachments to be Incorporated**:

- Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
- Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

The proposed new state construction permit/amended federal construction permit (Nos. AC 31-253502/PSD-FL-152B) and the Notice of Intent (Public Notice) are enclosed. If there are any questions, please call Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/BM/m

Attachments

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS
D. Beason, Esq., DEP
P. Cunningham, Esq., HGS&S

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Request for Permit by:

DEP File No. AC 31-253502
PSD-FL-152B
Indian River County

Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, FL 32961

_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit (copy enclosed) for the proposed project as detailed in the request specified above, for the reasons stated in the enclosed permit. A revision to the original Best Available Control Technology determination issued on June 28, 1991, is not required.

The applicant, Vero Beach Municipal Power Plant, applied on May 16, 1995, to the Department of Environmental Protection for a modification to the existing Unit 5, which is a 60 MW combined cycle gas turbine. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The facility is located in the Vero Beach, Indian River County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.) and Florida Administrative Code (F.A.C.) Chapters 62-212 and 62-4. The proposal is not exempt from permitting procedures. The Department has determined that a construction permit 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. 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be the one with significant circulation in the area that may be affected by the permitting action. If you are

uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 (904-488-1344), 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, 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 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

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

c: C. Collins, CD
J. Bunyak, NPS
P. Cunningham, Esq., HGS&S
J. Harper, EPA
D. Beason, Esq., DEP

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 8-4-95 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 8-4-95
Date

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 31-253502
PSD-FL-152B

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit to Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, FL 32961, for a modification to Unit 5, which is an existing 60 MW combined cycle gas turbine. The existing facility is located Indian River County, Florida. A determination of Best Available Control Technology was required in the original permitting activity, issued June 28, 1991, and will not be revised. The modification is associated with the installation of dry low-NO_x burners for NO_x emissions control and the resultant increases in fuel oil consumption, heat input while on fuel oil, and emissions of SO_2. Since the requested changes are a modification, (i.e., emission related and federally enforceable), issuance of a new state construction permit/amended federal construction permit is deemed necessary. For the SO_2 emissions impact, the proposed level was evaluated by modeling during the original permitting activity and is acceptable. The Department is issuing this Intent to Issue for the reasons stated above and in the transmittal letter.

Any 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 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, F.A.C.

The 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
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Protection
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bruce Mitchell at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

APIS No: 30ORL310005
Permit Number: AC31-253502/PSD-FL-152B
Expiration Date: March 1, 1996
County: Indian River
Latitude/Longitude: 27°37'59"N 80°22'41"W
Project: Modification of Power Plant Unit 5: 60 MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). 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 of Environmental Protection (Department) and specifically described as follows:

For authorization to increase the allowable sulfur dioxide (SO_2) emissions from the existing 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, Florida. The increase is due to the installation of dry low-NO_X burners and an increase in the potential fuel oil consumption rate. The UTM coordinates are 561.385 km East and 3056.538 km North.

The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and an associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded. The original BACT determination does not require revision.

Attachments are listed below:

1. Construction permits, Nos. AC 31-184928/PSD-FL-152, and revised BACT issued June 28, 1991.
2. Mr. Howard L. Rhodes's letter amendment dated March 27, 1995.
3. Mr. Peter C. Cunningham's letter with Attachments dated and received May 16, 1995.

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, F.S. 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 acknowledgment 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 F.S. 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

GENERAL CONDITIONS:

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.

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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, 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): AC 31-184928
(X) Determination of Prevention of Significant Deterioration (PSD): PSD-FL-152
(X) Compliance with New Source Performance Standards (NSPS): 40 CFR 60, Subpart GG

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:

- 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.

SPECIFIC CONDITIONS:

1. **The permittee shall maintain the construction required duct modules for the potential installation of a selective catalytic reduction (SCR) system.**

2. The Department acknowledges that the permittee installed dry low-NO_X combustors. Based on the compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table 5, which replaces Tables 1 thru 4. In the event a SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised determination of BACT. If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Unless the Department has determined other concentrations are required to protect public health and safety, predicted ambient **reference** concentrations (ARC) of the following pollutants shall not be exceeded:

	Ambient **Reference** Concentrations ug/m^3		
Pollutant	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

4. Visible emissions shall not exceed 10% opacity.

5. This source/**emissions unit** is allowed to operate continuously (8760 hours per year).

6. This source/**emissions unit** is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,**482** gals/hr.
- Maximum **annual** No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.

SPECIFIC CONDITIONS:

- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on 101.3 kilopascals pressure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

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

9. 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.

10. Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval is received in writing.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

13. During performance tests, to determine compliance with the NSPS NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following equation:

$$NO_X = (NO_{XO}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_X = emission rate of NO_X at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{XO} = observed/measured NO_X concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

14. Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is **impracticable** to test at permitted capacity, the source/ emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to

the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion.

15. After the installation of low NO_x combustors or SCR, the permittee shall determine compliance with the NO_x standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 (now Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the Department's Central District office. The continuous

SPECIFIC CONDITIONS:

emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Assurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. EPA Method 7E or equivalent (requires Department approval in writing) shall be used for the Determination of Nitrogen Oxide Emissions.

17. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

18. This source/**emissions unit** shall comply with all applicable provisions of Chapter 403, F.S., and Chapters 17-2 and 17-4 **(now Chapters 62-210 thru 62-297 and 62-4, respectively)**, F.A.C.

19. This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

20. 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 62-2.210(1)).

21. This source/**emissions unit** shall comply with F.A.C. Rule 62-2.700 **(now Chapters 62-296 and 62-297)**, Stationary Point Source Emission Test Procedure.

22. Pursuant to Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but is not limited to, the following: sulfur and nitrogen contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and represents the previous calendar year's operation.

23. The Specific Conditions contained in air construction permits, Nos. AC 31-184928/PSD-FL-152, and associated letter amendment to construction permits, Nos. AC 31-184928A/PSD-FL-152A, are superceded by this permit's Specific Conditions for only the changes that are bolded.

SPECIFIC CONDITIONS:

24. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

25. **If Florida is granted interim or full approval for the Title V operation permit program prior to December 1, 1995, this condition is negated.** An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the permittee 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. (Rules 62-4.055 and 62-4.220, F.A.C.)

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____

Howard L. Rhodes, Director
Division of Air Resources Management

CITY OF VERO BEACH MUNICIPAL POWER PLANT UNIT 5 (AC31-253502/PSD-FL-152B)

Table 5 (New: replaces Tables 1 thru 4)
ALLOWABLE EMISSION LIMITS

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year (a)(b)	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x(c)	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25% S by weight	178.2	BACT
PM	0.006 lbs/MMBtu	0.025 lbs/MMBtu	20.1	BACT
VOC	0.0112 lbs/MMBtu	0.0113 lbs/MMBtu	20.7	BACT
CO	0.0224 lbs/MMBtu	0.0226 lbs/MMBtu	41.3	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (Be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.9	BACT

(a) Tons per year figures based on 67 percent capacity factor for natural gas firing; 33 percent capacity factor for No. 2 fuel oil firing. Maximum sulfur content of the No. 2 fuel oil shall not exceed 0.25%, by weight.

(b) Based on following heat input rates while firing: Natural Gas - 414 MMBtu/hr; and, Fuel Oil - 455 MMBtu/hr.

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

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
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JAMES S. ALVES
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RALPH A. DEMEO
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WADE L. HOPPING
FRANK E. MATTHEWS
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DAVID L. POWELL
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CAROLYN S. RAEPPLE
GARY P. SAMS
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CHERYL G. STUART

KRISTIN M. CONROY
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GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

July 28, 1995

BY HAND DELIVERY

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RECEIVED
JUL 28 1995
Bureau of
Air Regulation

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Air Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach to request extension of the referenced air construction permit for Unit 5 at the City's Municipal Power Plant in Indian River County, pursuant to Rule 62-4.080(3) F.A.C. The current expiration date for the permit is July 31, 1995, in accordance with Division Director Rhodes' letter of January 31, 1995. By letter dated June 30, 1994, the City requested amendment of certain conditions in the construction permit, including those rendered obsolete by the installation of Dry Low NOx burners in Unit 5. Since that time, the City has responded to the Department's request for additional information and representatives of the City have met with Department officials regarding the requested amendments. Currently, the City is awaiting the Department's final action on the request. As discussed in our meeting regarding the requested amendments, resolution of the construction permit issues will help to facilitate issuance of a mutually acceptable air operation permit.

The City hereby requests a further extension of the permit expiration date until October 29, 1995, to allow sufficient time for the Department to take final action on the proposed amendments. A check in the amount of fifty dollars ($50.00) is enclosed, pursuant to Rule 62-4.050(4)(q)3, F.A.C.

Initial emissions compliance testing of Unit 5 with the Dry Low NOx combustors has been completed and test reports demonstrating compliance with applicable limits were forwarded to the Department on February 25, 1994. In addition, annual compliance testing was conducted in accordance with the current provisions of the construction permit on or about January 11, 1994. Test reports of the annual compliance testing which demonstrate compliance with

applicable limits, have been forwarded to the Department Central upon receipt from the City's testing contractor.

The City recognizes that all current construction permit conditions will remain in effect if the expiration date extension is approved. Accordingly, the City has demonstrated reasonable assurances that, upon completion, the extended permit will comply with the standards and conditions required by applicable regulation.

Your consideration in this matter is very much appreciated. If there are any questions regarding the City's request, please do not hesitate to call.

Sincerely,

HOPPING BOYD GREEN & SAMS

By: _____
Peter C. Cunningham
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Mr. Charles Logan (DEP/BAR)
Mr. Charles Collins (DEP/Central District)
Mr. Doug Beason, Esq. (DEP/OGC)
Mr. Mike Siefert (CVB)

CQ

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
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TALLAHASSEE, FLORIDA 32314
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FAX (904) 425-3415

July 28, 1995

BY HAND DELIVERY

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RECEIVED
JUL 28 1995
Bureau of
Air Regulation

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Air Construction
Permit No. AC 31-184928, PSD-FL-152

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Sincerely,

HOPPING BOYD GREEN & SAMS

By: _____
Peter C. Cunningham
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Mr. Charles Logan (DEP/BAR)
Mr. Charles Collins (DEP/Central District)
Mr. Doug Beason, Esq. (DEP/OGC)
Mr. Mike Siefert (CVB)

cc: Bruce Mitchell via 8/2/95

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
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OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

May 16, 1995

VIA HAND DELIVERY

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
111 South Magnolia, Suite 4
Tallahassee, FL 32301

RE: Vero Beach Municipal Power Plant - Unit 5
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

On behalf of the City of Vero Beach ("City"), we appreciate the opportunity to meet with you, Bruce Mitchell, and Charles Logan on May 2, 1995, regarding the City's pending request to amend the above-referenced air construction permit. Based on our discussions, we understand that the Department will make certain amendments to the construction permit in addition to or in place of those included in the Department's proposed letter amendment of March 27, 1995. Additionally, although the Department has decided not to make other amendments requested by the City, you have agreed to issue a guidance memorandum to explain how certain provisions of the construction permit will be addressed in future operation permits for Unit 5. We also understand that the Department will consider amending the construction permit in the future if EPA approves an alternative monitoring method allowing use of CEMS in lieu of fuel nitrogen and water-to-fuel ratio monitoring under 40 CFR 60, Subpart GG.

To assist the Department in resolving this matter, we are providing two attachments. First, Attachment "A" provides suggested language for a revised letter amendment to the Unit 5 construction permit. For the most part, we have taken language from the Department's letter of March 27, 1995, and made minor changes based on the discussions at our recent meeting. The only matter potentially worthy of further discussion is Specific Condition No.2. As you can see, we have taken the language from the Department's prior letter, but have deleted the final two sentences relating to SCR-based emission limits. We view this language as unnecessary and potentially confusing in light of the fact that low NOx combustors have been installed in accordance with the Department's 1991 BACT determination. Since the Department has already

decided to amend this condition, we believe this language should simply be deleted to avoid any confusion in the future. Any concern about retaining the ability to install SCR in the future is covered by Specific Condition No.1. That condition, which would remain unchanged under both the Department's prior letter amendment and the suggested language in Attachment "A", requires the City to install duct modules suitable for later installation of an SCR system. The City has installed these duct modules and has no intention of removing them.

Attachment "B" provides a draft guidance memorandum explaining how certain provisions of the construction permit will be addressed in future operation permits for Unit 5. As you can see, the draft memorandum would address the currently pending operation permit for Unit 5, as well as future Title V permits for the Vero Beach facility. Although we did not specifically discuss the onset of Title V in our recent meeting, the same logic applies to all future operation permits whether issued by the Department's Central District or the Bureau of Air Regulation.

For your convenience, we have enclosed a computer diskette containing the suggested permit language (document #57928) and draft guidance memorandum (#57932) in Wordperfect format. If you or your staff have any questions or comments regarding the suggested permit language or draft memorandum, please do not hesitate to call. As always, we appreciate your continued cooperation in this matter.

Sincerely,

Peter C. Cunningham
Gary V. Perko

Attachments
cc: Bruce Mitchell (DEP)
Charles Logan (DEP)
Mike Siefert (CVB)

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

March 27, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Amendment to Construction Permit
AC 31-184928A/PSD-FL-152A
City of Vero Beach Municipal Power Plant Unit 5

The Department has reviewed Mr. Gary V. Perko's letter with attachments received December 20, 1994, requesting amendments to the above referenced construction permit. A letter requesting additional information was sent to you on October 20, 1994, but Mr. Perko stated that there would not be any response forthcoming. Since the emissions unit has already been built and initially compliance tested, certain requests for change will not be granted because they are construction related. However, Specific Condition No. 2 directs the Department to establish the appropriate NO_x emission standard upon completion of the initial compliance test. Based on the above, the Department will address the requests in Mr. Perko's letter of December 7, specifically "Attachment A", in the order that they are stated and the Department's response (R) follows:

1. Specific Condition No. 1.: Request was to delete the condition because the permittee has installed dry low-NO_x combustors and conducted compliance tests.

R: The Department will not make any change to the condition because it is a construction issue. The recognition of the installation of "dry low-NO_x combustors" will be addressed in Specific Condition No. 2.

2. Specific Condition No. 2.: Request was to revise the condition to delete any references of SCR and reflect a new Table 1 to replace all of the previous Tables 1 through 4.

R: In a new Table 5, which will replace Tables 1 thru 4, the Department will change the NO_x emission limiting standard, which was confirmed in the initial compliance test, and the associated

operational parameters that are used to calculate the table's allowable emission limits. The Department will also recognize that the permittee installed "dry low-NO_x combustors".

From: Within one year of the date Unit 5 commences commercial operation, the permittee shall install low NO_x combustors or an SCR system to control NO_x emissions from the unit. If low NO_x combustors are installed, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 2. However, should compliance testing performed in accordance with Specific Condition No. 10 establish, to the satisfaction of the Department, a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the emission limitations listed in Table 3 shall apply. In the event an SCR system is installed, the emission limitations listed in Table 4 shall apply. If an SCR system is installed, it may be bypassed during simple cycle operation.

To: **The Department acknowledges that the permittee installed dry low-NO_x combustors. Based on the compliance test results,** the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the **new** Table **5, which replaces Tables 1 thru 4.** In the event a SCR system is **required to be** installed, the emission limitations **shall be established at the time of installation by stack test results and through a revised determination of BACT.** If a SCR system is installed, it may be bypassed during simple cycle operation.

3. Specific Condition No. 3.: Request was to delete the condition.

R: The Department will not change the condition because the limitations were established through the federally enforceable BACT determination process pursuant to Rule 62-212.410, F.A.C. However, the Department now references these types of pollutant limitations as Ambient Reference Concentrations (ARC), not Acceptable Ambient Concentrations (AAC).

4. Specific Condition No. 7.: Request was to revise the condition to delete the fuel oil's gallon/hour restriction, to delete the SCR reference, to limit the fuel oil's annual consumption rate to 7.5 million gallons, to take a 25% maximum annual capacity factor while firing fuel oil, and to change and add verbage to the heat input rate part of the condition.

R: The Department will not delete the gallons/hour limitation on fuel oil because of the combustion relationship to the pollutant formation and the affect on both the short term and annual basis; will agree to the issues related to the SCR, the annual fuel oil consumption rate and the annual capacity factor while firing fuel oil; and, in the last part of the condition, will agree to change the heat input rates, correct the parameters related to "ISO standard day conditions", add the verbage "and lower heating value of the fuel fired", but will not change the term "maximum operation rate" to "Base Load operation rate" because the rate is considered as the permitted/maximum operation rate and not an average or normal rate, which is what Base Load is defined as in 40 CFR 60, Subpart GG.

From: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr., unless SCR is installed. If low NO_x burners are installed and compliance testing in accordance with Specific Condition No. 16 establishes a NO_x emission rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the limit on No. 2 fuel oil consumption shall be raised to 10,000,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor, unless SCR is installed. If low NO_x combustors are installed and compliance testing in accordance with Specific Condition No. 10 established a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the annual limit on firing of No. 2 fuel oil shall be raised to 33% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor unless low NO_x combustors are installed.
- Maximum sulfur (S) content in the oil shall not exceed 0.25 percent by weight.
- Maximum heat input shall not exceed 446 MMBtu/hr (gas) or 443 MMBtu/hr (oil), based on sea level pressure at 59°F ambient dry bulb temperatures and 60% relative humidity (ISO conditions).

To: 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor.
- Maximum sulfur (S) content in the **fuel** oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed **414** MMBtu/hr (gas) or **438** MMBtu/hr (oil), based on **101.3 kilopascals** pressure, **288° Kelvin** and 60% relative humidity (ISO **standard day** conditions), **and lower heating value of the fuel fired.**

5. Specific Condition No. 10.: Request was to replace the operational parameter from "maximum heat input rate of operation" to "Base Load operation rate" and to add EPA Method 25A for testing VOCs.

R: As stated before, the Department will not revise the term "maximum heat input rate" because that was the rate at which the emissions unit was evaluated and permitted. In order to remove duplication of operational requirements when in the compliance testing mode, the second sentence will be deleted because the operating requirements during testing and subsequent operation modes are addressed in Specific Condition No. 14 and will be referenced. The Department finds EPA Method 25A acceptable for testing for VOCs and it will be added. In addition, the Department is adding the word "Note:" and the phrase "is received in writing" to the alternate test method approval statement.

From: 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 referenced 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 DEP approved methods may be used for compliance testing after prior Departmental approval.

To: Initial (I) compliance tests shall be performed on each CT using both fuels. **In accordance with Specific Condition No. 14,** 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 referenced methods in accordance with the November 2, 1989 version of 40 CFR 60, Appendix A, **and 40 CFR 61, Appendix B; and, the solid waste regulations SW 846:**

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.

g. 25A for VOC (I; no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit)

Note: Other DEP approved methods may be used for compliance testing after prior Departmental approval **is received in writing.**

6. Specific Condition No. 13.: Request was to change the word "proposed" to "NSPS" regarding the standard.

R: The Department agrees with the request and will change the word "proposed" to "NSPS". Also, the equation and the definitions of the terms of the equation will be corrected pursuant to 40 CFR 60.335(c)(1).

From: 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:

$$NO_X = (NO_X \text{ obs}) \quad \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} \quad e^{19 \, (H_{obs} - 0.00633)} \quad \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

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.

To: During performance tests, to determine compliance with the **NSPS** NO_X standard, measured NO_X emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the

following **equation:**

$$NO_X = (NO_{XO}) \times (P_r/P_o)^{0.5} \times e^{19(Ho - 0.00633)} \times (288°K/T_a)^{1.53}$$

where:

NO_X = emission rate of NO_X at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{XO} = observed/measured NO_X concentration at 15 percent O_2, ppmv.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.

P_o = observed/measured combustor inlet absolute pressure at test ambient pressure, mm Hg.

H_o = observed/specific humidity of ambient air, g H_2O/g air, at test.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K, at test.

7. Specific Condition No. 14.: The request was to edit the testing requirements to conform to the way that other similar sources/ emissions units have been required to operate during an initial and subsequent compliance tests and continue to operate after the compliance tests have been conducted. Since the initial compliance test has been conducted, notification of "any subsequent" compliance tests will be changed to "15 days in writing" in the text.

From: Test results will be the average of 3 valid runs. The Central District 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 Central District office no later than 45 days after completion.

To: Test results will be the average of 3 valid runs. The Central District will be notified at least **15** days **in writing** in advance of **any subsequent** compliance test. Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. **Permitted capacity is defined as 95-100 percent of the maximum heat input rate**

allowed by permit, corrected for the average ambient air temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is impractable to test at permitted capacity, the source/emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

8. Specific Condition No. 15.: Request was to delete the condition since the initial compliance test has been conducted.

R.: The request is denied because this is a construction permit issue, now and potentially in the future. The text specifies the test methods and operational parameters for demonstrating initial and subsequent compliance. In case SCR is imposed, the condition would be needed for demonstrating initial and subsequent compliance.

9. Specific Condition No. 16.: Request was to revise the condition to delete the requirement to continuously monitor the consumption of natural gas and fuel oil (when not at 100 percent); to include the reference to 40 CFR 75 regulations on CEMs installation, operation and maintenance; and, to revise the excess emission requirement.

R.: Since the standards for some pollutants are written as "lbs/MMBtu", then is is necessary to know the consumption of each type of fuel in order to establish compliance; therefore, the request is denied. Since 40 CFR 75 has not been adopted, reference to this regulation will be qualified appropriately. Excess emissions shall be as stated in Mr. Rhodes's letter dated October 6, 1993.

From: A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance

with 40 CFR 60, Appendix F, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.

To: A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, **or 40 CFR 75, if adopted and applicable,** for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, **or 40 CFR 75, if adopted and applicable.**

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2 **(now Chapter 62-297)**, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to

operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60-minute period exceed the applicable emission limits in **Table 5 referenced in** Specific Condition No. **2**. Quarterly excess emissions reports, in accordance with the July 1, 1992 edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to the DEP's Central District office. The continuous emission monitor system (CEM) shall be in compliance with 40 CFR 60, Appendix F - Quality Asurance Procedure, and 40 CFR 60, Appendix B - Performance Specification 2 **or the applicable provisions of 40 CFR 75, if adopted.** **EPA** Method 7E or equivalent **(requires Department approval in writing)** shall be used for the Determination of Nitrogen Oxide Emissions.

10. Specific Condition No. 17.: Request was to qualify the parameters that are being tested for fuel oil only, i.e, sulfur, nitrogen and lower heating value, and to state that record keeping for fuel usage be for fuel oil only.

R.: The request is acceptable to qualify the parameters for the fuel oil firing. The retention time will be revised to 5-years due to Title V requirements.

From: Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

To: Sulfur, nitrogen content and lower heating value of the fuel **oil** being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a **five**-year period **and** available for **any** regulatory agency's inspection.

11. Specific Condition No. 19.: Request was to revise the condition to add language to allow the use of CEMs data in lieu of monitoring the water/fuel ratio except when firing 100 percent fuel oil.

R.: The request is not acceptable. However, the CEMs can be used for excess emissions monitoring, which is consistent with Subpart GG.

From: 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.

To: **This source/emissions unit shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).**

12. Specific Condition No. 22.: Request was to revise the condition to reflect that the fuel parameters being analyzed are consistent with Specific Condition No. 17.

R.: The request is acceptable and the condition will be revised. However, the requirements of reporting natural gas usage is not being deleted and will be further clarified. Other edits were made to clarify the report parameters and to correct the rule citing and reference.

From: 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 rate and emissions from the 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 Central District office.

To: Pursuant to Rule **62-210.370(3)**, F.A.C., Air Operating **Report (AOR)**, the permittee is required to submit an **AOR** on the actual operating rate and emissions from the facility **for the previous year's operation.** The **AOR** shall include, but is not limited to, the following: sulfur **and** nitrogen contents, **by weight,** and lower heating value of the fuel **oil** being fired, **annual** fuel **consumption (fuel oil and natural gas)**, hours of

operation **per fuel usage (singly fired and co-fired), actual** air **pollutant** emissions, etc. The AOR shall be sent to the Department's Central District office **by March 1 of each year and represents the previous calendar year's operation.**

13. **Attachments to be Incorporated:**

- Mr. Howard L. Rhodes's letter dated October 6, 1993.
- Mr. Peter C. Cunningham's letter with Enclosures dated June 30, 1994.
- Mr. John C. Brown, Jr.'s letter dated July 27, 1994.
- Mr. Gary V. Perko's letter with Attachments received September 20, 1994.
- Mr. Howard L. Rhodes's letter dated October 4, 1994.
- Mr. John C. Brown, Jr.'s letter dated October 20, 1994.
- Mr. Gary v. Perko's letter with Attachments received on December 7, 1994.
- Mr. Howard L. Rhodes's letter dated January 31, 1995.

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. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. 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 the 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/ 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 amendment 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.

This letter amendment must be attached to Construction Permit, No. AC 31-184928A/PSD-FL-152A, and shall become part of the permit.

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/CL/bjb

Enclosure

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 3-30-95 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 3/30/95 Date

CITY OF VERO BEACH MUNICIPAL POWER PLANT UNIT 5 (AC31-184928A/PSD-FL-152A)

Table 5 (New: replaces Tables 1 thru 4)
ALLOWABLE EMISSION LIMITS

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year (a)(b)	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x(c)	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25% S by weight	130.0	BACT
PM	0.006 lbs/MMBtu	0.025 lbs/MMBtu	20.1	BACT
VOC	0.0112 lbs/MMBtu	0.0113 lbs/MMBtu	20.7	BACT
CO	0.0224 lbs/MMBtu	0.0226 lbs/MMBtu	41.3	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.9	BACT

(a) Tons per year figures based on 75 percent capacity factor for natural gas firing; 25 percent capacity factor for No. 2 fuel oil firing. Maximum sulfur content of the No. 2 fuel oil shall not exceed 0.025%, by weight.

(b) Based on following heat input rates while firing: Natural Gas - 414 MMBtu/hr; and, No. 2 Fuel Oil - 438 MMBtu/hr.

(c) The following equation shall be used to determine the emission standard applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission standard} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Standard for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

Florida Department of
Environmental Protection

Memorandum

TO : Howard L. Rhodes

FROM : Clair Fancy

DATE : March 27, 1995

SUBJECT: Approval of Construction Permit Amendment
AC 31-184928A/PSD-FL-152A
City of Vero Beach Municipal Power Plant Unit 5

Attached for your approval and signature is an amendment to the City of Vero Beach Municipal Power Plant Unit 5's construction permit prepared by the Bureau of Air Regulation. The objectives of this amendment are: 1) to update permit conditions to reflect the installation of dry low-NO_x combustors; 2) to replace the Allowable Emission Limits Tables 1 through 4 with a new Table 5; and, 3) to clarify specific permit requirements and to correct rule citings and references. This amendment will not cause an increase in annual allowable emission limits or allowable emission standards.

This amendment is recommended for your approval and signature.

CHF/cl/l

Attachment

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 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.

3. Article Addressed to:
Mike Siefert
Vero Bch Municipal P. Plant
P O Box 1389
Vero Bch, Fl 32961

4a. Article Number
Z 311 902 944

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
4-3-95

5. Signature (Addressee)
George Young

6. Signature (Agent)

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

RETURN RECEIPT

Thank you for using Return Receipt Service.

Your RETURN ADDRESS completed on the reverse side?

Z 311 902 944

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

UNITED STATES POSTAL SERVICE

Sent to Mike Siefert	
Street and No. Vero Bch MPP	
P.O., State and ZIP Code Vero Bch, Fl	
Postage	$
Certified Fee	
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 3-30-95	

AC 31-184928A
PSD-FI-152A
Unit 5

PS Form 3800, March 1993

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

January 31, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Amendment to Construction Permit
AC 31-184928 [PSD-FL-152A]
Vero Beach Municipal Power Plant, Unit 5

The Department has reviewed Mr. Gary V. Perko's letter dated January 30, 1995, requesting an extension of the construction permit expiration date. The permit is amended as follows:

A. Expiration Date Extension;

From

January 31, 1995

To

July 31, 1995

B. Attachments to be Incorporated;

- HBG&S letter received January 30, 1995

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 applicant of the amendment request/ application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the

amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. 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 the 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/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 amendment 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 letter amendment must be attached to Construction Permit No. AC 31-184928 (PSD-FL-152A), and shall become part of the permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/CSL

Attachment

cc: C. Collins, CD
A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS
G. Perko, HBG&S

CERTIFICATE OF SERVICE

The undersigned duly designated duputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 1/31/95 to the listed persons.

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.

Charlotte J. Hayes — Clerk
1/31/95 — Date

Florida Department of
Environmental Protection

Memorandum

To : Howard Rhodes

From : Clair Fancy

Date : January 31, 1995

Subject: Approval of Construction Permit Amendment
AC 31-184928 [PSD-FL-152A]
Vero Beach Municipal Power Plant, Unit 5

Attached for your approval and signature is an amendment to a construction permit prepared by the Bureau of Air Regulation for the Vero Beach Municipal Power Plant, Unit 5. The purpose of this amendment is to extend the expiration date of the construction permit from January 31, 1995 to July 31, 1995.

This amendment is recommended for your approval and signature.

CF/CSL

Is your RETURN ADDRESS completed on the reverse side?

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.
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- 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.

3. Article Addressed to:
Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
P. O. Box 1389
Vero Beach, FL 32961

4a. Article Number
P 872 563 673

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☒ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2-2-95

5. Signature (Addressee)
George Young

6. Signature (Agent)

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

P 872 563 673

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

UNITED STATES POSTAL SERVICE

Sent to Mr. Mike Siefert	
Street and No. P. O. Box 1389	
P.O., State and ZIP Code Vero Beach, FL 32961	
Postage	$
Certified Fee	
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 Mailed: 1-31-95 Permit: AC 31-184928 PSD-FL-152A	

PS Form **3800**, JUNE 1991

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
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JAMES C. GOODLETT
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ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

January 30, 1995

BY HAND DELIVERY

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Air Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach to request extension of the referenced air construction permit for Unit 5 at the City's Municipal Power Plant in Indian River County, pursuant to Rule 62-4.080(3) F.A.C. The current expiration date for the permit is January 31, 1995, in accordance with Division Director Rhodes' letter of October 4, 1994. By letter dated June 30, 1994, the City requested amendment of certain conditions in the construction permit, including those rendered obsolete by the installation of Dry Low NOx burners in Unit 5. Since that time, the City has responded to the Department's request for additional information and representatives of the City have met with Department officials regarding the requested amendments. Currently, the City is awaiting the Department's final action on the request. As discussed in our meeting regarding the requested amendments, resolution of the construction permit issues will help to facilitate issuance of a mutually acceptable air operation permit.

The City hereby requests a further extension of the permit expiration date until February 28, 1995, to allow sufficient time for the Department to take final action on the proposed amendments. A check in the amount of fifty dollars ($50.00) is enclosed, pursuant to Rule 62-4.050(4)(q)3, F.A.C.

Initial emissions compliance testing of Unit 5 with the Dry Low NOx combustors has been completed and test reports demonstrating compliance with applicable limits were forwarded to the Department on February 25, 1994. In addition, annual compliance testing was conducted in accordance with the current provisions of the construction permit on or about January 11,

1994. Test reports of the the annual compliance testing will be forward to the Department upon receipt from the City's testing contractor.

The City recognizes that all current construction permit conditions will remain in effect if the expiration date extension is approved. Accordingly, the City has demonstrated reasonable assurances that, upon completion, the extended permit will comply with the standards and conditions required by applicable regulation.

Your consideration in this matter is very much appreciated. If there are any questions regarding the City's request, please do not hesitate to call.

Sincerely,

HOPPING BOYD GREEN & SAMS

By: _____
Peter C. Cunningham
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Mr. Charles Logan (DEP/BAR)
Mr. Charles Collins (DEP/Central District)
Mr. Doug Beason, Esq. (DEP/OGC)
Mr. Mike Siefert (CVB)

HOPPING BOYD GREEN & SAMS
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GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
W. ROBERT FOKES

Writer's Direct Dial No.
(904) 425-2259

December 7, 1994

RECEIVED
DEC 7 1994
Bureau of
Air Regulation

BY HAND DELIVERY

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request to Amend Construction Permit
DEP Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

On behalf of the City of Vero Beach (City), we are writing to follow-up on our meeting of November 18, 1994, regarding the City's pending request to amend the air construction permit for Unit 5 at the Vero Beach Municipal Power Plant. As you recall, the construction permit imposed emission limitations and other conditions based on the original design for the GE Frame 6 combustion turbine. In accordance with the Department's BACT determination, the permit also required the City to install either low NOx combustors or an SCR system within one year of the commencement of commercial operation. As explained in our letter of June 30, 1994, the primary reasons for the requested permit amendments were: (1) to update permit conditions to reflect that Dry Low NOx (DLN) combustors have been installed; (2) to revise certain figures, including heat input rates, based on the original unit design to reflect the DLN combustor configuration; and (3) to authorize limited operation in "peak load" mode firing natural gas.

Based on the discussions at our recent meeting, the City has decided to withdraw its request for permit conditions authorizing peak load operation. However, the City still requests the other permit amendments unrelated to peak load authorization. In that regard, all amendments requested by the City are listed in Attachment "A", along with the rationale for each suggested change. In addition, we have attached a new "Table 1", which would replace

Tables 1 through 4 of the current permit. As you can see, the allowable emissions listed in Table 1 reflect the City's decision to accept a decrease in annual oil use from 33 to 25 percent, with the corresponding NOx limit of 65 ppm contemplated in Table 2 of the current permit.

The city's decision to forego permit language authorizing peak load operation should resolve any questions about the applicability of PSD review to the City's pending request. Although the installation of DLN combustors changed certain unit characteristics, those changes were necessary to the DLN conversion, which was expressly required by the existing construction permit. Moreover, the City's request involves no increase in allowable or potential emissions. As indicated in Attachment "B", allowable emisions in the new Table 1 are equal to or slightly less than those set forth in Table 2 of the existing permit. Additionally, as indicated in Attachment "C", when compared to the standard combustor design, heat input rates and exhaust flow rates for both gas and oil firing modes are lower under the City's request. Thus, the request does not implicate PSD review.

The City appreciates the Department's cooperation in this matter. We hope that this submittal will allow the Department to take action on the City's request before the construction permit's expiration date of January 31, 1995. If you have any questions, please do not hesitate to call us or Mike Siefert at the Vero Beach Municipal Power Plant (407/562-7231). Moreover, we are more than willing to schedule another meeting with the Department if you believe it would expedite action on the pending request.

Sincerely,

HOPPING BOYD GREEN & SAMS

By: _____
Peter C. Cunningham
Gary V. Perko

cc: Bruce Mitchell (DEP)
Charles Logan (DEP)
Mike Siefert (CVB)

47332.1

December 7, 1994

ATTACHMENT "A"

Amendments to DEP Air Construction Permit No. AC 31-184928 requested by the City of Vero Beach.

SPECIFIC CONDITION 1

Requested Change: Delete.

Rationale: Unnecessary because Dry Low NOx (DLN) combustors have been installed and Unit 5 has demonstrated compliance with all emission limits with the DLN configuration.

SPECIFIC CONDITION 2

Requested Change: Renumber as Specific Condition 1 and revise to read as follows:

> 1. The maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1.

Rationale: References to the initial year of operation and to SCR are unnecessary now that the Unit 5 combustion turbine has been retrofitted with DLN combustors. The reference to "Table 1" is to the new Table 1 (attached) that would replace current Tables 1 through 4.

SPECIFIC CONDITION 3

Requested Change: Delete.

Rationale: Based on our June 1, 1994 meeting, the City understands that the Department no longer believes inclusion of "acceptable ambient air concentrations (AAC)" in air permits is appropriate.

SPECIFIC CONDITIONS 4-6

Requested Change: Renumber as Specific Conditions 2-4.

SPECIFIC CONDITION 7

Requested Change: Renumber as Specific Condition 5 and revise to read as follows:

5. 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 7,500,000 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 0.25 percent by weight.
- Maximum heat input during "Base Load" operation shall not exceed 414 MMBtu/hr (gas) or 438 MMBtu/hr (oil), based on sea level pressure at 59°F ambient dry bulb temperatures, 60% relative humidity (ISO conditions) and lower heating value (LHV) of the fuel being fired.

Rationale: Deletes unnecessary restriction on gallons per hour of fuel oil (redundant given the maximum hourly heat input rate limits) and updates language to reflect installation of DLN combustors. Reduces annual oil use by limiting annual capacity factor on oil to 25 percent. Updates "Base Load" heat input rates to reflect DLN combustor design parameters.

SPECIFIC CONDITIONS 8 & 9

Requested Change: Renumber as Specific Conditions 6 & 7.

SPECIFIC CONDITION 10

Requested Change: Renumber as Specific Condition 8 and revise to read as follows:

8. Initial (I) compliance tests shall be performed on the CT using both fuels. Annual (A) compliance tests shall be performed on the CT in the "Base Load" mode with the fuels used for more than 400 hours during the federal fiscal year. Tests shall be conducted using the following 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 NOx (I;A)

e. 25A for VOC (I; no stack test required provided CO stack test demonstrates compliance with CO emission limit)

f. same as e. in current permit

g. same as f. in current permit

Other DEP methods may be used for compliance testing after prior Department approval.

Rationale: Corrects current references to "each CT" and adds VOC test method but allows use of CO stack test data in place of VOC testing.

SPECIFIC CONDITIONS 11 & 12

Requested Change: Renumber as Specific Conditions 9 & 10.

SPECIFIC CONDITION 13

Requested Change: Renumber as Specific Condition 11 and revise to read as follows:

> 11. During performance tests required under 40 CFR 60, Subpart GG, to determine compliance with the NOx emission limit applicable under 40 CFR § 60.332, measured NOx emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:
>
> [No change to formula]

Rationale: This revision clarifies that the correction formula must be used for performance tests conducted pursuant to the Subpart GG NSPS to demonstrate compliance with the NOx emission limit imposed under 40 CFR §60.332, but is not required for stack test data used in demonstrating whether the GE Frame 6 DLN machine is in compliance with the BACT-based NOx limits in the permit.

SPECIFIC CONDITION 14

Requested Change: Renumber as Specific Condition 12 and revise as follows:

> 12. Test results will be the average of 3 valid runs. The Central District will be notified at least 30 days in advance of any initial performance tests and at least 15 days prior to any annual compliance test. The source shall operate between 90% and 100% of permitted capacity (for the average ambient temperature during the test) during the compliance test. If it is impracticable to test at 90-100% of the maximum heat input rate, the CT may be tested at less than 90% of the maximum heat input. In this case,

subsequent operation is limited to 110% of the tested heat input rate (corrected for average ambient temperature) until a new test is conducted. If the CT is so limited, operation at higher capacity is allowed for no more than 15 days for purposes of additional compliance testing to regain the maximum heat input rate. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

Rationale: Clarifies that the heat input rate measured during compliance testing is to be corrected for ambient conditions for comparison with maximum permitted heat input rate (which is based upon ISO conditions). Provides traditional approach under which testing at less than 90 percent of maximum heat input rate is valid but results in new heat input limit at 110 percent of tested rate.

SPECIFIC CONDITION 15

Requested Change: Delete.

Rationale: No longer needed because DLN combustors have been installed and compliance testing for NOx (and all other pollutants) has been completed.

SPECIFIC CONDITION 16

Requested Change: Renumber as Specific Condition 13 and revise as follows:

13. A continuous monitoring system shall be installed to monitor and record the fuel oil consumption and water/fuel ratio when firing 100% fuel oil. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F or 40 CFR 75, to monitor nitrogen oxides emissions from the combined cycle unit.

a. The continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B or 40 CFR 75.

b - d no changes.

e. For purposes of reports required under this permit, excess emissions are defined as any one hour period during which the average emissions of all readings collected during a continuous 60 minute period exceed the applicable emission limit in Specific Condition 1. Quarterly excess emission reports, in accordance with the July 1, 1992, edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to DEP's Central District offices. The continuous emission monitor system (CEMS) shall comply with 40 CFR 60 Appendix F - Quality Assurance Procedure and 40 CFR 60 Appendix D - Performance Specification 2 or

analogous provisions of 40 CFR 75. Method 7E or equivalent shall be used as the Reference Method for the Determination of Nitrogen Oxide Emissions.

Rationale: Clarifies that monitoring and recording of fuel consumption (and water/fuel ration) is required only when 100% fuel oil is fired. Adds references to Title IV CEMS provisions (40 CFR 75) and incorporate language regarding excess emissions reporting, as revised by DEP letter of October 6, 1993, into paragraph e.

SPECIFIC CONDITION 17

Requested Change: Renumber as Specific Condition 14 and revise to read as follows:

14. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

Rationale: Clarifies that records should refer only to fuel oil, as there is no justification for daily recording of sulfur, nitrogen content and lower heating value for natural gas.

SPECIFIC CONDITION 18

Requested Change: Renumber as Specific Condition 15.

SPECIFIC CONDITION 19

Requested Change: Renumber as Specific Condition 16 and revise to read as follows:

16. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-296.800, standards of performance for Stationary Gas Turbines. Continuous emission monitoring system (CEMS) data may be used in lieu of monitoring of water/fuel ratio except when 100% fuel oil is fired.

Rationale: With the DLN combustors, no water or steam injection is utilized for NOx control when the combustion turbine is firing natural gas. The fully-certified CEMS for NOx provide far superior monitoring data and the Subpart GG NSPS do not preclude this approach.

SPECIFIC CONDITION 20 & 21

Requested Change: Renumber as Specific Conditions 17 & 18.

SPECIFIC CONDITION 22

Requested Change: Renumber as Specific Condition 19 and revise to read as follows:

> 19. 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 rate and emissions from the facility. These reports shall include, but are not limited to, the following: sulfur, nitrogen content and lower heating value of the fuel oil being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office.

Rationale: Clarifies that reporting should refer only to fuel oil, as there is no justification for daily recording of sulfur, nitrogen content and lower heating value for natural gas.

SPECIFIC CONDITIONS 23 & 24

Requested Change: Renumber as Specific Conditions 20 & 21.

TABLES 1, 2, 3 & 4

Requested Change: Replace with new Table 1.

Rationale: See letter to Clair Fancy dated December 7, 1994.

IN GENERAL

Requested Change: Update all Chapter 17-2 citations to reflect renumbering of 17-200 series Rules. Update all references to "Department of Environmental Regulation" to reflect change to "Department of Environmental Protection".

TABLE 1
ALLOWABLE EMISSION LIMITS

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year[a][b]	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NOx[c]	25 ppmvd at 15% oxygen on a dry basis	65 ppmvd at 15% oxygen on a dry basis	278.8	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	130	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	19.1	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	20.7	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.4	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.9	BACT

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas): 414 MMBtu/hr
Base Load (oil): 438 MMBtu/hr

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

ATTACHMENT "B"

CITY OF VERO BEACH
AC 31-184928

COMPARISON

Pollutant	Old Table 2[(a)(b)] TPY	New Table 1[(a)(c)] TPY	Change TPY
NOx	278.8	278.8	0
SO2	131.9	130	-1.9
PM	19.16	19.1	-0.06
VOC	21.9	20.7	-1.2
CO	43.8	43.4	-0.04
Mercury (Hg)	0.0015	0.0015	0
Lead (Pb)	0.014	0.014	0
Beryllium (Be)	0.0012	0.0012	0
Sulfuric Acid Mist	3.939	3.9	-0.039

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas) : 446 MMBtu/hr
Base Load (oil) : 443 MMBtu/hr

(c) Based on following heat input rates:
Based Load (gas) : 414 MMBtu/hr
Base Load (oil) : 438 MMBtu/hr

ATTACHMENT "C"

CITY OF VERO BEACH
AC 31-184928

COMPARISON

Design Parameter	**Current Permit** (Standard Combustors)	**Revised** (DLN combustors)	**Net Change**
Heat Input	Gas: 446 MMBtu/hr	Gas: 414 MMBtu/hr	Decrease
	Oil: 443 MMBtu/hr	Oil: 438 MMBtu/hr	Decrease
Exhaust Flow	Gas: 1,121,000 lbs/hr	Gas: 1,100,000 lbs/hr	Decrease
	Oil: 1,125,000 lbs/hr	Oil: 1,119,000 lbs/hr	Decrease

Z 751 859 971

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Street and No. City of Vero Beach	
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AC51-184928 annual req.
PSD-FL-152
Unit #5, Vero Beach Power Plant

PS Form **3800**, March 1993

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Mr. Mike Sickert
City of Vero Beach
Municipal Power Plant
P.O. Box 1389
Vero Beach, FL 32961

4a. Article Number
Z 751 859 971

4b. Service Type
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☒ Certified ☐ COD
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10-24-94

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6. Signature (Agent)
George Young

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

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Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

Fl'da Copy

October 20, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

RE: Request to Amend Construction Permit
AC 31-184928 (PSD-FL-152)
Vero Beach Municipal Power Plant, Unit #5

Dear Mr. Siefert:

The Department has reviewed your response (received September 20, 1994) to our July 27, 1994 letter. Subsequent to our review of the responses and to complete our review of the subject request, please provide the following information:

1) Can the newly installed dry low NO_X burners (DLNB's) fire more distillate fuel oil and natural gas (i.e., gals/hr and cf/hr) than the original installed burners? If so, please describe and provide the details as to why the DLNB's can fire more fuel.

2) Is the combustion chamber that was recently installed with the DLNB larger than the one that was originally installed. If so, please describe and provide dimensional information.

3) If the answer is yes to #1 and/or #2 above, please calculate the potential pollutant emissions to reflect these changes.

4) If the answer is yes to #1 and/or #2 above, please have a new certification of completion submitted by the PE of record denoting all modifications made to the emission unit.

5) If the answer is yes to #1 and/or #2 above, the new information must be submitted on an application form and the processing fee is to be based on the net change between the original actuals and future potential/allowables, with a minimum of $250.

6) In addition to #5 above, to acquire higher allowable emission rates and heat input will require the Department to re-evaluate the Technical Evaluation, BACT, and the permit with regard to the emissions review requirements and permitting requirements.

In order to obtain federally enforceable permit limitations, an Intent package will require Public Notice. Therefore, and again, the Department will require the submittal of an application and processing fee for the proposed agency action.

7) Were NO_x and PM the only pollutant concentrations determined during the compliance test on January 1994? If not, provide the test results for all the pollutants specified in Specific Conditions No. 10 and No. 12. Provide all emission calculations, including assumptions and operating parameters (i.e., fuel consumption in cu. ft./hr and gals/hr and total hours at these consumption rates, volumetric flow rate(s), velocities and etc.), used to derive the emission values. If different from the permitted firing rate, provide data for firing distillate fuel oil and natural gas at the maximum consumption rate with the installation of the DLNB's.

8) Provide a detailed description of the DLNB's, new water injection system, and associated piping/ducts. Are the DLNB's capable of firing more fuel (natural gas and distillate fuel oil) at higher consumption rates? If so, provide a comparison, based on actuals, between the new and old burners. What process and chemicals, if any, are used to emulsify the water and distillate fuel oil for injection?

If you have questions concerning these comments, please direct them to Charles Logan at (904) 488-1344 or write to me at the above address..

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/CL/bb

cc: C. Collins, CD
D. Beason, Esq., DEP
J. Harper, EPA
J. Bunyak, NPS
P. Cunningham, Esq., HBG&S
G. Perko, Esq., HBG&S
Charles Logan } 10/20/94
Rudy File

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I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
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Consult postmaster for fee.

3. Article Addressed to:

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

4a. Article Number
Z 751 859 986

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
10-11-94

5. Signature (Addressee)

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

6. Signature (Agent)
George Young

PS Form **3811**, December 1991 ☆U.S. GPO 1992—323-402 **DOMESTIC RETURN RECEIPT**

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UNITED STATES POSTAL SERVICE

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AC 31-184928, PSD-FL-152

PS Form **3800**, March 1993

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

October 4, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

The Department received your request to extend the expiration date of the construction permit referenced below. The permit is amended as shown:

Permit - No. AC 31-184928, PSD-FL-152
Vero Beach Municipal Power Plant, Unit 5

Current Expiration Date : September 30, 1994

New Expiration Date : January 31, 1995

This letter shall become an Attachment to construction permit No. AC 31-184928 (PSD-FL-152).

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. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this amendment. 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 amendment, whichever occurs first. 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 the 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 amendment. 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 amendment 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.

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/CSL

cc: A. Zahm, CD
J. Harper, EPA
J. Bunyak, NPS

Certificate of Service

The undersigned duly designated deputy clerk hereby certifies that this Amendment and all copies were mailed by certified mail before the close of business on 10/7/94 to the listed persons.

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.

Barbara J. Pontual 10/7/94
Clerk Date

Florida Department of
Environmental Protection

Memorandum

CLAIR

TO : Howard Rhodes

FROM : Clair Fancy

DATE : October 4, 1994

SUBJECT: Permit Amendment to Extend the Expiration Date
Vero Beach Municipal Power Plant, Unit 5
AC 31-184928, PSD-FL-152

Attached for your approval and signature is an amendment to extend the construction permit expiration date of the subject facility. The extension will allow the Department adequate time to review new information and amend the permits.

This amendment is recommended for approval and signature.

CF/CSL

Attachment

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) 425-3415

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
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JONATHAN T. JOHNSON
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
W. ROBERT FOKES

September 29, 1994

BY HAND DELIVERY

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Air Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach to request extension of the referenced air construction permit for Unit 5 at the City's Municipal Power Plant in Indian River County, pursuant to Rule 17-4.080(3) F.A.C. The current expiration date for the permit is September 30, 1994, in accordance with Division Director Rhodes' letter of July 12, 1994. By letter dated June 30, 1994, the City requested amendment of certain conditions in the construction permit, including those rendered obsolete by the installation of Dry Low NOx burners in Unit 5. Additionally, by letter dated September 20, 1994, the City responded to the Department's request for additional information regarding the requested amendments. Currently, the City is awaiting the Department's final action on the request. As discussed in our meeting regarding the requested amendments, resolution of the construction permit issues will help to facilitate issuance of a mutually acceptable air operation permit for Unit 5.

The City hereby requests a further extension of the permit expiration date until November 15, 1994, to allow sufficient time for the Department to take final action on the proposed amendments. A check in the amount of fifty dollars ($50.00) is enclosed, pursuant to Rule 17-4.050(4)(q)3, F.A.C.

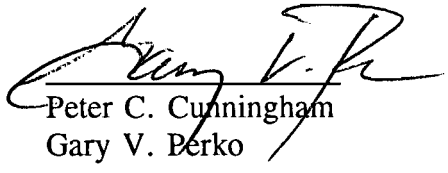
Emissions compliance testing of Unit 5 with the Dry Low NOx combustors has been completed and test reports demonstrating compliance with applicable limits were forwarded to the Department on February 25, 1994. The City recognizes that all current construction permit conditions will remain in effect if the expiration date extension is approved. Accordingly, the

City has demonstrated reasonable assurances that, upon completion, the extended permit will comply with the standards and conditions required by applicable regulation.

Your consideration in this matter is very much appreciated. If there are any questions regarding the City's request, please do not hesitate to call.

Sincerely,

HOPPING BOYD GREEN & SAMS

By: 
Peter C. Cunningham
Gary V. Perko

Attorneys for CITY OF VERO BEACH

cc: Mr. Charles Logan (DEP/BAR)
Mr. Charles Collins (DEP/Central District)
Mr. Doug Beason, Esq. (DEP/OGC)
Mr. Mike Siefert (CVB)

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
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TALLAHASSEE, FLORIDA 32314
(904) 222-7500
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MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
W. ROBERT FOKES

September 20, 1994

BY HAND DELIVERY

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request to Amend Construction Permit
DEP Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Brown:

On behalf of the City of Vero Beach (City), we are providing the following information in response to the questions presented in your letter of July 27, 1994:

Question No. 1: At what capacity (i.e., load) did you conduct the initial compliance test during January 1994? Please provide the summary page of the compliance test report.

Consistent with 40 CFR 60 Subpart GG, the initial compliance test following the Dry Low NOx Combustor retrofit was conducted at four points within in the normal operating range of the combustion turbine. The tests for natural gas and liquid fuel were conducted at the following loads: 47% (roughly 17 MW), 60% (roughly 22 MW), 75% (roughly 28 MW), and 100% or "base" load (roughly 36 MW). Enclosed (as Attachment A), please find one copy each of the test results at all four loads on each fuel and a copy of the 0_2 traverse conducted at the minimum load.

Question No. 2: How will you demonstrate compliance at any given time with the #/MMBtu standards in the permit without continuously monitoring/measuring the consumption of fuels (i.e., natural gas and fuel oil) at all rates?

We assume that this question relates to the proposed revision of Specific Condition 16 of the subject permit, which would be renumbered 14 under the City's proposal. The revised language would clarify that continuous monitoring and recording of fuel consumption is required only when 100% fuel oil is fired. As discussed in prior correspondence, 40 CFR 60 Subpart GG requires continuous fuel consumption monitoring for Stationary Gas Turbine with water injection systems for controlling Nox emissions. With the installation of the Dry Low Nox Combustors on Unit 5, water injection is no longer required for controlling Nox emissions during natural gas firing. Therefore, under 40 CFR 60 Subpart GG, the City is not required to monitor fuel consumption during natural gas firing. However, in accordance with the subject permit (No. AC31-184928), the City has installed CEMS to continuously monitor NOx emissions in combined cycle mode. Additionally, the City will utilize the optional protocols specified in 40 CFR Part 75, in lieu of CEMs, to continuously monitor SO_2 and CO_2 emissions. Although the permit also specifies #/MMBtu limits for PM, VOC, CO, Hg, Pb, and sulfuric acid mist, continuous monitoring is not required for these parameters.

Question No. 3: What have your actual emissions been for the past five years? Please provide that calculations and any assumptions.

In response to your request for actual pollutant emissions for the past five years, we have enclosed (as Attachment B) the annual operating reports for all of the units over that time period, as well as summaries of NOx CEM data for Unit 5 from May, 1993, to present. As you know, Unit 5 was permitted in 1991, and, therefore, has not been in service for the entire five year period.

Question No. 4: What parameters change during peak loading versus the compliance test load that require a standard of 60 ppmvd while firing natural gas? If these operating conditions truly justify 60 ppmvd, then, you need to provide the justification and a request to revise the BACT determination.

Combustion parameters associated with Peak Load versus Base Load operation are summarized in the attached copy of the General Electric Estimated Performance specifications of the PG6541(B) Frame 6 Gas Turbine at the City of Vero Beach (Attachment C). While generating an additional 3 megawatts, Peak Load increases the firing temperature of the gas turbine. Although the City would continue to utilize Dry Low NOx burners for NOx control even during Peak Load operation, according to the burner manufacturer (GE), the increased firing temperature would result an increased NOx emission rate of 60 ppm. For that reason, the City has requested a revised NOx limit of 60 ppm while firing natural gas for up to 400 hours of emergency operation at peak load.

Because the City will continue to utilize Dry Low NOx burners and the Department has already determined that Dry Low NOx burners constitute "best available control technology" for NOx control, a revision of BACT determination is not required for the limited relief requested.

Moreover, even if considered an operational change, the limited Peak Load authorization, in and of itself, would not trigger PSD review. As you know, an operational change at an existing facility only triggers PSD review if the change results in a significant net emissions increase (i.e., 40 tons/year for NOx) based upon a comparison of actual emissions before and after the change. As illustrated in the following equations, even in the unlikely event that the City required 400 hours of Peak Load operation in a single year, the difference between Peak Load and Base Load operation would increase annual NOx emissions by only 13.0 tons/year:

GE Estimated NOx Emissions at Base Load: 42 lbs/hr
GE Estimated NOx Emissions at Peak Load: 107 lbs/hr

Difference (increase) in NOx Emissions: 107 lbs/hr - 42 lbs/hr = 65 lbs/hr

Increased Nox emissions resulting from 400 hrs of Peak Load Operation:

65 lbs/hr x 400 hr/yr / 2000 lbs/ton = 13.0 tons/yr

Since the 13 tons/year increase is well below the 40 tons/year threshold for significant net emission increases of NOx, the proposed permit revision would not trigger PSD or BACT review. Any other post-revision increase in actual emissions would be attributable to increased utilization due to electricity demand. Under EPA's new "WEPCO" rules, emissions attributable to increased electricity demand are excluded in calculating emission increases associated with operational changes at existing electric generating units. See, 40 CFR § 52.21(b)(33)(ii).

Question No. 5: Please provide complete details of all changes made to the emission unit that you alluded to in paragraph 2 on page 2 of your June 3, 1994 letter.

The changes referred to in the June 30, 1994, letter were as follows:

The existing combustion chambers (a total of 10) were completely removed. The new Dry Low Nox Combustors were placed in the combustion chambers. Additional piping was added to support the new Dry Low Nox Combustors. A new water injection skid was added to accommodate the burning of the liquid fuel in the Dry Low Nox Combustors. With the old Combustors, water was sprayed directly over the flames to reduce the thermal Nox emissions. The Dry Low Nox Combustors design calls for the oil and water to emulsify prior to combustion.

Question No. 6: Provide justification to the request for eliminating the fuel oil "gallons/hour" consumption limit.

The "gallons/hour" oil flow rate referenced in the original permit is an artifact of the construction permit application form filed in August, 1990 (Attachment D). As illustrated

below, the oil flow rate was calculated by dividing the maximum heat input by the expected lower heating value of the fuel oil:

Density = 7.05 lb/gal
Lower Heating Value (LHV) = 18,550 btu/lb
= 130,800 btu/gal
Maximum Heat Input = 443.3 mmbtu/hr

Oil Flow (gal/hr) = 443,300,000 btu/hr / 130,800 btu/gal
= 3389 gal/hr

As you can see, the oil flow rate will only be 3390 gal/hr if the LHV of the oil being fired is 130,800 btu/gal. Unfortunately, however, the fuel oil actually burned will not always have the LHV assumed in the original permit application. In January 1994, for example, the "as burn" analysis of fuel oil was as follows:

Density = 7.149 lb/gal
LHV = 18,277 btu/lb
= 130,662 btu/gal

Oil Flow (gal/hr) = 443,300,000 btu/hr / 130,662 btu/gal
= 3393 gal/hr

Under the circumstances, the oil flow rate was slightly above the 3389 gal/hr rate referenced in the permit even though the maximum heat input remained the same. Because oil analysis will not always reflect the LHV referenced in the original permit application, the City respectfully requests deletion of the "gallons/hr" oil flow rate to avoid the anomaly illustrated above.

Note: With the new Dry Low Nox Combustors, the heat input while firing oil has changed from 443 mmbtu/hr to 455 mmbtu/hr.

Question 7: Please provide a summary of any known delays in providing electrical service within the industry as a result of a facility not being able to obtain an emergency order.

The City is not aware of any delays in providing electrical service within the industry as a result of the inability to obtain an emergency order. However, the emergency order process results in needless paperwork and expense for both the Department and industry. During the extreme winter storm of February 1991, for example, Fort Pierce Utilities Authority was forced to obtain an emergency order to burn fuel oil due to a threatened natural gas curtailment. Since that time, the Department modified the applicable permit to authorize oil burning under such emergency circumstances. In doing so, the Department crafted permit language which eliminated the need for an emergency order, while at the same time ensuring that the limited

authority to burn oil is not abused. See Letter from Steve Smallwood (DER) to Harry Schindehette (FPUA) (June 28, 1991) (Attachment E). The City of Vero Beach simply requests similar permit language to avoid the needless expense associated with an emergency order.

The City appreciates the Department's cooperation in this matter. If you have any questions, please do not hesitate to call me or Mike Siefert at the Vero Beach Municipal Power Plant (407/562-7231).

Sincerely,

HOPPING BOYD GREEN & SAMS

By: Gary V. Perko

cc: Charles Logan (DEP)
Mike Siefert (CVB)

ATTACHMENT A

TABLE 3–2. Unit #5 EMISSIONS TEST RESULTS 47% LOAD GAS FUEL
01/12/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	16.4	16.3	16.4	16.4
Fuel Rate	#/sec	3.67	3.68	3.66	3.67
Barometric Pressure	in. Hg	29.93	29.93	29.93	29.93
Specific Humidity	lb H2O/lb DA	0.01530	0.01530	0.01430	0.01497
Ambient Temp.	degrees F	70.7	72.5	72.3	71.8
Oxygen	% Volume	15.3	15.3	15.3	15.3
NOx	ppmV	10.6	10.3	10.3	10.4
	ppmV @15%O2	11.1	10.8	10.8	10.9
	ppmV @15%O2 & ISO conditions	13.2	12.8	12.6	12.9

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3–3. Unit #5 EMISSIONS TEST RESULTS 60% LOAD GAS FUEL
01/12/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	21.6	21.8	21.8	21.7
Fuel Rate	#/sec	4.27	4.30	4.31	4.29
Barometric Pressure	In. Hg	29.93	29.92	29.91	29.92
Specific Humidity	lb H2O/lb DA	0.01430	0.01440	0.01536	0.01469
Ambient Temp.	degrees F	72.3	71.2	71.6	71.7
Oxygen	% Volume	14.9	14.9	14.9	14.9
NOx	ppmV	15.2	15.1	15.1	15.1
	ppmV @15%O2	15.0	14.9	14.8	14.9
	ppmV @15%O2 & ISO conditions	17.3	17.2	17.4	17.3

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-4. Unit #5 EMISSIONS TEST RESULTS 75% LOAD GAS FUEL
01/12/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	27.2	26.8	27.1	27.0
Fuel Rate	#/sec	4.87	4.82	4.85	4.85
Barometric Pressure	In. Hg	29.91	29.91	29.91	29.91
Specific Humidity	lb H2O/lb DA	0.01493	0.01493	0.01493	0.01493
Ambient Temp.	degrees F	71.2	71.2	71.2	71.2
Oxygen	% Volume	14.9	14.8	14.8	14.8
NOx	ppmV	16.7	16.7	16.7	16.7
	ppmV @15%O2	16.3	16.2	16.3	16.3
	ppmV @15%O2 & ISO conditions	19.1	19.1	19.2	19.1

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-5. Unit #5 EMISSIONS TEST RESULTS 100% LOAD GAS FUEL
01/12/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	35.2	35.0	34.9	35.0
Fuel Rate	#/sec	5.79	5.90	5.79	5.83
Barometric Pressure	in. Hg	30.00	29.98	29.95	29.98
Specific Humidity	lb H2O/lb DA	0.01547	0.01639	0.01525	0.01570
Ambient Temp.	degrees F	70.9	72.0	72.0	71.6
Oxygen	% Volume	14.8	14.8	14.7	14.8
Carbon Monoxide	ppmv	6.3	6.3	6.4	6.3
	lb/MMBtu	0.0137	0.0137	0.0138	0.0137
VOCs	ppm Carbon	0.8	0.8	0.6	0.7
	lb/MMBtu	0.0010	0.0010	0.0008	0.0009
NOx	ppmV	17.5	17.3	17.5	17.4
	ppmV @15%O2	16.9	16.6	16.7	16.7
	ppmV @15%O2 & ISO conditions	19.9	19.8	19.5	19.7

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-6. Unit #5 EMISSIONS TEST RESULTS 47% LOAD LIQUID FUEL
01/10/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	17.0	17.2	17.0	17.1
Fuel Rate	#/sec	4.01	4.03	4.01	4.02
Water Rate	#/sec	3.38	3.44	3.47	3.43
Water/Fuel	Ratio	0.843	0.854	0.865	0.854
Barometric Pressure	in. Hg	30.31	30.30	30.30	30.30
Specific Humidity	lb H2O/lb DA	0.01148	0.01132	0.01120	0.01133
Ambient Temp.	degrees F	70.9	71.6	70.1	70.9
Oxygen	% Volume	16.2	16.2	16.2	16.2
NOx	ppmV	18.9	18.8	18.2	18.6
	ppmV @15%O2	23.8	23.6	23.0	23.5
	ppmV @15%O2 & ISO conditions	25.9	25.9	24.9	25.6

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-7. Unit #5 EMISSIONS TEST RESULTS 60% LOAD LIQUID FUEL
01/10/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	21.9	21.8	21.8	21.8
Fuel Rate	#/sec	4.70	4.67	4.68	4.68
Water Rate	#/sec	4.03	4.00	3.99	4.01
Water/Fuel	Ratio	0.857	0.857	0.853	0.856
Barometric Pressure	in. Hg	30.32	30.32	30.32	30.32
Specific Humidity	lb H2O/lb DA	0.01094	0.01127	0.01127	0.01116
Ambient Temp.	degrees F	71.2	70.9	70.9	71.0
Oxygen	% Volume	15.4	15.4	15.4	15.4
NOx	ppmV	25.5	25.3	25.3	25.4
	ppmV @15%O2	27.5	27.3	27.3	27.4
	ppmV @15%O2 & ISO conditions	29.2	29.2	29.2	29.2

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-8. Unit #5 EMISSIONS TEST RESULTS 75% LOAD LIQUID FUEL
01/10/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	27.6	27.6	27.6	27.6
Fuel Rate	#/sec	5.49	5.50	5.50	5.50
Water Rate	#/sec	4.73	4.71	4.74	4.73
Water/Fuel	Ratio	0.862	0.856	0.862	0.860
Barometric Pressure	in. Hg	30.31	30.32	30.32	30.32
Specific Humidity	lb H2O/lb DA	0.01158	0.01126	0.01158	0.01147
Ambient Temp.	degrees F	68.4	66.6	68.4	67.8
Oxygen	% Volume	14.6	14.5	14.5	14.5
NOx	ppmV	36.7	37.1	37.9	37.2
	ppmV @15%O2	34.5	34.4	34.8	34.6
	ppmV @15%O2 & ISO conditions	37.6	37.5	37.9	37.7

Note: all concentrations expressed as ppmV or %V are on a dry basis.

TABLE 3-9. Unit #5 EMISSIONS TEST RESULTS 100% LOAD LIQUID FUEL
01/11/94

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE
Load	MW	36.8	36.5	36.6	36.6
Fuel Rate	#/sec	6.83	6.77	6.78	6.79
Water Rate	#/sec	6.03	6.05	6.02	6.03
Water/Fuel	Ratio	0.883	0.894	0.888	0.888
Barometric Pressure	in. Hg	30.31	30.32	30.30	30.31
Specific Humidity	lb H2O/lb DA	0.01227	0.01280	0.01275	0.01261
Ambient Temp.	degrees F	68.0	70.5	72.0	70.2
Oxygen	% Volume	14.4	14.3	14.3	14.3
Carbon Monoxide	ppmV	0.0	0.0	0.0	0.0
	lb/MMBtu	0.0	0.0	0.0	0.0
VOCs	ppm Carbon	0.0	0.0	0.0	0.0
	lb/MMBtu	0.0000	0.0000	0.0000	0.0000
NOx	ppmV	42.3	42.1	42.0	42.1
	ppmV @15%O2	38.3	37.8	37.5	37.9
	ppmV @15%O2 & ISO conditions	42.3	41.9	41.3	41.8

Note: all concentrations expressed as ppmV or %V are on a dry basis.

Table 3-10. Summary of Particulate Matter Test Results - Vero Beach Unit #5.

01/11/94

Run	Flow Rate (dscfm)	Stack Temp. (°F)	H_2O (%)	O_2 (%)	Particulate Matter Emissions: Concentration (gr/dscf)	Actual Emission Rate (lb/MMBtu)	Allowable Emission Rate (lb/MMBtu)
1	263,605	407	7.82	14.5	0.00043	0.00184	0.025
2	261,787	406	7.89	14.5	0.00131	0.00562	0.025
3	268,367	406	7.59	14.4	0.00088	0.00375	0.025
Avg	264,586	406	7.77	14.4	0.00087	0.00374	0.025
Average Opacity:							0%

Source: ESE, 1993

TABLE 3-1. TURBINE EXHAUST PRELIMINARY OXYGEN TRAVERSE

POINT NO.	PORT NUMBER			
	N	S	E	W
1	15.6	15.6	15.7	15.6
2	15.6	15.6	15.7	15.6
3	15.6	15.6	15.7	15.6
4	15.6	15.6	15.7	15.6
5	15.6	15.6	15.7	15.6
6	15.6	15.6	15.7	15.6
7	15.6	15.6	15.7	15.6
8	15.6	15.6	15.7	15.6
9	15.6	15.6	15.7	15.6
10	15.6	15.6	15.7	15.6
11	15.6	15.6	15.7	15.6
12	15.6	15.6	15.7	15.6

All values are O2 concentrations expressed in percent volume, dry basis

Test run average: 15.6 %V O2

Load average: 17.2 MWatts

ATTACHMENT B

Unit #1

AOR

1989-1993

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 1989 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-112349
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #1
   under 250 MM BTU/hr Stack Test-Visible Emissions only

II ACTUAL OPERATING HOURS: 24.0 hrs/day 3.9 days/wk 1.0 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

2.48	10^6 cubic feet Natural Gas	_____	10^3 Kerosene
49.51	10^3 gallons #6 Oil, 2.0 %S	_____	tons Coal
_____	10^3 gallons Propane	_____	tons Carbonaceous
_____	10^6 Black Liquor Solids	_____	tons Refuse

Other (Specify type and units) _____

EMISSION RATE(S) (tons/yr)

0.58	Particulates	7.77	Sulfur Dioxide	N/A	Total Reduced Sulfur
2.34	Nitrogen Oxide	0.17	Carbon Monoxide	N/A	Fluoride
0.03	Hydrocarbon	Other (Specify type and units) _____			

II METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1 (attached)

III CERTIFICATION:

hereby certify that the information given in this report is correct to the best of my owledge.

George W. Walbroom
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

_____
TYPED NAME AND TITLE

July 13, 1982
DATE

Unit #1

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 1990 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-184320
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #1
   under 250 MM BTU/hr Stack Test-Visible Emissions only

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 7.23 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

V TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

129.5	10^6 cubic feet Natural Gas	_____	10^3 Kerosene
-0-	10^3 gallons _____ Oil, _____ %S	_____	tons Coal
_____	10^3 gallons Propane	_____	tons Carbonaceous
_____	10^6 Black Liquor Solids	_____	tons Refuse

Other (Specify type and units) _____

VI EMISSION RATE(S) (tons/yr)

0.32	Particulates	0.04	Sulfur Dioxide	N/A	Total Reduced Sulfur
35.61	Nitrogen Oxide	2.59	Carbon Monoxide	N/A	Fluoride
0.11	Hydrocarbon	Other (Specify type and units) _____			

VII METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1 (attached)

VIII CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey
Director of Power Resources
TYPED NAME AND TITLE

5-10-91
DATE

Unit #1

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

T. JOHNS RIVER
ISTRICT

19 MAGUIRE BOULEVARD
ITE 232
ILANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 91 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-184320
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #1
   201.8 MMBTU/hr Natural GAs, 140 MMBTU/hr No. 6 Fuel Oil

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 1.56 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

16.48 10^6 cubic feet Natural Gas _____ 10^3 Kerouene

0 10^3 gallons _____ Oil, _____ %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

I EMISSION RATE(S) (tons/yr)

.04 Particulates .005 Sulfur Dioxide _____ Total Reduced Sulfur

4.53 Nitrogen Oxide .33 Carbon Monoxide _____ Fluoride

.014 Hydrocarbon Other (Specify type and units)_____

II METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U. S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1

III CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey, Director of Power Resources
TYPED NAME AND TITLE

1/23/92
DATE

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	01	

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 1 OF 5)

FACILITY NAME: City of Vero Beach Municipal Power Plant

SOURCE INFORMATION (AIR030)

1. Source Description
Unit 1 : Fuel oil/Natural gas fired steam generator which operates a 12.5 MW turbine/generator

2. DER Permit or PPS Number	3. Source APIS ID	4. Source Status
A031-184320	30 ORL 31 0029 01	A

5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (MM/DD/YY)

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type

2

2a. Description of Control Equipment 'a'

2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)
Y		16.3	2.83	276.7

4. Percent Hours of Operation by Season	DJF	MAM	JJA	SON
100%	24%	0	56%	20%

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	01	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel	
	Natural Gas	
3a. Annual Process or Fuel Usage Rate (SCC Units)		
19.745		
4a. Fuel Average % Sulfur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel	
3b. Annual Process or Fuel Usage Rate (SCC Units)		
4b. Fuel Average % Sulfur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel	
3c. Annual Process or Fuel Usage Rate (SCC Units)		
4c. Fuel Average % Sulfur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel	
3d. Annual Process or Fuel Usage Rate (SCC Units)		
4d. Fuel Average % Sulfur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 1	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 1 OF 5)

SOURCE DESCRIPTION: Unit 1 Steam Generator

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
CO	0.395	3

4a. Emissions Calculation

40 lb/mmcf * 19.745 mmcf/2000 lb/ton = 0.395 tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
VOC (TOC)	0.0168	3

4b. Emissions Calculation

1.7 lb/mmcf * 19.745 mmcf/2000 lb/ton = 0.0168 tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PM	0.0099	3

4c. Emissions Calculation

1 lb/mmcf * 19.745 mmcf/2000 lb/ton = 0.0099 tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
PM10	0.0784	4

4d. Emissions Calculation

0.4 * .0193 lb/mmbtu *19.745 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.0784 tons

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 1	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
NOx	5.43	3

4e. Emissions Calculation

550 lb/mmcf *19.745 mmcf/2000 lb/ton = 5.43 tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
SO2	0.006	3

4f. Emissions Calculation

0.6 lb/mmcf *19.745 mmcf/2000 lb/ton = 0.006 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
Pb	0.00059	4

4g. Emissions Calculation

5.8 *10 -5 lb/mmbtu *19.745 mmcf *1028 mmbtu/mmcf/2000 lb/ton = 0.00059 tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DER use.

Date: 4-5-93

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	01	

SOURCE OZONE-SIP REPORT - PAGE 5 & 6 (SOURCE REPORT 1 OF 5)

SOURCE DESCRIPTION: Unit 1 Steam Generator

SOURCE OZONE-SIP PROCESS/FUEL INFORMATION (AIR052)

1. Existing 12/31/90?	2. Average Operation for Ozone Season (June thru August)	hour/day	day/week
Y		15.56	2.5

3a. SCC 'a'	4a. Description of Process or Type of Fuel
	Natural Gas

5a. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)
1.249

6a. Emission Factor (lb/SCC Unit)	VOC	NOx
	1.7	550

7a. Comments

3b. SCC 'b'	4b. Description of Process or Type of Fuel

5b. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)

6b. Emission Factor (lb/SCC Unit)	VOC	NOx

7b. Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	01	

SOURCE OZONE SIP EMISSIONS INFORMATION (AIR053)

1a. Pollutant ID	2a. Ozone Season Emissions (lb/day)	3a. Emissions Method Code
VOC	2.12	3

4a. Emissions Calculation

1.7 lb/mmcf * 1.249 mmcf/day = 2.12 lb/day

1b. Pollutant ID	2b. Ozone Season Emissions (lb/day)	3b. Emissions Method Code
NOx	686.95	3

4b. Emissions Calculation

550 lb/mmcf * 1.249 mmcf/day = 686.95 lb/day

Shaded areas are for DER use.

Florida Department of Environmental Protection

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

DEP Form	17-210.900(4)
Form Title	Annual Operating Report
Effective Date	February 9, 1993
DEP Application No.	(Filled in by DEP)

DIVISION OF AIR RESOURCES MANAGEMENT

ANNUAL OPERATING REPORT FOR AIR POLLUTANT EMITTING FACILITY

See Instructions for Form 17-210.900(4)
(Note: Shaded fields on form are for DEP use; please leave blank)

REPORT INFORMATION

1. Year of Report	2. Date Report Received	3. Number of Sources in Report
93		5

FACILITY INFORMATION (AIR020)

1. Facility APIS ID	2. Facility Status	3. Date of Permanent Facility Shutdown
30ORL310029	A	

4. Facility Owner/Company Name	
~~VERO BEACH POWER PLANT~~	CITY OF VERO BEACH

5. Facility Name/Street Address or Location Description
MUNICIPAL POWER PLANT 100 17TH ST

6. Facility City	County
VERO BEACH	31

7. Facility Compliance Tracking Codes	CDS	VOC
	1	4

8. Facility Comment (60 Characters)

FACILITY HISTORY INFORMATION (AIR022)

1. Change in Facility Name During Year?	Previous Name	1. Date of Change
N		

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	INPUT
	30	ORL	31	0029	

OWNER/CONTACT INFORMATION (AIR021)

1. Individual Owner or Authorized Representative Name

MR. SHULER W. MASSEY

Organization/Firm

~~VERO BEACH POWER PLANT~~ CITY OF VERO BEACH POWER PLANT

Street Address or P.O. Box

P O BOX 1389

City	State	Zip
VERO BEACH	FL	32961-1389

Telephone

(407) ~~567-5154~~ 562-7231

2. Facility Contact for Air Regulatory Matters Name

MICHAEL SIEFERT

Organization/Firm

CITY OF VERO BEACH

Street Address or P.O. Box

P. O. BOX 1389

City	State	Zip
VERO BEACH	FL	32961-1389

Telephone

(407) 562-7231

CERTIFICATION

Statement by Owner or Authorized Representative

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
Signature

2/16/94
Date

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	01	INPUT

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 1 OF 5)
FACILITY NAME: VERO BEACH POWER PLANT

SOURCE INFORMATION (AIR030)

1. Source Description		
FOSSIL FUEL STEAM GENERATOR UNIT #1		
2. DEP Permit or PPS Number	3. Source APIS ID	4. Source Status
AO31184320	30ORL31002901	A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (DD/MM/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
2
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		8.81	1.33	35.25	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
		0%	55%	0%	45%

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	01	INPUT

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
10100601	EXTCOMB BOILER ELECTRIC GENERATN NATURAL GAS 100MMBTU/HR EXTF

3a. Annual Process or Fuel Usage Rate (SCC Units)	
1.458	MILLION CUBIC FEET BURNED

4a. Fuel Average % Sulphur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
10100401	EXTCOMB BOILER ELECTRIC GENERATN RESIDUAL OIL NO 6 OIL NORM FRG

3b. Annual Process or Fuel Usage Rate (SCC Units)	
0	1000 GALLONS BURNED

4b. Fuel Average % Sulphur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)		

4c. Fuel Average % Sulphur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)		

4d. Fuel Average % Sulphur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	01	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 1 OF 5)

SOURCE DESCRIPTION: FOSSIL FUEL STEAM GENERATOR UNIT #1

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
VOLATILE ORGANIC COMPOUNDS	0.0012	3

4a. Emissions Calculation

(1.7 Lb/mmcf * 1.458 mmcf) / 2000 = 0.0012 Tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
SULFUR DIOXIDE	0.0004	3

4b. Emissions Calculation

(0.6 Lb/mmcf * 1.458 mmcf) / 2000 = 0.0004 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PARTICULATE MATTER - TOTAL	0.0007	3

4c. Emissions Calculation

(1.0 Lb/mmcf * 1.458 mmcf) / 2000 = 0.0007 Tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
NITROGEN OXIDES	0.4	3

4d. Emissions Calculation

(550 Lb/mmcf * 1.458 mmcf / 2000 = 0.4 Tons

Shaded areas are for DEP use.

Date: 02/14/94

DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID 30	ORL	31	0029	01	INPUT

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
CARBON MONOXIDE	0.029	3

4e. Emissions Calculation

(40 Lb/mmcf * 1.458 mmcf) / 2000 = 0.029 Tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
PARTICULATE MATTER - 10 MICRONS OR LESS	0.0007	4

4f. Emissions Calculation

(1.0 Lb/mmcf * 1.458 mmcf) / 2000 = 0.0007 Tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
LEAD AND LEAD COMPOUNDS	0.00004	4

4g. Emissions Calculation

$$(5.8 * 10^{-5} \text{ Lb/mmbtu} * 1.458 \text{ mmcf} * 1028 \frac{\text{mmbtu}}{\text{mmcf}}) / 2000 = 0.00004 \text{ Tons}$$

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DEP use.

Date: 02/14/94

Unit #2

AOR

1989-1993

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 89 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-146711
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #2 under 250 MM BTU/hr Stack Test - Visible Emissions Only

II ACTUAL OPERATING HOURS: 24.0 hrs/day 7.0 days/wk 4.36 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

60.0 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

-0- 10^3 gallons _____ Oil, _____ %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

I EMISSION RATE(S) (tons/yr) Gas Only

0.15	Particulates	0.02	Sulfur Dioxide	N/A	Total Reduced Sulfur
16.50	Nitrogen Oxide	1.20	Carbon Monoxide	N/A	Fluoride
0.05	Hydrocarbon	Other (Specify type and units)			

II METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. Ap-42 Table 1.4-1 (attached)

III CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

George W Williams
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

_____
TYPED NAME AND TITLE

July 13, 1990
DATE

Unit #2

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 1990 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-146711
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #2
   under 250 MM BTU/hr Stack Test-Visible Emissions only

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 10.67 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

V TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

166.9 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

-0- 10^3 gallons -0- Oil, -0- %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

VI EMISSION RATE(S) (tons/yr)

0.42 Particulates 0.05 Sulfur Dioxide N/A Total Reduced Sulfur

45.9 Nitrogen Oxide 3.34 Carbon Monoxide N/A Fluoride

0.14 Hydrocarbon Other (Specify type and units) _____

VII METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. Ap-42 Table 1.4-1 (attached)

VIII CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey

SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey
Director of Power Resources

TYPED NAME AND TITLE

5-10-91

DATE

Unit #2

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

. JOHNS RIVER
STRICT

19 MAGUIRE BOULEVARD
ITE 232
LANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 91 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-146711
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #2
   248 MMBTU/hr Natural GAs, 243 MMBTU/hr No. 6 Fuel Oil.

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 9.77 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

141.16 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

0 10^3 gallons _____ Oil, _____ %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

I EMISSION RATE(S) (tons/yr)

.35 Particulates .04 Sulfur Dioxide _____ Total Reduced Sulfur

38.82 Nitrogen Oxide 2.82 Carbon Monoxide _____ Fluoride

.12 Hydrocarbon Other (Specify type and units) _____

II METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Table 1.3-1 and 1.4-1

III CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey, Director of Power Resources
TYPED NAME AND TITLE

1/23/92
DATE

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	02	

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 2 OF 5)

FACILITY NAME: City of Vero Beach Municipal Power Plant

SOURCE INFORMATION (AIR030)

1. Source Description		
Unit 2 : Fuel oil/Natural gas fired steam generator which operates a 16.5 MW turbine/generator		
2. DER Permit or PPS Number	3. Source APIS ID	4. Source Status
A031-146711	30 ORL 31 0029 02	A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (MM/DD/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
2
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		20.5	4.75	389.6	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
100%		100%	0	0	0

Shaded areas are for DER use.

Date: 4-5-93

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	02	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel	
	Natural Gas	
3a. Annual Process or Fuel Usage Rate (SCC Units)		
37.836		
4a. Fuel Average % Sulfur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel	
3b. Annual Process or Fuel Usage Rate (SCC Units)		
4b. Fuel Average % Sulfur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel	
3c. Annual Process or Fuel Usage Rate (SCC Units)		
4c. Fuel Average % Sulfur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel	
3d. Annual Process or Fuel Usage Rate (SCC Units)		
4d. Fuel Average % Sulfur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 2	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 2 OF 5)

SOURCE DESCRIPTION: Unit 2 Steam Generator

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
CO	0.757	3

4a. Emissions Calculation

40 lb/mmcf * 37.836 mmcf/2000 lb/ton = 0.757 tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
VOC (TOC)	0.032	3

4b. Emissions Calculation

1.7 lb/mmcf * 37.836 mmcf/2000 lb/ton = 0.032 tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PM	0.0189	3

4c. Emissions Calculation

1 lb/mmcf * 37.836 mmcf/2000 lb/ton = 0.0189 tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
PM10	0.15	4

4d. Emissions Calculation

0.4 * .0193 lb/mmbtu * 37.836 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.15 tons

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	02	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
NOx	10.4	3

4e. Emissions Calculation

550 lb/mmcf * 37.836 mmcf/2000 lb/ton = 10.4 tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
SO2	0.011	3

4f. Emissions Calculation

0.6 lb/mmcf * 37.836 mmcf/2000 lb/ton = 0.011 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
Pb	0.0011 ton	4

4g. Emissions Calculation

5.8 * 10 -5 lb/mmbtu * 37.836 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.0011 tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	02	

SOURCE OZONE-SIP REPORT - PAGE 5 & 6 (SOURCE REPORT 2 OF 5)

SOURCE DESCRIPTION: Unit 2 Steam Generator

SOURCE OZONE-SIP PROCESS/FUEL INFORMATION (AIR052)

1. Existing 12/31/90?	2. Average Operation for Ozone Season (June thru August)	hour/day	day/week
Y		0	0

3a. SCC 'a'	4a. Description of Process or Type of Fuel

5a. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)
0

6a. Emission Factor (lb/SCC Unit)	VOC	NOx
	1.7	550

7a. Comments

Unit 2 turbine/generator will be repowered by gas turbine exhaust/heat recovery steam generator. (HRSG). Unit 2 boiler will see limited use in future.

3b. SCC 'b'	4b. Description of Process or Type of Fuel

5b. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)

6b. Emission Factor (lb/SCC Unit)	VOC	NOx

7b. Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	02	

SOURCE OZONE SIP EMISSIONS INFORMATION (AIR053)

1a. Pollutant ID	2a. Ozone Season Emissions (lb/day)	3a. Emissions Method Code
VOC	0	

4a. Emissions Calculation

1b. Pollutant ID	2b. Ozone Season Emissions (lb/day)	3b. Emissions Method Code
NOx	0	3

4b. Emissions Calculation

Shaded areas are for DER use.

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	02	INPUT

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 2 OF 5)
FACILITY NAME: VERO BEACH POWER PLANT

SOURCE INFORMATION (AIR030)

1. Source Description		
FOSSIL FUEL STEAM GENERATOR UNIT #2		
2. DEP Permit or PPS Number	3. Source APIS ID	4. Source Status
AO31226295	30ORL31002902	A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (DD/MM/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
2
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		17.1	4.0	68.4	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
		0%	100%	0%	0%

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	02	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
10100601	EXTCOMB BOILER ELECTRIC GENERATN NATURAL GAS 100MMBTU/HR EXTF

3a. Annual Process or Fuel Usage Rate (SCC Units)	
8.948	MILLION CUBIC FEET BURNED

4a. Fuel Average % Sulphur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
10100401	EXTCOMB BOILER ELECTRIC GENERATN RESIDUAL OIL NO 6 OIL NORM FRG

3b. Annual Process or Fuel Usage Rate (SCC Units)	
0	1000 GALLONS BURNED

4b. Fuel Average % Sulphur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)		

4c. Fuel Average % Sulphur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)		

4d. Fuel Average % Sulphur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	02	INPUT

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 2 OF 5)
SOURCE DESCRIPTION: FOSSIL FUEL STEAM GENERATOR UNIT #2

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
VOLATILE ORGANIC COMPOUNDS	0.0076	3

4a. Emissions Calculation

(1.7 Lb/mmcf * 8.948 mmcf) / 2000 = 0.0076 Tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
SULFUR DIOXIDE	0.0027	3

4b. Emissions Calculation

(0.6 Lb/mmcf * 8.948 mmcf) / 2000 = 0.0027 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PARTICULATE MATTER - TOTAL	0.0045	3

4c. Emissions Calculation

(1.0 Lb/mmcf * 8.948 mmcf) / 2000 = 0.0045 Tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
NITROGEN OXIDES	2.46	3

4d. Emissions Calculation

(550 Lb/mmcf * 8.948 mmcf) / 2000 = 2.46 Tons

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	02	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
CARBON MONOXIDE	0.179	3

4e. Emissions Calculation

(40 Lb/mmcf * 8.948 mmcf) / 2000 = 0.179 Tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
PARTICULATE MATTER - 10 MICRONS OR LESS	0.0045	4

4f. Emissions Calculation

(1.0 Lb/mmcf * 8.948 mmcf) / 2000 = 0.0045 Tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
LEAD AND LEAD COMPOUNDS	0.00027	4

4g. Emissions Calculation

$$(5.8 * 10^{-5}\ \text{Lb/mmbtu} * 8.948\ \text{mmcf} * 1028\ \frac{\text{mmbtu}}{\text{mmcf}}) / 2000 = 0.00027\ \text{Tons}$$

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DEP use.

Date: 02/14/94

Unit #3

AOR

1989 - 1993

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 1989 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-142513
3. Source Address: 100-17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #3
   417 mmBtu/hr Natural Gas, 410 mmBtu/hr #6 Fuel Oil

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 12.79 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

V TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

289.46 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

178.41 10^3 gallons #6 Oil, 2.0 %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

VI EMISSION RATE(S) (tons/yr)

2.77 Particulates 28.10 Sulfur Dioxide N/A Total Reduced Sulfur

85.58 Nitrogen Oxide 6.24 Carbon Monoxide N/A Fluoride

0.34 Hydrocarbon Other (Specify type and units) _____

VII METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1 (attached).

VIII CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

George W. Williams
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

_____
TYPED NAME AND TITLE

July 13, 1990
DATE

Unit #3

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 90 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-142513
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #3
   417 mmBtu/hr Natural Gas, 410 mmBtu/hr #6 Fuel Oil

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 24.20 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

V TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

542.01 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

17.93 10^3 gallons #6 Oil, 2.0 %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

VI EMISSION RATE(S) (tons/yr)

1.56	Particulates	2.98	Sulfur Dioxide	N/A	Total Reduced Sulfur
149.65	Nitrogen Oxide	10.88	Carbon Monoxide	N/A	Fluoride
0.47	Hydrocarbon	Other (Specify type and units)			

VII METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1 (attached)

VIII CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey
Director of Power Resources
TYPED NAME AND TITLE

5-10-91
DATE

Unit #3

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

T. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 91 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-142513
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #3
   417 mmBtu/hr Natural Gas, 410 mmBtu/hr #6 Fuel Oil

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 31.14 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

V TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

640.70 10^6 cubic feet Natural Gas _____ 10^3 Kerosene

154.73 10^3 gallons #6 Oil, 2 %S _____ tons Coal

_____ 10^3 gallons Propane _____ tons Carbonaceous

_____ 10^6 Black Liquor Solids _____ tons Refuse

Other (Specify type and units) _____

VI EMISSION RATE(S) (tons/yr)

3.38 Particulates 24.49 Sulfur Dioxide _____ Total Reduced Sulfur

181.38 Nitrogen Oxide 13.20 Carbon Monoxide _____ Fluoride

.63 Hydrocarbon Other (Specify type and units) _____

VII METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

U.S. E.P.A. AP-42 Tables 1.3-1 and 1.4-1

VIII CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey, Director of Power Resources
TYPED NAME AND TITLE

1/23/92
DATE

	District	Office	County	Facility	Source	
APIS ID	3 0	0 R L	3 1	0 0 2 9	0 3	INPUT

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 3 OF 5)

FACILITY NAME: City of Vero Beach Municipal Power Plant

SOURCE INFORMATION (AIR030)

1. Source Description		
Unit 3 - Fuel Oil/Natural Gas Fired Steam Generator which operates a 34 MW Turbine/Generator		
2. DER Permit or PPS Number	**3. Source APIS ID**	**4. Source Status**
A031-142513	30 ORL 31 0029 03	A
5. Source Startup Date (MM/DD/YY)	**6. Source Shutdown Date (MM/DD/YY)**	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
1
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		22.34	5.62	3,262.3	
4. Percent Hours of Operation by Season		**DJF**	**MAM**	**JJA**	**SON**
100%		19%	0	47%	34%

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 3	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel: Natural Gas	
3a. Annual Process or Fuel Usage Rate (SCC Units): 463.281		
4a. Fuel Average % Sulfur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units): 1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel	
3b. Annual Process or Fuel Usage Rate (SCC Units)		
4b. Fuel Average % Sulfur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel	
3c. Annual Process or Fuel Usage Rate (SCC Units)		
4c. Fuel Average % Sulfur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel	
3d. Annual Process or Fuel Usage Rate (SCC Units)		
4d. Fuel Average % Sulfur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 3	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 3 OF 5)

SOURCE DESCRIPTION: Unit 3 Steam Generator

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
CO	9.27	3

4a. Emissions Calculation

40 lb/mmcf * 463.281 mmcf/2000 lb/ton = 9.27 tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
VOC (TOC)	0.394	3

4b. Emissions Calculation

1.7 lb/mmcf * 463.281 mmcf/2000 lb/ton = 0.394 tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PM	0.232	3

4c. Emissions Calculation

1 lb/mmcf * 463.281 mmcf/2000 lb/ton = 0.232 tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
PM_{10}	1.84	4

4d. Emissions Calculation

0.4 * .0193 lb/mmbtu * 463.281 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 1.84 ton

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 3	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
NO_x	127.4	3

4e. Emissions Calculation

550 lb/mmcf * 463.281 mmcf/2000 lb/ton = 127.4 tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
SO_2	0.14	3

4f. Emissions Calculation

0.6 lb/mmcf * 463.281 mmcf/2000 lb/ton = 0.14 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
Pb	0.014	4

4g. Emissions Calculation

$5.8 * 10^{-5}$ lb/mmbtu * 463.281 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.014 tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 3	

SOURCE OZONE-SIP REPORT - PAGE 5 & 6 (SOURCE REPORT 3 OF 5)

SOURCE DESCRIPTION: Unit 3 Steam Generator

SOURCE OZONE-SIP PROCESS/FUEL INFORMATION (AIR052)

1. Existing 12/31/90?	2. Average Operation for Ozone Season (June thru August)	hour/day	day/week
Y		22.34	6.3

3a. SCC 'a'	4a. Description of Process or Type of Fuel
	Natural GAs

5a. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)
3.33

6a. Emission Factor (lb/SCC Unit)	VOC	NOx
	1.7	550

7a. Comments

3b. SCC 'b'	4b. Description of Process or Type of Fuel

5b. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)

6b. Emission Factor (lb/SCC Unit)	VOC	NOx

7b. Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 3	

SOURCE OZONE SIP EMISSIONS INFORMATION (AIR053)

1a. Pollutant ID	2a. Ozone Season Emissions (lb/day)	3a. Emissions Method Code
VOC	5.66	3

4a. Emissions Calculation

1.7 lb/mmcf * 3.33 mmcf/day = 5.66 lb/day

1b. Pollutant ID	2b. Ozone Season Emissions (lb/day)	3b. Emissions Method Code
NOx	1,831.5	3

4b. Emissions Calculation

550 lb/mmcf * 3.33 mmcf/day = 1,831.5 lb/day

Shaded areas are for DER use.

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	03	INPUT

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 3 OF 5)

FACILITY NAME: VERO BEACH POWER PLANT

SOURCE INFORMATION (AIR030)

1. Source Description

Fossil Fuel Steam Generator Unit # 3

~~UNIT #3 PRIMARY GAS ALL EMISSIONS CALC ON OIL~~

2. DEP Permit or PPS Number	3. Source APIS ID	4. Source Status
AO31224290	30ORL31002903	A

5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (DD/MM/YY)

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type

~~SINGLE POINT~~ 1

2a. Description of Control Equipment 'a'

2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)
Y		22.68	5.47	1,859.8

4. Percent Hours of Operation by Season	DJF	MAM	JJA	SON
	25%	3%	3%	69%

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	03	INPUT

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
10100601	EXTCOMB BOILER ELECTRIC GENERATN NATURAL GAS 100MMBTU/HR EXTF

3a. Annual Process or Fuel Usage Rate (SCC Units)	
293.119	MILLION CUBIC FEET BURNED

4a. Fuel Average % Sulphur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
10100401	EXTCOMB BOILER ELECTRIC GENERATN RESIDUAL OIL NO 6 OIL NORM FRG

3b. Annual Process or Fuel Usage Rate (SCC Units)	
0	1000 GALLONS BURNED

4b. Fuel Average % Sulphur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)		

4c. Fuel Average % Sulphur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)		

4d. Fuel Average % Sulphur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DEP use.

Date: 02/14/94

DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID 30	ORL	31	0029	03	INPUT

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 3 OF 5)

SOURCE DESCRIPTION: ~~UNIT #3 PRIMARY GAS ALL EMISSIONS CALC ON OIL~~
FOSSIL FUEL STEAM GENERATOR UNIT #3

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
VOLATILE ORGANIC COMPOUNDS	0.25	3

4a. Emissions Calculation

(1.7 Lb/mmcf * 293.119 mmcf) / 2000 = 0.25 Tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
SULFUR DIOXIDE	0.088	3

4b. Emissions Calculation

(0.6 Lb/mmcf * 293.119 mmcf) / 2000 = 0.088 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PARTICULATE MATTER - TOTAL	0.15	3

4c. Emissions Calculation

(1 Lb/mmcf * 293.119 mmcf) / 2000 = 0.15 Tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
NITROGEN OXIDES	80.61	3

4d. Emissions Calculation

(550 Lb/mmcf * 293.119 mmcf) / 2000 = 80.61 Tons

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
	30	ORL	31	0029	03	INPUT

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
CARBON MONOXIDE	5.86	3

4e. Emissions Calculation

(40 Lb/mmcf * 293.119 mmcf) / 2000 = 5.86 Tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
PARTICULATE MATTER - 10 MICRONS OR LESS	0.15	4

4f. Emissions Calculation

(1.0 Lb/mmcf * 293.119 mmcf) / 2000 = 0.15 Tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
LEAD AND LEAD COMPOUNDS	0.0087	4

4g. Emissions Calculation

$$(5.8 * 10^{-5} \text{ Lb/mmbtu} * 293.119 \text{ mmcf} * 1028 \frac{\text{mmbtu}}{\text{mmcf}}) / 2000 = 0.0087 \text{ Tons}$$

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DEP use.

Date: 02/14/94

Unit #4

AOR

1989 - 1993

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 89 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-146712
3. Source Address: 100-17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #4, 685 mmBtu/hr unit firing fuel combination of Natural Gas and #6 Fuel Oil. Percentage not to exceed 32 percent of total heat input, #4 as backup.

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 41.02 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

1923.38	10^6 cubic feet Natural Gas		10^3 Kerosene
290.93	10^3 gallons #6 Oil, 0.7 %S		tons Coal
	10^3 gallons Propane		tons Carbonaceous
	10^6 Black Liquor Solids		tons Refuse

Other (Specify type and units) _____

EMISSION RATE(S) (tons/yr)

6.26	Particulates	16.57	Sulfur Dioxide	N/A	Total Reduced Sulfur
150.71	Nitrogen Oxide	39.20	Carbon Monoxide	N/A	Fluoride
1.78	Hydrocarbon	Other (Specify type and units) _____			

I METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

Calculations are based on data from 1989 Stack Test for NOX on Gas conducted by Air Consulting and Engineering. All others: U.S. E.P.A. AP-42, Tables 1.3-1 and 1.4-1 (attached).

II CERTIFICATION:

hereby certify that the information given in this report is correct to the best of my o ledge.

George W. Williams
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

_____
TYPED NAME AND TITLE

July 13 1990
DATE

Unit #4

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 90 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant
2. Permit Number: A031-146712
3. Source Address: 100 - 17th Street
   Vero Beach, Florida 32961-1389
4. Description of Source: Fossil Fuel Steam Generator Unit #4, 685 mmBtu/hr unit firing fuel combination of Natural Gas and #6 Fuel Oil. Percentage not to exceed 32 percent of total heat input, #4 as backup

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 44.87 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

2079.7	10^6 cubic feet Natural Gas	_____	10^3 Kerosene
69.76	10^3 gallons #6 Oil, 0.7 %S	_____	tons Coal
_____	10^3 gallons Propane	_____	tons Carbonaceous
_____	10^6 Black Liquor Solids	_____	tons Refuse

Other (Specify type and units) _____

EMISSION RATE(S) (tons/yr)

5.55	Particulates	4.46	Sulfur Dioxide	N/A	Total Reduced Sulfur
155.82	Nitrogen Oxide	41.77	Carbon Monoxide	N/A	Fluoride
1.80	Hydrocarbon		Other (Specify type and units)	_____	

I METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

Calculations are based on data from 1990 Stack Test for NOX on Gas conducted by Air Consulting and Engineering. All others: U.S. E.P.A. AP-42, Tables 1.3-1 and 1.4-1 (attached).

II CERTIFICATION:

hereby certify that the information given in this report is correct to the best of my owledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey
Director of Power Resources
TYPED NAME AND TITLE

5-10-91
DATE

Unit #4

ER Form 17-1.202(6)
ffective November 30, 1982

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER
DISTRICT

319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

ANNUAL OPERATION REPORT FORM FOR AIR EMISSIONS SOURCES

For each permitted emission point, please submit a separate report for calendar year 19 91 prior to March 1st of the following year.

I GENERAL INFORMATION

1. Source Name: Vero Beach Municipal Power Plant

2. Permit Number: A031-146712

3. Source Address: 100 - 17th Street

Vero Beach, Florida 32961-1389

4. Description of Source: Fossil Fuel Steam Generator Unit #4, 685 mmBtu/hr unit firing fuel combination of Natural Gas and #6 Fuel Oil. Percentage not to exceed 32 percent of total heat input, #4 as backup.

II ACTUAL OPERATING HOURS: 24 hrs/day 7 days/wk 31.11 wks/yr

III RAW MATERIAL INPUT PROCESS WEIGHT: (List separately all materials put into process and specify applicable units if other than tons/yr)

Raw Material	Input Process Weight
N/A	tons/yr
	tons/yr
	tons/yr
	tons/yr
	tons/yr

IV PRODUCT OUTPUT (Specify applicable units)

N/A

183 BBLS.

TOTAL FUEL USAGE including standby fuels. If fuel is oil, specify type and sulfur content (e.g., No. 6 oil with 1% S).

1221.4	10^6 cubic feet Natural Gas	_____	10^3 Kerosene
7.7	10^3 gallons #6 Oil, 2.0 %S	_____	tons Coal
_____	10^3 gallons Propane	_____	tons Carbonaceous
_____	10^6 Black Liquor Solids	_____	tons Refuse

Other (Specify type and units) _____

I EMISSION RATE(S) (tons/yr)

3.142	Particulates	1.57	Sulfur Dioxide	_____	Total Reduced Sulfur
336.135	Nitrogen Oxide	24.45	Carbon Monoxide	_____	Fluoride
1.04	Hydrocarbon	Other (Specify type and units) _____			

II METHOD OF CALCULATING EMISSION RATES (e.g., use of fuel and materials balance, emission factors drawn from AP 42, etc.)

Calculations are based on data from 1991 stack test for nox on gas generation conducted by Air Consulting and Engineering. All others U.S. E.P.A. AP-42 tables 1.3-1 and 1.4-1

III CERTIFICATION:

I hereby certify that the information given in this report is correct to the best of my knowledge.

Shuler W. Massey
SIGNATURE OF OWNER OR AUTHORIZED REPRESENTATIVE

Shuler W. Massey, Director of Power Resources
TYPED NAME AND TITLE

1/23/92
DATE

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	04	

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 4 OF 5)

FACILITY NAME: City of Vero Beach Municipal Power Plant

SOURCE INFORMATION (AIR030)

1. Source Description		
Unit 4 - Fuel Oil/Natural Gas fired Steam Generator which operates a 56 MW Turbine/Generator		
2. DER Permit or PPS Number	3. Source APIS ID	4. Source Status
A031-146712	30 ORL 31 0029 04	A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (MM/DD/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
1
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		23.3	6.5	7,526.2	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
100%		21%	26%	28%	25%

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	04	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel	
	Natural Gas	
3a. Annual Process or Fuel Usage Rate (SCC Units)		
2,068.398		
4a. Fuel Average % Sulfur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel	
3b. Annual Process or Fuel Usage Rate (SCC Units)		
4b. Fuel Average % Sulfur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel	
3c. Annual Process or Fuel Usage Rate (SCC Units)		
4c. Fuel Average % Sulfur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel	
3d. Annual Process or Fuel Usage Rate (SCC Units)		
4d. Fuel Average % Sulfur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	04	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 4 OF 5)
SOURCE DESCRIPTION: Unit 4 Steam Generator

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
CO	41.4	3

4a. Emissions Calculation

40 lb/mmcf * 2,068.398 mmcf/2000 lb/ton = 41.4 tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
VOC (TOC)	1.76	3

4b. Emissions Calculation

1.7 lb/mmcf * 2,068.398 mmcf/2000 lb/ton = 1.76 tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PM	1.03	3

4c. Emissions Calculation

1 lb/mmcf * 2,068.398 mmcf/2000 lb/ton = 1.03 tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
PM_{10}	8.2	4

4d. Emissions Calculation

0.4 * .0193 lb/mmbtu * 2,068.398 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 8.2 tons

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 4	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
NO_x	568.8	3

4e. Emissions Calculation

550 lb/mmcf * 2,068.398 mmcf/2000 lb/ton = 568.8 tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
SO_2	0.62	3

4f. Emissions Calculation

0.6 lb/mmcf * 2,068.398 mmcf/2000 lb/ton = 0.62 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
Pb	0.062	4

4g. Emissions Calculation

$5.8 * 10^{-5}$ lb/mmbtu * 2,068.398 mmcf * 1028 mmbtu/mmcf/2000lb/ton = 0.062 tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 4	

SOURCE OZONE-SIP REPORT - PAGE 5 & 6 (SOURCE REPORT 4 OF 5)

SOURCE DESCRIPTION: Unit 4 Steam Generator

SOURCE OZONE-SIP PROCESS/FUEL INFORMATION (AIR052)

1. Existing 12/31/90?	2. Average Operation for Ozone Season (June thru August)	hour/day	day/week
Y		23.11	7

3a. SCC 'a'	4a. Description of Process or Type of Fuel	
	Natural Gas	
5a. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)		
7.33		
6a. Emission Factor (lb/SCC Unit)	VOC	NOx
	1.7	550
7a. Comments		

3b. SCC 'b'	4b. Description of Process or Type of Fuel	
5b. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)		
6b. Emission Factor (lb/SCC Unit)	VOC	NOx
7b. Comments		

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	04	

SOURCE OZONE SIP EMISSIONS INFORMATION (AIR053)

1a. Pollutant ID	2a. Ozone Season Emissions (lb/day)	3a. Emissions Method Code
VOC	12.5	3

4a. Emissions Calculation

1.7 lb/mmcf * 7.33 mmcf/day = 12.5 lb/day

1b. Pollutant ID	2b. Ozone Season Emissions (lb/day)	3b. Emissions Method Code
NOx	4,031.5	3

4b. Emissions Calculation

550 lb/mmcf * 7.33 mmcf/day = 4,031.5 lb/day

Shaded areas are for DER use.

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	04	

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 4 OF 5)

FACILITY NAME: VERO BEACH POWER PLANT

SOURCE INFORMATION (AIR030)

1. Source Description		
FOSSIL FUEL STEAM GENERATOR UNIT#4		
2. DEP Permit or PPS Number	3. Source APIS ID	4. Source Status
AO31229058	30ORL31002904	A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (DD/MM/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
~~POINTS REGULATED AS ONE~~ 1
2a. Description of Control Equipment 'a'
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
Y		23.74	6.95	6,101.13	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
		28%	24%	32%	16%

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	04	INPUT

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
10100601	EXTCOMB BOILER ELECTRIC GENERATN NATURAL GAS 100MMBTU/HR EXTF

3a. Annual Process or Fuel Usage Rate (SCC Units)	
1,448.986	MILLION CUBIC FEET BURNED

4a. Fuel Average % Sulphur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
10100401	EXTCOMB BOILER ELECTRIC GENERATN RESIDUAL OIL NO 6 OIL NORM FRG

3b. Annual Process or Fuel Usage Rate (SCC Units)	
0	1000 GALLONS BURNED

4b. Fuel Average % Sulphur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)		

4c. Fuel Average % Sulphur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)		

4d. Fuel Average % Sulphur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	04	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 4 OF 5)
SOURCE DESCRIPTION: FOSSIL FUEL STEAM GENERATOR UNIT#4

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
VOLATILE ORGANIC COMPOUNDS	1.23	3

4a. Emissions Calculation

(1.7 Lb/mmcf * 1448.986 mmcf) / 2000 = 1.23 Tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
SULFUR DIOXIDE	0.435	3

4b. Emissions Calculation

(0.6 Lb/mmcf * 1448.986 mmcf) / 2000 = 0.435 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PARTICULATE MATTER - TOTAL	0.724	3

4c. Emissions Calculation

(1.0 Lb/mmcf * 1448.986 mmcf) / 2000 = 0.724 Tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
NITROGEN OXIDES	398.47	3

4d. Emissions Calculation

(550 Lb/mmcf * 1448.986 mmcf) / 2000 = 398.47 Tons

Shaded areas are for DEP use.

Date: 02/14/94

APIS ID	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	INPUT
	30	ORL	31	0029	04	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
CARBON MONOXIDE	28.98	3

4e. Emissions Calculation

(40 Lb/mmcf * 1448.986 mmcf) / 2000 = 28.98 Tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
PARTICULATE MATTER - 10 MICRONS OR LESS	0.724	4

4f. Emissions Calculation

(1.0 Lb/mmcf * 1448.986 mmcf) / 2000 = 0.724 Tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
LEAD AND LEAD COMPOUNDS	0.043	4

4g. Emissions Calculation

$$(5.8 * 10^{-5} \text{ Lb/mmbtu} * 1448.986 \text{ mmcf} * 1028 \frac{\text{mmbtu}}{\text{mmcf}}) / 2000 = 0.043 \text{ Tons}$$

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DEP use.

Date: 02/14/94

Unit #5

AOR

1992 - 1993

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	05	

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 5 OF 5)

FACILITY NAME: City of Vero Beach Municipal Power Plant

SOURCE INFORMATION (AIR030)

1. Source Description

Unit 5 : Fuel oil/Natural gas fired 40 MW combustion turbine/generator with a by-pass stack for simple cycle operation and a HRSG stack for combined cycle operation with Unit 2 steam turbine

2. DER Permit or PPS Number	3. Source APIS ID	4. Source Status
AC31-184928	30 ORL 31 0029 05	A

5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (MM/DD/YY)
10/08/92	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type

1

2a. Description of Control Equipment 'a'

Water injection for NOx control

2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)
Y		7.3	2	102.8

4. Percent Hours of Operation by Season	DJF	MAM	JJA	SON
100%	0	0	0	100%

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	05	

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
	Natural Gas

3a. Annual Process or Fuel Usage Rate (SCC Units)
14.706

4a. Fuel Average % Sulfur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
	No. 2 Fuel oil

3b. Annual Process or Fuel Usage Rate (SCC Units)
35.238

4b. Fuel Average % Sulfur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)
0.15		140.178

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)

4c. Fuel Average % Sulfur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)

4d. Fuel Average % Sulfur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 5	

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 5 OF 5)

SOURCE DESCRIPTION: Unit 5 Combustion Turbine

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
CO	0.949	3

4a. Emissions Calculation

Nat. Gas: .11 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.83 tons
#2 F.O.: .048 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton = 0.119 tons
0.83 + 0.119 = 0.949 tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
VOC (TOC)	0.22	3

4b. Emissions Calculation

Nat. Gas: .024 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.18 tons
#2 F.O.: .017 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton = 0.04 tons
0.18 + .04 = 0.22 tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PM	0.24	3

4c. Emissions Calculation

Nat. Gas: .0193 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 0.146 tons
#2 F.O.: .038 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton = 0.094 tons
0.146 + .094 = 0.24 tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
PM10	0.1	3

4d. Emissions Calculation

Nat. Gas: .4 * .0193 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton=0.06 tons
#2 F.O.: .4 * .038 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton=0.04 tons
0.06 + .04 = 0.1 tons

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	30	ORL	31	0029	05	

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
NOx	5.05	3

4e. Emissions Calculation
Nat. Gas: .44 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton = 3.33 tons
#2 F.O.: .698 lb/mmbtu * 35.238 mgal *140.178 mmbtu/mgal/2000 lb/ton = 1.72 tons
3.33 + 1.72 = 5.05

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
SO2	0.0084	4

4f. Emissions Calculation
Nat. Gas: .6 lb/mmcf * 14.706 mmcf/2000 lb/ton = 0.0044 tons
#2 F.O.: 142 lb/mgal * .0015 *35.238 mgal/2000 lb/ton = 0.004 tons
0.0044 + 0.004 = 0.0084 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
Pb	0.00058	3

4g. Emissions Calculation
Nat. Gas: 5.8 * 10 -5 lb/mmbtu * 14.706 mmcf * 1028 mmbtu/mmcf/2000 lb/ton=0.00044 tons
#2 F.O.: 5.8 * 10 -5 lb/mmbtu * 35.238 mgal *140.178 mmbtu/mgal/2000 lb/ton=0.00014 tons
0.00044 + .00014 = 0.0058 tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code
114	0.000007	5

4h. Emissions Calculation
3 * 10 -6 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton = 0.000007 tons

5. Source Operation Report Comments

Shaded areas are for DER use.

	District	Office	County	Facility	Source	
APIS ID	3 0	0 R L	3 1	0 0 2 9	0 5	INPUT

SOURCE EMISSIONS INFORMATION (Continued)

1i. Pollutant 'e' ID	2i. Annual Emissions (ton/year)	3i. Emissions Method Code
021	0.000006	5

4i. Emissions Calculation

2.5 * 10 -6 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton = 0.000006 tons

1j. Pollutant 'f' ID	2j. Annual Emissions (ton/year)	3j. Emissions Method Code
SAM	0.02	5

4j. Emissions Calculation

8.1 * 10 -3 lb/mmbtu * 35.238 mgal * 140.178 mmbtu/mgal/2000 lb/ton= 0.02 tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code

4g. Emissions Calculation

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code

4h. Emissions Calculation

5. Source Operation Report Comments

Shaded areas are for DER use.

	District	Office	County	Facility	Source	
APIS ID	3 0	0 R L	3 1	0 0 2 9	0 5	INPUT

SOURCE OZONE-SIP REPORT - PAGE 5 & 6 (SOURCE REPORT 5 OF 5)

SOURCE DESCRIPTION: Unit 5 Combustion Turbine

SOURCE OZONE-SIP PROCESS/FUEL INFORMATION (AIR052)

1. Existing 12/31/90?	2. Average Operation for Ozone Season (June thru August)	hour/day	day/week
N		0	0

3a. SCC 'a'	4a. Description of Process or Type of Fuel	
5a. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)		
0		
6a. Emission Factor (lb/SCC Unit)	VOC	NOx
7a. Comments		
Unit 5 was under construction during ozone season.		

3b. SCC 'b'	4b. Description of Process or Type of Fuel	
5b. Daily Ozone Season Process or Fuel Usage Rate (SCC Units)		
6b. Emission Factor (lb/SCC Unit)	VOC	NOx
7b. Comments		

Shaded areas are for DER use.

APIS ID	District	Office	County	Facility	Source	INPUT
	3 0	0 R L	3 1	0 0 2 9	0 5	

SOURCE OZONE SIP EMISSIONS INFORMATION (AIR053)

1a. Pollutant ID	2a. Ozone Season Emissions (lb/day)	3a. Emissions Method Code
VOC	0	

4a. Emissions Calculation

1b. Pollutant ID	2b. Ozone Season Emissions (lb/day)	3b. Emissions Method Code
NOx	0	

4b. Emissions Calculation

Shaded areas are for DER use.

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	05	INPUT

SOURCE OPERATION REPORT - PAGE 1 & 2 (SOURCE REPORT 5 OF 5)

FACILITY NAME: VERO BEACH POWER PLANT

SOURCE INFORMATION (AIR030)

1. Source Description		
60 MW COMBINED CYCLE GAS TURBINE		
2. DEP Permit or PPS Number AC31184928 ~~AO31227564~~	3. Source APIS ID 30ORL31002905	4. Source Status A
5. Source Startup Date (MM/DD/YY)	6. Source Shutdown Date (DD/MM/YY)	

SOURCE EMISSION POINT/CONTROL INFORMATION (AIR033)

1. Source Emission Point Type
~~SINGLE POINT~~ 1
2a. Description of Control Equipment 'a' ~~LOW NOX COMB. OR SCR SYSTEM.SEE SPECIFIC PERMIT CONDITIONS~~ WATER INJECTION FOR NOx CONTROL
2b. Description of Control Equipment 'b'

SOURCE OPERATING SCHEDULE INFORMATION (AIR050)

1. Operated During Year?	2. Average Operation During Year	hour/day	day/week	3. Total Operation During Year (hour/year)	
y		22.08	5.82	4,238.72	
4. Percent Hours of Operation by Season		DJF	MAM	JJA	SON
		11%	19%	52%	18%

Shaded areas are for DEP use.

Date: 02/14/94

DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID 30	ORL	31	0029	05	INPUT

SOURCE PROCESS/FUEL INFORMATION (AIR050)

1a. SCC 'a'	2a. Description of Process or Type of Fuel
20100201	INTERNLCOMBUSTION ELECTRIC GENERATN NATURAL GAS TURBINE

3a. Annual Process or Fuel Usage Rate (SCC Units)		
1,618.547 MILLION CUBIC FEET		
4a. Fuel Average % Sulphur	5a. Fuel Average % Ash	6a. Fuel Heat Content (mmBtu/SCC Units)
		1028

1b. SCC 'b'	2b. Description of Process or Type of Fuel
20100101	INTERNLCOMBUSTION ELECTRIC GENERATN DIST.OIL/DIESEL TURBINE

3b. Annual Process or Fuel Usage Rate (SCC Units)		
53 1000 GALLONS BURNED		
4b. Fuel Average % Sulphur	5b. Fuel Average % Ash	6b. Fuel Heat Content (mmBtu/SCC Units)
0.15		140.178

1c. SCC 'c'	2c. Description of Process or Type of Fuel

3c. Annual Process or Fuel Usage Rate (SCC Units)		
4c. Fuel Average % Sulphur	5c. Fuel Average % Ash	6c. Fuel Heat Content (mmBtu/SCC Units)

1d. SCC 'd'	2d. Description of Process or Type of Fuel

3d. Annual Process or Fuel Usage Rate (SCC Units)		
4d. Fuel Average % Sulphur	5d. Fuel Average % Ash	6d. Fuel Heat Content (mmBtu/SCC Units)

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	05	INPUT

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 5 OF 5)

SOURCE DESCRIPTION: 60 MW COMBINED CYCLE GAS TURBINE

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID	2a. Annual Emissions (ton/year)	3a. Emissions Method Code
VOLATILE ORGANIC COMPOUNDS	20.029	3

4a. Emissions Calculation

(0.024 Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 19.966 Tons

(0.017 Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.0627 Tons

1b. Pollutant 'b' ID	2b. Annual Emissions (ton/year)	3b. Emissions Method Code
SULFUR DIOXIDE	0.4912	4

4b. Emissions Calculation

(0.6 Lb/mmcf * 1618.547 mmcf) / 2000 = 0.4856 Tons

(142 Lb/mgal * .0015 * 53 mgal) / 2000 = 0.0056 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code
PARTICULATE MATTER - TOTAL	16.196	3

4c. Emissions Calculation

(0.0193 Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 16.056 Tons

(0.038 Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.1403 Tons

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code
NITROGEN OXIDES	368.63	3

4d. Emissions Calculation

(0.44 Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 366.05 Tons

(0.698 Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 2.58 Tons

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	05	INPUT

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
CARBON MONOXIDE	91.68	3

4e. Emissions Calculation

(0.11 Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 91.51 Tons

(0.048 Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.17 Tons

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
PARTICULATE MATTER - 10 MICRONS OR LESS	6.49	3

4f. Emissions Calculation

(0.4 * 0.0193 Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 6.423 Tons

(0.48 * 0.038 Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.067 Tons

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
LEAD AND LEAD COMPOUNDS	0.0485	3

4g. Emissions Calculation

(5.8 * 10^{-5} Lb/mmbtu * 1028 $\frac{\text{mmbtu}}{\text{mmcf}}$ * 1618.547 mmcf) / 2000 = 0.0483 Tons

(5.8 * 10^{-5} Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.0002 Tons

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code
114 (MERCURY)	0.0000034	3

4h. Emissions Calculation

(9.1 * 10^{-7} Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.0000034 Tons

5. Source Operation Report Comments

Shaded areas are for DEP use.

Date: 02/14/94

DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID 30	ORL	31	0029	05	INPUT

SOURCE OPERATION REPORT - PAGE 3 & 4 (SOURCE REPORT 5 OF 5)

SOURCE DESCRIPTION: 60 MW COMBINED CYCLE GAS TURBINE

SOURCE EMISSIONS INFORMATION (AIR051)

1a. Pollutant 'a' ID i 'i'	2a. Annual Emissions i (ton/year)	3a. Emissions i Method Code
021 (BERYLLIUM)	0.00000122	3

4a. Emissions Calculation
i

$(3.3 * 10^{-7}$ Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.00000122 Tons

1b. Pollutant 'b' ID j 'j'	2b. Annual Emissions j (ton/year)	3b. Emissions j Method Code
SAM (SULFURIC ACID MIST)	0.0299	5

4b. Emissions Calculation
j

$(8.1 * 10^{-3}$ Lb/mmbtu * 140.178 $\frac{\text{mmbtu}}{\text{mgal}}$ * 53 mgal) / 2000 = 0.0299 Tons

1c. Pollutant 'c' ID	2c. Annual Emissions (ton/year)	3c. Emissions Method Code

4c. Emissions Calculation

1d. Pollutant 'd' ID	2d. Annual Emissions (ton/year)	3d. Emissions Method Code

4d. Emissions Calculation

Shaded areas are for DEP use.

Date: 02/14/94

	DISTRICT	OFFICE	COUNTY	FACILITY	SOURCE	
APIS ID	30	ORL	31	0029	05	INPUT

SOURCE EMISSIONS INFORMATION (Continued)

1e. Pollutant 'e' ID	2e. Annual Emissions (ton/year)	3e. Emissions Method Code
4e. Emissions Calculation		

1f. Pollutant 'f' ID	2f. Annual Emissions (ton/year)	3f. Emissions Method Code
4f. Emissions Calculation		

1g. Pollutant 'g' ID	2g. Annual Emissions (ton/year)	3g. Emissions Method Code
4g. Emissions Calculation		

1h. Pollutant 'h' ID	2h. Annual Emissions (ton/year)	3h. Emissions Method Code
4h. Emissions Calculation		
5. Source Operation Report Comments		

Shaded areas are for DEP use.

Date: _____

Unit 5

CEM

Summaries

5/93 – 8/94

MONTHLY : MAY 1993

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	-99.0	-99.0	-99.0	0.0	-0.024	-0.017
DY 02	-99.0	-99.0	-99.0	0.0	-0.024	-0.017
DY 03	-99.0	-99.0	-99.0	46.2	-0.024	-0.017
DY 04	-99.0	-99.0	-99.0 ?	118.2	-0.024	-0.017
DY 05	15.0	0.4	13.6 ?	119.5	0.002	0.050
DY 06	15.6	0.1	14.8	99.1	0.000	0.060
DY 07	15.8	0.1	16.8 ?	102.9	0.000	0.071
DY 08	15.1	0.1	19.5 ?	111	0.000	0.073
DY 09	15.1	0.1	19.7 ?	109.8	0.000	0.073
DY 10	15.2	0.2	9.5 ?	114	0.001	0.038
DY 11	15.4	0.2	13.9 ?	110.2	0.001	0.054
DY 12	15.2	0.1	20.7 ?	113.4	0.000	0.078
DY 13	15.1	0.1	21.6 ?	114.4	0.000	0.080
DY 14	15.1	0.1	21.3 ?	115	0.000	0.079
DY 15	14.3	0.1	20.7 ?	109.4	0.000	0.068
DY 16	15.2	0.1	19.7 ?	110.8	0.000	0.075
DY 17	14.3	0.1	20.4 ?	109.2	0.000	0.067
DY 18	15.1	0.1	20.7 ?	114.9	0.000	0.077
DY 19	15.1	0.0	20.4 ?	113.7	0.000	0.076
DY 20	14.3	0.1	19.7 ?	107.6	0.000	0.064
DY 21	15.0	0.1	22.3 ?	116.2	0.000	0.082
DY 22	15.0	0.1	22.2 ?	116.3	0.000	0.081
DY 23	15.1	0.1	22.4 ?	116	0.000	0.083
DY 24	13.9	38.0	24.3 ?	114.3	0.164	0.075
DY 25	15.1	0.2	24.5 ?	115.4	0.001	0.091
DY 26	15.1	0.4	36.5 ?	114.2	0.002	0.136
DY 27	15.1	0.1	38.6 ?	113.6	0.000	0.144
DY 28	15.0	0.2	26.9 ?	115.2	0.001	0.099
DY 29	15.1	0.1	23.1 ?	115	0.000	0.086
DY 30	14.9	0.1	21.9 ?	115.1	0.000	0.079
DY 31	14.3	0.1	19.6 ?	107.4	0.000	0.064

MONTHLY : JUNE 1993

	O2	SO2	NOx		Flow	SO2btu	NOxbtu
DY 01	15.0	0.1	21.3	?	113	0.000	0.078
DY 02	16.7	0.0	16.2	?	110.6	0.000	0.083
DY 03	15.1	0.1	21.1	?	114.6	0.000	0.079
DY 04	15.1	0.1	21.1	?	113.7	0.000	0.079
DY 05	15.1	0.1	20.9	?	114.2	0.000	0.078
DY 06	15.0	0.1	20.9	?	114.6	0.000	0.076
DY 07	15.0	0.1	20.8	?	112.9	0.000	0.076
DY 08	15.1	0.1	20.7	?	113.1	0.000	0.077
DY 09	15.1	0.0	20.7	?	113	0.000	0.077
DY 10	15.2	0.4	20.7	?	112.2	0.002	0.078
DY 11	15.1	0.1	20.7	?	113.3	0.000	0.077
DY 12	15.5	0.0	17.4	?	108.2	0.000	0.070
DY 13	15.3	0.0	18.6	?	109.5	0.000	0.072
DY 14	15.1	0.1	19.7	?	110	0.000	0.073
DY 15	15.4	0.1	17.9	?	108.8	0.000	0.070
DY 16	14.7	0.0	16.6	?	103.4	0.000	0.058
DY 17	15.4	0.2	17.7	?	108.2	0.001	0.069
DY 18	17.0	0.1	13.8	?	105.7	0.000	0.076
DY 19	15.1	0.1	20.3	?	113.6	0.000	0.076
DY 20	15.3	0.1	18.2	?	109.6	0.000	0.070
DY 21	15.3	0.0	17.3	?	109.3	0.000	0.067
DY 22	15.5	0.0	15.5	?	107.5	0.000	0.062
DY 23	15.2	0.1	16.1	?	106.6	0.000	0.061
DY 24	15.1	0.0	16.6	?	109.3	0.000	0.062
DY 25	15.1	0.1	16.9	?	111.2	0.000	0.063
DY 26	15.2	0.1	16.1	?	109	0.000	0.061
DY 27	15.2	0.1	16.2	?	108.7	0.000	0.061
DY 28	15.2	0.1	16.1	?	109.1	0.000	0.061
DY 29	15.3	0.1	15.8	?	109.2	0.000	0.061
DY 30	15.3	0.0	15.7	?	107.9	0.000	0.060

MONTHLY : July, 1993

	O2	SO2	NOx		Flow	SO2btu	NOxbtu
DY 01	15.0	0.0	18.2	?	108.6	0.000	0.067
DY 02	15.3	0.1	16.2	?	107	0.000	0.062
DY 03	15.5	0.0	14.6	?	105.4	0.000	0.058
DY 04	15.3	0.0	15.1	?	107.5	0.000	0.058
DY 05	15.4	0.0	13.1	?	106.6	0.000	0.051
DY 06	15.4	0.1	12.4	?	107.6	0.000	0.049
DY 07	15.4	0.1	12.3	?	106.7	0.000	0.048
DY 08	15.4	0.1	12.7	?	106.8	0.000	0.050
DY 09	15.5	0.1	19.3	?	107.3	0.000	0.077
DY 10	15.4	0.2	12.9	?	107.1	0.001	0.050
DY 11	15.5	0.1	11.5	?	103	0.000	0.046
DY 12	15.3	0.0	13.0	?	103.9	0.000	0.050
DY 13	15.5	0.1	12.0	?	102.4	0.000	0.048
DY 14	15.2	0.0	14.6	?	108.8	0.000	0.055
DY 15	15.3	0.0	13.5	?	107.1	0.000	0.052
DY 16	15.3	0.2	39.0	?	106.8	0.001	0.151
DY 17	15.2	0.1	15.7	?	108.2	0.000	0.059
DY 18	15.2	0.1	15.2	?	107.1	0.000	0.057
DY 19	15.2	0.0	14.5	?	106	0.000	0.055
DY 20	15.2	0.1	14.2	?	104.7	0.000	0.054
DY 21	15.4	0.0	13.5	?	103.9	0.000	0.053
DY 22	15.4	0.0	13.8	?	103.4	0.000	0.054
DY 23	15.2	0.1	14.7	?	105.8	0.000	0.056
DY 24	15.4	0.1	13.5	?	104.6	0.000	0.053
DY 25	15.4	0.1	13.9	?	105.3	0.000	0.054
DY 26	17.6	1.3	10.0	?	106.2	0.011	0.065
DY 27	16.6	0.2	17.3	?	105.3	0.001	0.087
DY 28	16.2	0.9	21.6	?	101.1	0.005	0.099
DY 29	14.4	0.0	16.3	?	103.3	0.000	0.054
DY 30	15.3	0.1	16.9	?	109.1	0.000	0.065
DY 31	15.5	0.0	15.1	?	107.3	0.000	0.060

UNIT #5

HUGUST 1-31 93 UNIT #5

MONTHLY :

	O2	SO2	NOx		Flow	SO2btu	NOxbtu
DY 01	15.0	0.0	18.2	?	113.4	0.000	0.067
DY 02	15.3	0.1	15.9	?	108.3	0.000	0.061
DY 03	15.2	0.1	16.2	?	108.7	0.000	0.061
DY 04	15.1	0.0	16.0	?	109.2	0.000	0.059
DY 05	15.4	0.1	13.9	?	107	0.000	0.054
DY 06	15.5	0.1	14.6	?	107.6	0.000	0.058
DY 07	15.5	0.1	14.5	?	108.8	0.000	0.058
DY 08	15.5	0.1	13.8	?	108.4	0.000	0.055
DY 09	15.6	0.3	13.0	?	105.8	0.001	0.053
DY 10	15.8	0.1	11.2	?	103.8	0.000	0.047
DY 11	15.4	0.1	14.2	?	108.8	0.000	0.056
DY 12	15.3	0.1	14.5	?	110.2	0.000	0.056
DY 13	15.3	0.1	14.0	?	108.9	0.000	0.054
DY 14	15.3	0.1	14.6	?	108.7	0.000	0.056
DY 15	15.2	0.1	14.9	?	108.1	0.000	0.056
DY 16	15.3	0.2	13.8	?	108.4	0.001	0.053
DY 17	15.3	0.3	14.0	?	108.3	0.001	0.054
DY 18	15.3	0.0	14.2	?	108.3	0.000	0.055
DY 19	15.3	0.1	14.0	?	107.4	0.000	0.054
DY 20	15.3	0.0	13.9	?	107.3	0.000	0.053
DY 21	15.3	0.2	14.3	?	107.7	0.001	0.055
DY 22	15.4	0.1	13.8	?	106.5	0.000	0.054
DY 23	15.4	0.0	13.3	?	105.8	0.000	0.052
DY 24	15.3	0.1	14.3	?	107.1	0.000	0.055
DY 25	15.3	0.2	14.0	?	107.6	0.001	0.054
DY 26	15.1	0.3	15.8	?	110.8	0.001	0.059
DY 27	15.4	0.1	14.0	?	106.9	0.000	0.055
DY 28	15.3	0.1	13.8	?	105.8	0.000	0.053
DY 29	15.3	0.1	13.9	?	106.8	0.000	0.053
DY 30	15.0	0.1	16.1	?	110.4	0.000	0.059
DY 31	15.0	0.1	17.0	?	110.5	0.000	0.062

#5

MONTHLY : SEPT, 1993

	O2	SO2	NOx		Flow	SO2btu	NOxbtu
DY 01	18.1	0.1	7.1	?	111.2	0.001	0.055
DY 02	16.6	0.1	11.8	?	103.3	0.000	0.059
DY 03	15.5	0.0	15.0	?	105.6	0.000	0.060
DY 04	15.6	0.1	13.7	?	102.2	0.000	0.056
DY 05	15.5	0.1	14.2	?	103.9	0.000	0.057
DY 06	14.6	0.0	14.6	?	102.1	0.000	0.050
DY 07	15.4	0.0	14.5	?	106.7	0.000	0.057
DY 08	17.1	0.1	9.8		89.5	0.000	0.058
DY 09	16.6	0.0	14.1	?	105.6	0.000	0.071
DY 10	14.6	0.0	14.3	?	101.7	0.000	0.049
DY 11	15.6	0.1	14.0	?	106.5	0.000	0.057
DY 12	15.7	0.0	14.0	?	106.9	0.000	0.058
DY 13	15.4	0.1	15.5	?	108.1	0.000	0.061
DY 14	15.5	0.4	13.2		97.6	0.002	0.053
DY 15	15.5	0.2	15.1	?	106.6	0.001	0.060
DY 16	15.2	0.1	16.2	?	109.2	0.000	0.061
DY 17	15.8	0.0	14.4	?	102.6	0.000	0.061
DY 18	15.2	0.1	16.8	?	111.1	0.000	0.064
DY 19	14.6	0.1	14.6	?	102.5	0.000	0.050
DY 20	15.2	0.1	16.5	?	109.2	0.000	0.062
DY 21	15.3	0.1	16.2	?	108.5	0.000	0.062
DY 22	15.6	0.1	14.6	?	107	0.000	0.059
DY 23	15.8	0.1	14.3	?	105	0.000	0.060
DY 24	15.7	0.1	14.6	?	105.9	0.000	0.061
DY 25	15.7	0.1	13.8	?	104.9	0.000	0.057
DY 26	15.6	0.0	13.8	?	104.6	0.000	0.056
DY 27	15.8	0.1	12.9	?	102.4	0.000	0.054
DY 28	15.7	0.1	20.1	?	107.1	0.000	0.084
DY 29	14.8	0.0	19.9	?	100.4	0.000	0.070
DY 30	15.7	0.3	25.6	?	107.1	0.001	0.107

MONTHLY : OCTOBER, 1993

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	16.7	0.1	15.7	85.1	0.000	0.081
DY 02	20.6	0.3	0.7	2.0	0.030	0.050
DY 03	20.8	0.6	0.0	3.8	0.181	0.000
DY 04	20.8	0.9	0.1	4.1	0.271	0.021
DY 05	20.8	0.8	0.0	6.2	0.241	0.000
DY 06	20.7	0.8	0.1	4.5	0.120	0.010
DY 07	20.8	2.7	0.3	5.0	0.815	0.065
DY 08	20.8	5.0	0.9	5.2	1.510	0.195
DY 09	20.8	1.5	0.3	5.5	0.453	0.065
DY 10	20.7	0.5	0.0	6.1	0.075	0.000
DY 11	20.8	0.5	0.1	5.6	0.151	0.021
DY 12	20.8	0.4	1.1	6.3	0.120	0.239
DY 13	20.8	0.2	0.5	5.6	0.060	0.108
DY 14	20.7	2.5	0.8	5.4	0.377	0.086
DY 15	20.7	3.8	0.6	5.8	0.574	0.065
DY 16	20.8	1.6	0.1	5.3	0.483	0.021
DY 17	20.7	0.6	0.3	5.6	0.090	0.032
DY 18	20.8	0.7	0.1	6.2	0.211	0.021
DY 19	20.7	0.8	0.0	6.0	0.120	0.000
DY 20	20.8	0.6	0.1	5.9	0.181	0.021
DY 21	20.8	0.6	0.0	6.1	0.181	0.000
DY 22	19.7	0.6	0.0	5.4	0.015	0.000
DY 23	20.7	0.4	0.0	7.0	0.060	0.000
DY 24	20.7	0.3	0.0	5.1	0.045	0.000
DY 25	20.8	0.6	0.2	4.9	0.181	0.043
DY 26	20.8	2.6	0.7	5.5	0.785	0.152
DY 27	20.8	1.1	0.2	5.3	0.332	0.043
DY 28	20.7	0.4	0.1	5.9	0.060	0.010
DY 29	20.8	0.3	0.0	4.8	0.090	0.000
DY 30	20.7	0.3	0.0	2.2	0.045	0.000
DY 31	19.7	0.3	0.0	4.7	0.007	0.000

MONTHLY : NOVEMBER, 1993

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	20.8	0.2	0.0	5.6	0.060	0.000
DY 02	20.7	0.1	0.1	5.4	0.015	0.010
DY 03	20.8	0.0	0.2	5.6	0.000	0.043
DY 04	19.7	0.3	0.0	4.8	0.007	0.000
DY 05	20.8	0.1	0.0	5.9	0.030	0.000
DY 06	20.8	0.2	1.9	5.1	0.060	0.412
DY 07	20.8	0.2	2.3	4.7	0.060	0.499
DY 08	20.7	0.1	0.6	4.8	0.015	0.065
DY 09	20.8	0.2	0.0	5.0	0.060	0.000
DY 10	20.8	0.3	0.0	4.9	0.090	0.000
DY 11	20.7	0.3	0.3	6.9	0.045	0.032
DY 12	20.8	0.1	0.1	5.4	0.030	0.021
DY 13	20.8	0.1	0.1	8.1	0.030	0.021
DY 14	20.7	0.4	0.0	5.5	0.060	0.000
DY 15	20.8	0.5	0.0	2.4	0.151	0.000
DY 16	20.8	0.2	0.0	0.0	0.060	0.000
DY 17	20.7	3.8	0.6	0.0	0.574	0.065
DY 18	20.7	5.3	1.0	0.0	0.800	0.108
DY 19	20.8	4.9	0.6	0.0	1.480	0.130
DY 20	20.8	4.1	1.1	0.0	1.238	0.239
DY 21	20.8	3.9	0.9	0.0	1.178	0.195
DY 22	20.6	5.9	1.9	0.0	0.594	0.137
DY 23	20.6	4.2	1.1	0.0	0.423	0.079
DY 24	20.4	0.0	1.6	0.0	0.000	0.069
DY 25	19.4	4.1	0.8	0.0	0.082	0.011
DY 26	20.6	4.9	0.4	0.0	0.493	0.028
DY 27	20.6	4.5	0.6	0.0	0.453	0.043
DY 28	20.7	4.3	0.7	0.0	0.649	0.076
DY 29	20.8	2.5	0.8	0.0	0.755	0.173
DY 30	20.7	1.3	1.2	0.0	0.198	0.130

MONTHLY : DECEMBER 1993

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	20.7	1.8	1.2	0.0	0.271	0.130
DY 02	20.7	2.8	0.7	0.0	0.423	0.076
DY 03	20.7	2.4	1.4	0.0	0.362	0.152
DY 04	20.7	3.1	1.8	0.0	0.468	0.195
DY 05	19.5	3.0	1.4	0.0	0.064	0.021
DY 06	20.8	2.2	0.7	0.0	0.664	0.152
DY 07	17.9	0.6	13.2	0.0	0.006	0.095
DY 08	16.1	0.1	16.1	0.0	0.000	0.072
DY 09	16.1	0.1	18.4	0.0	0.000	0.083
DY 10	17.9	0.0	10.1	0.0	0.000	0.073
DY 11	20.5	3.0	0.8	0.0	0.226	0.043
DY 12	17.4	1.0	14.3	0.0	0.008	0.088
DY 13	18.5	0.0	8.9	0.0	0.000	0.080
DY 14	20.6	1.8	0.9	0.0	0.181	0.065
DY 15	20.8	3.0	0.5	0.0	0.906	0.108
DY 16	17.4	0.9	6.9	0.0	0.007	0.042
DY 17	17.7	0.0	8.9	0.0	0.000	0.060
DY 18	20.5	3.0	1.0	0.0	0.226	0.054
DY 19	20.7	3.8	0.7	0.0	0.574	0.076
DY 20	17.0	1.2	7.9	0.0	0.009	0.044
DY 21	17.0	1.3	7.9	0.0	0.010	0.044
DY 22	20.8	3.4	0.5	0.0	1.027	0.108
DY 23	20.8	2.5	0.9	0.0	0.755	0.195
DY 24	20.7	2.0	0.6	0.0	0.302	0.065
DY 25	20.7	1.2	0.7	0.0	0.181	0.076
DY 26	20.8	0.9	0.5	0.0	0.090	0.036
DY 27	20.6	1.0	0.6	0.0	0.100	0.043
DY 28	20.6	0.7	0.4	0.0	0.070	0.028
DY 29	17.0	1.2	7.9	0.0	0.009	0.044
DY 30	20.7	2.1	0.4	0.0	0.317	0.043
DY 31	-99.0	-99.0	-99.0	-99.0	-0.024	-0.017

MONTHLY : JANUARY 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	20.7	2.8	0.4	0.0	0.423	0.043
DY 02	19.6	3.2	0.2	0.0	0.074	0.003
DY 03	19.5	1.3	3.2	0.0	0.028	0.049
DY 04	19.1	0.5	8.7	0.0	0.008	0.105
DY 05	18.3	0.0	5.1	0.0	0.000	0.042
DY 06	20.4	1.2	1.4	0.0	0.072	0.060
DY 07	20.7	1.8	0.9	0.0	0.271	0.097
DY 08	19.4	2.0	1.4	0.0	0.040	0.020
DY 09	20.4	1.5	1.8	0.0	0.090	0.078
DY 10	16.8	1.3	2.5	0.0	0.009	0.013
DY 11	19.0	0.5	1.9	0.0	0.007	0.021
DY 12	18.1	1.0	3.7	0.0	0.010	0.028
DY 13	15.3	0.0	7.9	0.0	0.000	0.030
DY 14	15.4	0.0	10.9	0.0	0.000	0.043
DY 15	15.3	0.0	8.2	0.0	0.000	0.031
DY 16	15.4	0.1	6.9	0.0	0.000	0.027
DY 17	15.9	0.2	4.8	0.0	0.001	0.020
DY 18	16.5	0.1	6.9	0.0	0.000	0.034
DY 19	15.4	0.1	9.9	0.0	0.000	0.039
DY 20	15.3	0.0	6.5	0.0	0.000	0.025
DY 21	15.4	0.0	5.3	0.0	0.000	0.020
DY 22	15.4	0.0	4.9	0.0	0.000	0.019
DY 23	15.4	0.0	2.8	0.0	0.000	0.011
DY 24	15.5	0.1	6.2	0.0	0.000	0.024
DY 25	15.4	0.1	9.3	0.0	0.000	0.036
DY 26	15.3	0.0	9.2	0.0	0.000	0.035
DY 27	15.3	0.1	8.4	0.0	0.000	0.032
DY 28	18.5	0.5	4.5	0.0	0.006	0.040
DY 29	20.4	0.5	2.5	0.0	0.030	0.108
DY 30	20.4	0.9	3.4	0.0	0.054	0.147
DY 31	16.9	0.3	9.1	0.0	0.002	0.049

MONTHLY : FEBRUARY, 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	15.7	0.1	10.0	0.0	0.000	0.041
DY 02	15.4	0.0	4.9	0.0	0.000	0.019
DY 03	15.4	0.0	2.4	0.0	0.000	0.009
DY 04	16.0	0.1	5.8	0.0	0.000	0.025
DY 05	15.3	0.0	2.9	0.0	0.000	0.011
DY 06	14.5	0.1	6.2	0.0	0.000	0.021
DY 07	15.3	0.0	5.9	0.0	0.000	0.022
DY 08	15.3	0.1	6.5	0.0	0.000	0.025
DY 09	15.3	0.1	65.3	0.0	0.000	0.253
DY 10	15.3	1.6	6.7	0.0	0.008	0.026
DY 11	15.4	1.4	6.3	0.0	0.007	0.024
DY 12	15.3	0.1	4.7	0.0	0.000	0.018
DY 13	15.3	0.8	4.5	0.0	0.004	0.017
DY 14	15.4	0.1	2.7	0.0	0.000	0.010
DY 15	16.3	0.1	7.3	0.0	0.000	0.034
DY 16	15.8	0.0	8.6	0.0	0.000	0.036
DY 17	15.4	0.0	8.6	0.0	0.000	0.033
DY 18	15.3	0.0	8.7	0.0	0.000	0.033
DY 19	16.5	0.1	8.1	? 142.4	0.000	0.040
DY 20	15.3	0.1	7.2	0.0	0.000	0.027
DY 21	15.4	0.1	7.3	0.0	0.000	0.028
DY 22	15.4	0.1	7.0	0.0	0.000	0.027
DY 23	15.4	0.1	6.8	0.0	0.000	0.026
DY 24	15.4	0.1	10.5	0.0	0.000	0.041
DY 25	14.5	0.1	12.6	0.0	0.000	0.042
DY 26	15.4	0.0	13.1	0.0	0.000	0.051
DY 27	15.3	0.0	9.2	0.0	0.000	0.035
DY 28	15.3	0.0	9.2	0.0	0.000	0.035

MONTHLY : MARCH ~~February~~, 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	15.3	0.1	8.5	0.0	0.000	0.032
DY 02	15.3	0.0	11.1	0.0	0.000	0.043
DY 03	15.3	0.1	12.0	0.0	0.000	0.046
DY 04	15.3	0.1	11.0	0.0	0.000	0.042
DY 05	15.3	0.1	9.7	0.0	0.000	0.037
DY 06	15.3	0.1	7.6	0.0	0.000	0.029
DY 07	15.4	0.1	7.8	0.0	0.000	0.030
DY 08	15.4	0.0	7.3	0.0	0.000	0.028
DY 09	15.3	0.1	7.2	0.0	0.000	0.027
DY 10	15.3	0.0	7.3	0.0	0.000	0.028
DY 11	15.4	0.0	9.3	0.0	0.000	0.036
DY 12	15.4	0.1	6.3	0.0	0.000	0.024
DY 13	15.3	0.0	6.6	0.0	0.000	0.025
DY 14	14.5	0.0	7.8	0.0	0.000	0.026
DY 15	15.3	0.1	9.8	0.0	0.000	0.038
DY 16	15.3	0.1	8.9	0.0	0.000	0.034
DY 17	15.4	0.1	9.6	0.0	0.000	0.037
DY 18	15.4	0.0	9.0	0.0	0.000	0.035
DY 19	15.4	0.0	6.8	0.0	0.000	0.026
DY 20	15.4	0.1	6.1	0.0	0.000	0.024
DY 21	15.4	0.0	7.6	0.0	0.000	0.030
DY 22	15.3	0.1	8.3	0.0	0.000	0.032
DY 23	15.4	0.1	6.8	0.0	0.000	0.026
DY 24	15.3	0.0	6.0	0.0	0.000	0.023
DY 25	15.3	0.1	6.4	0.0	0.000	0.024
DY 26	15.3	0.1	6.1	0.0	0.000	0.023
DY 27	15.4	0.0	5.7	0.0	0.000	0.022
DY 28	15.3	0.0	5.1	0.0	0.000	0.019
DY 29	15.3	0.1	6.8	0.0	0.000	0.026
DY 30	15.4	0.0	10.1	0.0	0.000	0.039
DY 31	15.4	0.0	10.0	0.0	0.000	0.039

MONTHLY : APRIL 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	14.6	0.1	7.3	0.0	0.000	0.025
DY 02	15.4	0.1	16.9	0.0	0.000	0.066
DY 03	15.3	0.0	6.8	0.0	0.000	0.026
DY 04	15.3	0.0	7.7	0.0	0.000	0.029
DY 05	15.3	0.0	7.2	0.0	0.000	0.027
DY 06	16.6	0.0	5.8	0.0	0.000	0.029
DY 07	16.9	0.0	5.6	0.0	0.000	0.030
DY 08	15.4	0.0	5.4	0.0	0.000	0.021
DY 09	15.4	0.0	6.9	0.0	0.000	0.027
DY 10	15.6	0.2	7.0	0.0	0.001	0.028
DY 11	14.5	0.0	5.6	0.0	0.000	0.019
DY 12	15.4	0.0	6.6	0.0	0.000	0.026
DY 13	15.4	0.0	5.3	0.0	0.000	0.020
DY 14	15.3	0.0	4.8	0.0	0.000	0.018
DY 15	16.0	0.0	7.2	0.0	0.000	0.031
DY 16	20.7	3.1	0.9	0.0	0.468	0.097
DY 17	18.5	3.7	1.2	0.0	0.046	0.010
DY 18	20.7	4.1	0.6	0.0	0.619	0.065
DY 19	20.7	3.8	0.9	0.0	0.574	0.097
DY 20	20.7	2.1	1.3	0.0	0.317	0.141
DY 21	20.8	0.2	0.7	0.0	0.060	0.152
DY 22	20.7	0.2	0.0	0.0	0.030	0.000
DY 23	20.8	0.1	0.4	0.0	0.030	0.086
DY 24	20.8	0.1	0.1	0.0	0.030	0.021
DY 25	20.7	0.1	0.8	0.0	0.015	0.086
DY 26	20.8	0.1	1.1	0.0	0.030	0.239
DY 27	20.8	0.1	0.7	0.0	0.030	0.152
DY 28	20.7	0.1	0.2	0.0	0.015	0.021
DY 29	20.8	0.1	0.1	0.0	0.030	0.021
DY 30	19.5	0.1	2.1	0.0	0.002	0.032

MONTHLY : MAY, 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	19.7	0.1	0.0	0.0	0.002	0.000
DY 02	20.7	0.1	0.1	0.0	0.015	0.010
DY 03	19.7	0.1	0.4	0.0	0.002	0.007
DY 04	20.7	0.1	0.3	0.0	0.015	0.032
DY 05	20.4	0.2	0.3	0.0	0.012	0.013
DY 06	15.3	0.1	3.9	0.0	0.000	0.015
DY 07	15.4	0.1	3.6	0.0	0.000	0.014
DY 08	15.3	0.1	3.1	0.0	0.000	0.012
DY 09	17.4	0.1	1.4	0.0	0.000	0.008
DY 10	17.3	0.1	3.2	0.0	0.000	0.018
DY 11	15.8	0.2	2.9	0.0	0.001	0.012
DY 12	17.0	0.2	3.5	0.0	0.001	0.019
DY 13	16.0	0.1	3.2	0.0	0.000	0.014
DY 14	20.8	0.2	0.0	0.0	0.060	0.000
DY 15	17.3	0.2	4.2	0.0	0.001	0.025
DY 16	15.3	0.2	2.9	0.0	0.001	0.011
DY 17	15.3	0.2	2.6	0.0	0.001	0.010
DY 18	15.4	0.6	3.0	0.0	0.003	0.011
DY 19	15.4	0.1	4.3	0.0	0.000	0.016
DY 20	14.8	0.1	2.5	0.0	0.000	0.008
DY 21	15.4	0.1	0.7	0.0	0.000	0.002
DY 22	15.4	0.1	2.9	0.0	0.000	0.011
DY 23	15.4	0.1	3.5	0.0	0.000	0.013
DY 24	20.7	0.1	0.1	0.0	0.015	0.010
DY 25	20.7	0.3	0.0	0.0	0.045	0.000
DY 26	17.2	0.1	5.1	0.0	0.000	0.029
DY 27	15.3	0.1	7.2	0.0	0.000	0.027
DY 28	15.3	0.1	7.1	0.0	0.000	0.027
DY 29	15.2	0.1	4.7	0.0	0.000	0.017
DY 30	15.3	0.1	4.7	0.0	0.000	0.018
DY 31	15.3	0.0	5.8	0.0	0.000	0.022

MONTHLY : JUNE, 1994 UNIT 5

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	15.3	0.0	4.3	0.0	0.000	0.016
DY 02	15.3	0.3	4.9	0.0	0.001	0.019
DY 03	15.3	0.1	4.3	0.0	0.000	0.016
DY 04	15.3	0.2	4.9	0.0	0.001	0.019
DY 05	15.3	0.1	4.1	0.0	0.000	0.015
DY 06	15.3	0.2	4.6	0.0	0.001	0.017
DY 07	15.3	0.1	4.4	0.0	0.000	0.017
DY 08	15.3	0.2	5.3	0.0	0.001	0.020
DY 09	15.3	0.2	5.5	0.0	0.001	0.021
DY 10	15.3	0.1	5.0	0.0	0.000	0.019
DY 11	15.4	0.1	4.0	0.0	0.000	0.015
DY 12	15.5	0.1	3.8	0.0	0.000	0.015
DY 13	15.4	0.0	4.4	0.0	0.000	0.017
DY 14	15.6	0.1	6.1	0.0	0.000	0.025
DY 15	15.4	0.1	5.8	0.0	0.000	0.022
DY 16	15.4	0.1	4.0	0.0	0.000	0.015
DY 17	15.5	0.1	4.7	0.0	0.000	0.018
DY 18	15.3	0.1	3.7	0.0	0.000	0.014
DY 19	15.3	0.1	2.9	0.0	0.000	0.011
DY 20	15.3	0.2	2.0	0.0	0.001	0.007
DY 21	14.6	0.1	4.5	0.0	0.000	0.015
DY 22	15.3	1.4	6.5	0.0	0.007	0.025
DY 23	15.3	0.1	4.4	0.0	0.000	0.017
DY 24	15.3	0.2	4.8	0.0	0.001	0.018
DY 25	15.4	0.1	4.1	0.0	0.000	0.016
DY 26	15.3	0.1	4.3	0.0	0.000	0.016
DY 27	15.3	0.1	4.3	0.0	0.000	0.016
DY 28	16.5	0.1	3.6	0.0	0.000	0.017
DY 29	18.1	0.1	2.4	0.0	0.001	0.018
DY 30	15.3	0.1	4.3	0.0	0.000	0.016

MONTHLY : July, 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	15.2	0.2	4.9	0.0	0.001	0.018
DY 02	15.4	0.1	4.5	0.0	0.000	0.017
DY 03	15.3	0.1	4.6	0.0	0.000	0.017
DY 04	15.3	0.0	3.9	0.0	0.000	0.015
DY 05	15.4	0.3	5.9	0.0	0.001	0.023
DY 06	15.4	1.0	7.3	0.0	0.005	0.028
DY 07	15.4	0.2	9.1	0.0	0.001	0.035
DY 08	15.3	0.0	7.0	0.0	0.000	0.027
DY 09	15.3	0.1	5.5	0.0	0.000	0.021
DY 10	19.5	0.1	0.7	0.0	0.002	0.010
DY 11	20.8	0.0	0.0	0.0	0.000	0.000
DY 12	20.8	0.0	0.7	0.0	0.000	0.152
DY 13	17.9	0.3	5.4	0.0	0.003	0.039
DY 14	15.4	0.0	5.1	0.0	0.000	0.020
DY 15	15.4	0.0	5.0	0.0	0.000	0.019
DY 16	15.4	0.0	5.0	0.0	0.000	0.019
DY 17	15.4	0.0	5.4	0.0	0.000	0.021
DY 18	15.4	0.0	5.7	0.0	0.000	0.022
DY 19	15.4	0.0	5.6	0.0	0.000	0.022
DY 20	16.0	0.1	5.2	0.0	0.000	0.023
DY 21	15.4	0.5	6.9	0.0	0.002	0.027
DY 22	14.6	0.0	4.9	0.0	0.000	0.016
DY 23	15.4	0.0	4.8	0.0	0.000	0.018
DY 24	15.3	0.0	5.7	0.0	0.000	0.022
DY 25	14.5	0.0	4.6	0.0	0.000	0.015
DY 26	15.6	0.1	5.4	0.0	0.000	0.022
DY 27	15.4	0.0	7.4	0.0	0.000	0.029
DY 28	15.3	0.1	6.7	0.0	0.000	0.026
DY 29	15.4	0.1	6.1	0.0	0.000	0.024
DY 30	15.3	0.0	4.3	0.0	0.000	0.016
DY 31	15.4	0.1	3.9	0.0	0.000	0.015

MONTHLY : August, 1994

	O2	SO2	NOx	Flow	SO2btu	NOxbtu
DY 01	15.4	0.1	4.7	0.0	0.000	0.018
DY 02	15.3	0.0	5.8	0.0	0.000	0.022
DY 03	15.3	1.9	7.5	0.0	0.010	0.029
DY 04	15.3	0.1	4.6	0.0	0.000	0.017
DY 05	15.3	0.1	5.3	0.0	0.000	0.020
DY 06	15.3	0.0	3.9	0.0	0.000	0.015
DY 07	14.5	0.0	4.6	0.0	0.000	0.015
DY 08	15.4	0.1	5.3	0.0	0.000	0.020
DY 09	15.3	0.0	4.5	0.0	0.000	0.017
DY 10	15.3	1.3	5.6	0.0	0.007	0.021
DY 11	15.3	0.0	4.6	0.0	0.000	0.017
DY 12	15.4	0.0	4.5	0.0	0.000	0.017
DY 13	15.3	0.0	4.2	0.0	0.000	0.016
DY 14	15.3	0.0	4.2	0.0	0.000	0.016
DY 15	14.5	0.0	3.4	0.0	0.000	0.011
DY 16	15.3	0.1	4.8	0.0	0.000	0.018
DY 17	15.3	0.0	4.5	0.0	0.000	0.017
DY 18	15.4	0.0	5.4	0.0	0.000	0.021
DY 19	15.4	0.0	5.2	0.0	0.000	0.020
DY 20	15.4	0.0	3.2	0.0	0.000	0.012
DY 21	15.3	0.0	3.6	0.0	0.000	0.013
DY 22	15.3	0.0	2.6	0.0	0.000	0.010
DY 23	15.3	0.0	2.3	0.0	0.000	0.008
DY 24	15.5	0.0	1.3	0.0	0.000	0.005
DY 25	14.6	0.2	3.3	0.0	0.000	0.011
DY 26	15.3	0.1	4.0	0.0	0.000	0.015
DY 27	15.4	0.1	3.8	0.0	0.000	0.015
DY 28	15.4	0.1	2.5	0.0	0.000	0.009
DY 29	15.4	0.0	3.1	0.0	0.000	0.012
DY 30	15.4	0.1	5.3	0.0	0.000	0.020
DY 31	15.4	0.1	6.6	0.0	0.000	0.026

ATTACHMENT C

Vero Beach, City of
ESTIMATED PERFORMANCE - PG6541(B)

LOAD CONDITION		BASE	PEAK	BASE	BASE
FUEL TYPE		METHANE	METHANE	DIST.	DIST.
FUEL LHV	- Btu/lb	21515	21515	18550	18550
AMBIENT TEMP.	- Deg F.	59	59	59	59
OUTPUT	- kW	37540.	40470.	39310.	38350.
HEAT RATE (LHV)	- Btu/kWh	11020.	10930.	11570.	11410.
HEAT CONS. (LHV)	X10-6 - Btu/h	413.7	442.3	454.8	437.6
EXHAUST FLOW	X10-3 - lb/h	1100.0	1100.0	1129.0	1119.0
EXHAUST TEMP	- Deg F.	1012.	1071.	1004.	1007.
EXHAUST HEAT	X10-6 - Btu/h	268.0	285.6	275.9	272.1
WATER FLOW	- lb/h	0.	0.	25070.	15720.
NOX	- ppmvd @ 15% O2	25.	60.	42.	65.
NOX AS NO2	- lb/h	42.	107.	80.	120.
SO2	-lb/h	0.1	0.1	122	118

EXHAUST ANALYSIS % VOL.

ARGON	0.	0.90	0.88	0.89
NITROGEN	74.89	74.72	72.76	73.79
OXYGEN	13.89	13.40	12.81	13.25
CARBON DIOXIDE	3.13	3.35	4.38	4.27
WATER	7.19	7.63	9.17	7.80

SITE CONDITIONS
****

ELEVATION	- ft.	0
SITE PRESSURE	- psia	14.7
INLET LOSS	- in. Water	5.5
EXHAUST LOSS	- in. Water	9
RELATIVE HUMIDITY	- %	60
APPLICATION	-	6A3 AIR-COOLED GENERATOR
COMBUSTION SYSTEM	-	DRY LOW NOx

EMISSION INFORMATION BASED ON GE-RECOMMENDED MEASUREMENT METHODS. NOx EMISSIONS ARE CORRECTED TO 15% O2 WITHOUT HEAT RATE CORRECTION AND ARE NOT CORRECTED TO ISO REFERENCE CONDITIONS PER 40CFR 60.335(a)(1)(i). NOx LEVELS SHOWN WILL BE CONTROLLED BY ALGORITHMS WITHIN THE SPEEDTRONIC CONTROL SYSTEM.

DISTILLATE FUEL IS ASSUMED TO HAVE .015% FUEL-BOUND NITROGEN, OR LESS. FBN AMOUNTS GREATER THAN .015% WILL ADD TO THE REPORTED NOx VALUE.

IPS-Rev 2. MAC 16-May-94

ATTACHMENT 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.				

Fuels

Type (Be Specific)	Consumption* avg/hr	Consumption* max./hr	Maximum Heat Input (MMBTU/hr)
Natural Gas		0.49 MMCF/h	446.0
or			
No. 2 Fuel Oil		3,390 gal/h	443.3

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

Fuel Analysis:

Percent Sulfur: Gas: 2,000 gr/MMCF; Oil: 0.25% by wgt. Percent Ash: Nil (both fuels)

Density: Gas: 1 lb/23.8 CF; Oil: 7.05 lb/gal lbs/gal Typical Percent Nitrogen: <0.015%

Heat Capacity: Gas: 21,515 BTU/lb; Oil: 18,550 BTU/lb Gas: 904 Btu/CF; Oil: 130,800 Btu/gal BTU/gal

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

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

Annual Average None Maximum None

Indicate liquid or solid wastes generated and method of disposal.

NA

ATTACHMENT E

Florida Department of Environmental Regulation
Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Carol M. Browner, Secretary

June 28, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Harry Schindehette
Director of Utilities
Fort Pierce Utilities Authority
Post Office Box 3191
Fort Pierce, Florida 34948

Dear Mr. Schindehette:

Re: 1) AC 56-141460, 31.6 MW Combined Cycle Gas Turbine
2) Letter Dated 11/9/90 from Smallwood to Schindehette

The Department is in receipt of Hopping Boyd Green & Sam's letter dated June 11, 1991, requesting a permit modification to burn fuel oil in existing boilers Nos. 6, 7, and 8. The Department has reviewed your proposal and has determined, based on our discussions at the June 4, 1991, meeting, to amend Specific Condition No. 8 of your permit (AC 56-141460) as requested.

Specific Condition No. 8 is amended to further include the following:

Fort Pierce Utilities Authority (FPUA) shall be permitted to burn residual fuel oil in Units 6, 7, and 8 in order to avoid curtailing electric power service to its customers. FPUA must provide written notification to the Department's Southeast District office within 24 hours after the commencement of oil firing and furnish the following information:

a. Duration or projected duration of the event.

b. Quantity of fuel oil burned or projected to be burned.

c. A description of significant circumstances precipitating the event. The description shall include the following information:

1. Availability of power for purchase.
2. Availability of electric transmission capacity relating to power purchases.
3. Availability of natural gas.
4. Availability of FPUA's generation resources.

When burning residual fuel oil in Units 6, 7, and 8, the sulfur dioxide (SO_2), particulate matter (PM), and volatile organic compound (VOC) emission limits currently set forth in the permit shall not apply. In lieu of those emission limits, the following emission limits will apply to Units 6, 7, and 8:

	SO_2 (lb/MMBtu)	PM (lb/MMBtu)	VOC
Unit 6	0.80	n/a	n/a
Unit 7	2.75	0.1	n/a
Unit 8	0.80	0.1	n/a

Attachment to be Incorporated:

Hopping Boyd Green & Sam's letter dated June 11, 1991

Sincerely,

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources Management

SS/PL/plm

c: Stephanie Brooks, DER
Carol A. Forthman, OGC
Gary C. Smallridge, OGC
Peter Cunningham, HBGS
Gary V. Perko, HBGS

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3. Article Addressed to:
Mr. Mike Siefert
City of Vero Beach
Minicipal Power Plant
P. O. Box 1389
Vero Beach, FL 32961

4a. Article Number
P 872 563 649

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

5. Signature (Addressee)
George Young

6. Signature (Agent)

7. Date of Delivery
8-1-94

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

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

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Street and No. P. O. Box 1389 Vero Beach	
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Postmark or Date Mailed: 7-27-94 Permit: AC31-184928 PSD-FL-152	

PS Form **3800**, JUNE 1991

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 27, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

Dear Mr. Siefert:

RE: Request to Amend Construction Permit
AC 31-184928, PSD-FL-152
Vero Beach Municipal Power Plant, Unit 5

The Department has received and is reviewing the subject request, dated June 30, 1994. To complete our review of the request, it will be necessary for you to provide us with the following information:

1) At what capacity (i.e. load) did you conduct the initial compliance test during January 1994? Please provide the summary page of the compliance test report.

2) How will you demonstrate compliance, at any given time, with the #/MMBtu standards in the permit without continuously monitoring/measuring the consumption of fuels (i.e., natural gas and fuel oil) at all rates?

3) What have your actual pollutant emissions been for the past five years? Please provide the calculations and any assumptions.

4) What parameters change during peak loading versus the compliance test load that require a standard of 60 ppmvd while firing natural gas? If these operating conditions truly justify 60 ppmvd, then, you need to provide the justification and a request to revise the BACT determination.

5) Please provide complete details of all changes made to the emission unit that you alluded to in paragraph 2 on page 2 of your June 3, 1994 letter.

6) Provide justification to the request for eliminating the fuel oil "gallons/hour" consumption limit.

7) Please provide a summary of any known delays in providing electrical service within the industry as a result of a facility not being able to obtain an emergency order.

If you have any questions concerning the requested information or questions in general, please call Bruce Mitchell at (904) 488-1344.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JB/CSL/bjb

cc: C. Collins, C.D.
D. Beason, Esq., DEP
J. Harper, EPA
J. Bunyak, NPS
P. Cunningham, Esq., HBG&S
G. Perko, Esq., HBG&S

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 12, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

Dear Mr. Cunningham:

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Construction
Permit No. AC 31-184928, PSD-FL-152

The Department is in receipt of your letter dated June 30, 1994, on behalf of the City of Vero Beach Municipal Power Plant requesting an extension of the expiration date of the above mentioned permit. This request is acceptable. The expiration date for this permit will be changed as follows:

FROM: June 30, 1994

TO: **September 30, 1994**

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 applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. 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;
(g) A statement of the relief sought by petitioner, stating precisely the action the 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/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 amendment 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.

A copy of this letter shall be attached to the above mentioned permit and shall become a part of this permit.

Sincerely,

for Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/TH/bjb

Attachment to Be Incorporated:
Mr. Peter Cunningham's letter of March 23, 1994

cc: Charles Collins, CD

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 7-12-94 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

7-12-94
Date

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I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
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Consult postmaster for fee.

3. Article Addressed to:
Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, FL 32314

4a. Article Number
P 872 563 643

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

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

6. Signature (Agent)
X

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

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P.O., State and ZIP Code Tallahassee, FL 32314	
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Postmark or Date Mailed: 7-12-94 Permit: AC31-184928 PSD-FL-152	

PS Form 3800, JUNE 1991

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: July 11, 1994

SUBJECT: Vero Beach Municipal Power Plant, Unit 5
Request for Extension
Construction Permit No. AC 31-184928, PSD-FL-152

The City of Vero Beach Municipal Power Plant has requested to extend the expiration date of the above mentioned permit.

The Bureau recommends your approval and signature.

CF/TH/bjb

Attachment

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

Writer's Direct Dial No.
(904) 425-2305

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
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KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
W. ROBERT FOKES

June 30, 1994

Clair E. Fancy, P.E.
Bureau of Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, FL 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Amendment of Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach (the City) to request amendment of the referenced air construction permit for the 60MW combined cycle Unit 5 at its Municipal Power Plant. The primary reasons for the requested amendments are: 1) to update permit conditions to reflect that Dry Low NOx combustors have been installed; 2) to revise certain figures based on the original Unit design to reflect the Dry Low NOx combustor configuration; 3) to allow limited operation in "peak load" mode firing natural gas.

The construction permit for Unit 5, issued June 28, 1991, imposed emission limitations and other conditions based on the original design for the General Electric Frame 6 combustion turbine. The permit also required the City to install either low NOx combustors or an SCR system within one year of the commencement of commercial operation, with more stringent NOx emission limits in effect thereafter. For the low NOx combustor alternative, the NOx emission limit is 25 ppm on natural gas, and either 42 ppm or 65 ppm on No. 2 fuel oil. Oil use depends upon the NOx emission rate achieved during oil firing, with the annual capacity factor on oil limited to 25 percent unless the 42 ppm NOx emission rate is met, in which case the annual oil capacity factor is raised to 33 percent.

Dry Low NOx (DLN) combustors were installed in the Unit 5 combustion turbine in the fall of 1993. This is one of the first retrofit applications of GE's DLN combustor technology in a Frame 6 machine. Emissions compliance testing of Unit 5 with the DLN combustors was

concluded in January 1994, and test reports demonstrating NOx emissions below 25 ppm on gas and 42 ppm on oil, and compliance with all other applicable emission limits, were forwarded to the Department on February 25, 1994. Continuous emission monitoring system data indicate Unit 5 is operating with NOx emissions below the 25 ppm limit on an continuous basis.

Retrofit of the DLN combustors has resulted in changes in several basic design parameters as compared to the original design on which the current air construction permit was based. For example, with the original design, maximum permitted heat input (reflecting "peak load" operation) was 446 MMBtu/hr (gas) and 443 MMBTU/hr (oil) at ISO conditions, as reflected in Specific Condition 7. of the permit. With DLN combustors, maximum heat input in "base load" operation is 414 MMBtu/hr (gas) and 455 MMBtu/hr (oil), and, for the "peak load" mode, 442 MMBtu (gas). While NOx emissions during "base load" operation have been demonstrated to comply with the permit emission limits (25 ppm on gas, 42 ppm on oil), General Electric projects a NOx emission rate of up to 60 ppm in the "peak load" mode, due to the increase in firing temperatures above the normal design parameters for the DLN combustors.

"Peak load" operation results in an additional 3 megawatts of generation for short periods of time. "Peak load" operation also causes the machine to deteriorate at a much faster rate than "base load", effectively shortening the life of the combustion turbine. It is neither desirable nor economically advantageous to operate at "peak load." In fact, General Electric does not endorse "peak load" operation in the City's Frame 6 machine because of potential effects on integrity and durability.

As discussed at a June 1, 1994 meeting with Preston Lewis, Teresa Herron and Doug Beason, the City would like to have the authority to operate Unit 5 in the "peak load" mode only during "emergency conditions." The City has an obligation to its customers and the other generating utilities in the Statewide grid system to provide reliable power at all times. The City feels that there are three critical circumstances that justify "peak load" operation:

1. Natural disasters such as a hurricanes and severe winter storms which could result in either City or Statewide brownouts or rolling blackouts.

2. Equipment failures, such as the loss of transmission lines within the City's territory or a forced outage of another generating unit, which would result in a brownout or blackout situation for City customers.

3. The loss of transmission lines into the State (the State imports thousands of megawatts daily from the State of Georgia) or within the State which would result in a brownout or blackout situation for City customers or possibly another utility within the State.

"Peak load" operation is to be used as an emergency measure to provide electrical power when all other measures are insufficient to meet load conditions and the City is unable to fulfill obligations to its customers, especially in times of extreme cold or heat, which could place many customers in jeopardy. Conceivably, the City may never have to utilize this mode of operation, but power generation is an unpredictable business. All emergencies that may require "peak load" operation will not be of Statewide nature but will still pose sufficient danger to warrant that option. In the case of a natural disaster, there may not be sufficient time and communication channels to allow pre-approval from the State for "peak load" operation. It should be noted that "peak load" will not be used for economic reasons or due to poor planning in advance for sufficient generation.

As discussed at the June 1st meeting, the City is prepared to accept a decrease in annual oil use (from 33 percent annual capacity factor to 25 percent annual capacity factor) if up to 400 hours of operation in the "peak load" mode is allowed under "emergency conditions." Maximum annual emissions under this scenario would decrease for all pollutants compared to current permit limits, as shown on Attachment "A". Moreover, the projected 60 ppm NOx emission rate for "peak load" is below the 65 ppm rate currently allowed in the permit for oil operation with a 25 percent capacity factor.

The City would be willing to conduct a compliance test on the CT at "peak load" to determine NOx emissions levels. Following the initial compliance test, the City proposes that if "peak load" is not utilized for more than 400 hours in a federal fiscal year, testing at "peak load" conditions should not be required. If the 400 hours were exceeded in any fiscal year, the City would test at "peak load" for NOx emissions during the next scheduled annual compliance test. Even if the 400 hours are not exceeded during any year over the five term year of an air operation permit, the City would be willing to test at "peak load" for NOx emissions prior to operation permit renewal. If a Department representative were to visit to the facility, the inspector would be able to see if the CT were at "Base Load", "Peak Load", Partial Load or even off line by observing the main screen used by plant staff to operate the CT.

All revisions to the Unit 5 air construction permit requested by the City are listed in Attachment "B", along with the rationale for each suggested change. The new "Table 1", replacing current Tables 1 through 4, would allow up to 400 hours of "peak load" operation while reducing maximum annual emissions.

Provided herewith as the air construction permit amendment fee is our firm's check no. 13122 in the amount of $7,500.

The Department's continued consideration with respect to this permit is greatly appreciated. Should you or members of your staff have any questions regarding the requested permit amendments, please do not hesitate to call Mike Siefert at (407)562-7231, Gary Perko or me.

Sincerely,

Peter C. Cunningham
Gary V. Perko

PCC/jam
Enclosure

cc: Preston Lewis, DARM/BAR
Teresa Heron, DARM/BAR
Chuck Collins, DEP Central District
Doug Beason, OGC
Shuler Massey, City of Vero Beach
Mike Siefert, City of Vero Beach
C. Holladay
J. Harper, EPA
J. Bunyak, NPS

ATTACHMENT "A"

CITY OF VERO BEACH
AC 31-184928

COMPARISON

Pollutant	Old Table 2, 3 Combined TPY	New Table 1[(a)(b)(c)] TPY
NOx	278.8 (T2)	239
SO2	173.6 (T3)	135
PM	21.79	20.6
VOC	21.9	20.9
CO	43.8	41.8
Mercury (Hg)	0.0019 (T3)	0.0015
Lead (Pb)	0.018 (T3)	0.014
Beryllium (Be)	0.0016 (T3)	0.0013
Sulfuric Acid Mist	5.2 (T3)	4.04

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Tons per year figures based on 400 hours Peak Load operation on gas annually.

(c) Based on following heat input rates:
Based Load (gas) : 414 MMBtu/hr
Peak Load (gas) : 442 MMBtu/hr
Base Load (oil) : 455 MMBtu/hr

June 29, 1994

ATTACHMENT "B"

Amendments to DEP Air Construction Permit No. AC 31-184928 requested by the City of Vero Beach.

SPECIFIC CONDITION 1

Requested Change: Delete.

Rationale: Unnecessary because Dry Low NOx (DLN) combustors have been installed and Unit 5 has demonstrated compliance with all emission limits with the DLN configuration.

SPECIFIC CONDITION 2

Requested Change: Renumber as Specific Condition 1 and revise to read as follows:

> 1. The maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1.

Rationale: References to the initial year of operation and to SCR are unnecessary now that the Unit 5 combustion turbine has been retrofitted with DLN combustors. The reference to "Table 1" is to the new Table 1 (attached) that would replace current Tables 1 through 4.

SPECIFIC CONDITION 3

Requested Change: Delete.

Rationale: Based on our June 1, 1994 meeting, the City understands that the Department no longer believes inclusion of "acceptable ambient air concentrations (AAC)" in air permits is appropriate.

SPECIFIC CONDITIONS 4-6

Requested Change: Renumber as Specific Conditions 2-4.

SPECIFIC CONDITION 7

Requested Change: Renumber as Specific Condition 5 and revise to read as follows:

> 5. 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 7,500,000 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 0.25 percent by weight.

- Maximum heat input during "Base Load" operation shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on sea level pressure at 59°F ambient dry bulb temperatures, 60% relative humidity (ISO conditions) and lower heating value (LHV) of the fuel being fired, except during "Peak Load" operation as allowed during "emergency conditions" pursuant to Specific Condition 6.

- Maximum heat input during "Peak Load" operation shall not exceed 442 MMBtu/hr (gas), based on sea level pressure at 59°F ambient dry bulb temperatures, 60% relative humidity (ISO conditions) and lower heating value (LHV) of the fuel being fired.

Rationale: Deletes unnecessary restriction on gallons per hour of fuel oil (redundant given the maximum hourly heat input rate limits) and updates language to reflect installation of DLN combustors. Reduces annual oil use by limiting annual capacity factor on oil to 25 percent. Updates "Base Load" heat input rates to reflect DLN combustor design parameters. Provides heat input rate for limited operation in "Peak Load" mode on gas.

NEW SPECIFIC CONDITION 6

Requested Change: Add new Specific Condition 6 to read as follows:

6. Operation of the Unit 5 combustion turbine in the "Peak Load" mode shall be allowed for up to 400 hours per year only during demonstrated "emergency conditions." "Emergency conditions" exist in the following circumstances when "Peak Load" operation is necessary to provide electrical power and all other measures are insufficient to meet load conditions:

a. Natural disasters such as a hurricanes and severe winter storms which could result in either City or statewide brownouts or rolling blackouts.

b. Equipment failures, such as the loss of transmission lines within the City's territory or a forced outage of another generation unit, which would result in a brownout or blackout situation for City customers.

c. The loss of transmission lines into the State or within the State which would result in a brownout or blackout situation for City customers or another utility within the State.

Rationale: See discussion in Peter Cunningham's letter to Clair Fancy dated June 29, 1994

SPECIFIC CONDITIONS 8 & 9

Requested Change: Renumber as Specific Conditions 7 & 8.

SPECIFIC CONDITION 10

Requested Change: Renumber as Specific Condition 9 and revise to read as follows:

9. Initial (I) compliance tests shall be performed on the CT using both fuels. Initial (I) NOx compliance testing shall also be performed with the CT firing in the "Peak Load" mode within 180 days after issuance of the permit amendment authorizing "Peak Load" operation. Annual (A) compliance tests shall be performed on the CT in the "Base Load" mode with the fuels used for more than 400 hours during the federal fiscal year and in the "Peak Load" mode during any federal fiscal year, in which the CT operates in that mode. Tests shall be conducted using the following 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 NOx (I;A)

e. 25A for VOC (I; no stack test required provided CO stack test demonstrates compliance with CO emission limit)

f. same as e. in current permit

g. same as f. in current permit

Other DEP methods may be used for compliance testing after prior Department approval.

Rationale: Corrects current references to "each CT" and provides for "Peak Load" testing and adds VOC test method but allows use of CO stack test data in place of VOC testing.

SPECIFIC CONDITIONS 11 & 12

Requested Change: Renumber as Specific Conditions 10 & 11.

SPECIFIC CONDITION 13

Requested Change: Renumber as Specific Condition 12 and revise to read as follows:

> 12. During performance tests required under 40 CFR 60, Subpart GG, to determine compliance with the NOx emission limit applicable under 40 CFR § 60.332, measured NOx emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:
>
> [No change to formula]

Rationale: This revision clarifies that the correction formula must be used for performance tests conducted pursuant to the Subpart GG NSPS to demonstrate compliance with the NOx emission limit imposed under 40 CFR §60.332, but is not required for stack test data used in demonstrating whether the GE Frame 6 DLN machine is in compliance with the BACT-based NOx limits in the permit.

SPECIFIC CONDITION 14

Requested Change: Renumber as Specific Condition 13 and revise as follows:

> 13. Test results will be the average of 3 valid runs. The Central District will be notified at least 30 days in advance of any initial performance tests and at least 15 days prior to any annual compliance test. The source shall operate between 90% and 100% of permitted capacity (for the average ambient temperature during the test) during the compliance test. If it is impracticable to test at 90-100% of the maximum heat input rate, the CT may be tested at less than 90% of the maximum heat input. In this case, subsequent operation is limited to 110% of the tested heat input rate (corrected for average ambient temperature) until a new test is conducted. If the CT is so limited, operation at higher capacity is allowed for no more than 15 days for purposes of additional compliance testing to regain the maximum heat input rate. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

Rationale: Clarifies that the heat input rate measured during compliance testing is to be corrected for ambient conditions for comparison with maximum permitted heat input rate (which is based upon ISO conditions). Provides traditional approach under which testing at less than 90 percent of maximum heat input rate is valid but results in new heat input limit at 110 percent of tested rate.

SPECIFIC CONDITION 15

Requested Change: Delete.

Rationale: No longer needed because DLN combustors have been installed and compliance testing for NOx (and all other pollutants) has been completed.

SPECIFIC CONDITION 16

Requested Change: Renumber as Specific Condition 14 and revise as follows:

14. A continuous monitoring system shall be installed to monitor and record the fuel oil consumption and water/fuel ratio when firing 100% fuel oil. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F or 40 CFR 75, to monitor nitrogen oxides emissions from the combined cycle unit.

a. The continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B or 40 CFR 75.

b - d no changes.

e. For purposes of reports required under this permit, excess emissions are defined as any one hour period during which the average emissions of all readings collected during a continuous 60 minute period exceed the applicable emission limit in Specific Condition 1. Quarterly excess emission reports, in accordance with the July 1, 1992, edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to DEP's Central District offices. The continuous emission monitor system (CEMS) shall comply with 40 CFR 60 Appendix F - Quality Assurance Procedure and 40 CFR 60 Appendix D - Performance Specification 2 or analogous provisions of 40 CFR 75. Method 7E or equivalent shall be used as the Reference Method for the Determination of Nitrogen Oxide Emissions.

Rationale: Clarifies that monitoring and recording of fuel consumption (and water/fuel ration) is required only when 100% fuel oil is fired. Adds references to Title IV CEMS provisions (40 CFR 75) and incorporate language regarding excess emissions reporting, as revised by DEP letter of October 6, 1993, into paragraph e.

SPECIFIC CONDITION 17

Requested Change: Renumber as Specific Condition 15 and revise to read as follows:

15. Sulfur, nitrogen content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

Rationale: Clarifies that records should refer only to fuel oil, as there is no justification for daily recording of sulfur, nitrogen content and lower heating value for natural gas.

SPECIFIC CONDITION 18

Requested Change: Renumber as Specific Condition 16.

SPECIFIC CONDITION 19

Requested Change: Renumber as Specific Condition 17 and revise to read as follows:

> 17. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-296.800, standards of performance for Stationary Gas Turbines. Continuous emission monitoring system (CEMS) data may be used in lieu of monitoring of water/fuel ratio except when 100% fuel oil is fired.

Rationale: With the DLN combustors, no water or steam injection is utilized for NOx control when the combustion turbine is firing natural gas. The fully-certified CEMS for NOx provide far superior monitoring data and the Subpart GG NSPS do not preclude this approach.

SPECIFIC CONDITION 20 & 21

Requested Change: Renumber as Specific Conditions 18 & 19.

SPECIFIC CONDITION 22

Requested Change: Renumber as Specific Condition 20 and revise to read as follows:

> 20. 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 rate and emissions from the facility. These reports shall include, but are not limited to, the following: sulfur, nitrogen content and lower heating value of the fuel oil being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office.

Rationale: Clarifies that reporting should refer only to fuel oil, as there is no justification for daily recording of sulfur, nitrogen content and lower heating value for natural gas.

SPECIFIC CONDITIONS 23 & 24

Requested Change: Renumber as Specific Conditions 21 & 22.

TABLES 1, 2, 3 & 4

Requested Change: Replace with new Table 1.

Rationale: See Peter Cunningham's letter to Clair Fancy dated June 29, 1994.

IN GENERAL

Requested Change: Update all Chapter 17-2 citations to reflect renumbering of 17-200 series Rules. Update all references to "Department of Environmental Regulation" to reflect change to "Department of Environmental Protection".

TABLE 1
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year[a][b][c]	Basis
NOx - Base Load[d]	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	239	BACT
NOx - Peak Load	60 ppmvd at 15% oxygen on a dry basis	NA		
SO_2	Natural gas as fuel	0.25 percent S by weight	135	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	20.6	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	20.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	41.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0013	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	4.04	BACT

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Tons per year figures based on 400 hours Peak Load operation on gas annually.

(c) Based on following heat input rates:
Based Load (gas) : 414 MMBtu/hr
Peak Load (gas) : 442 MMBtu/hr
Base Load (oil) : 455 MMBtu/hr

(d) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

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

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
DAVID L. POWELL
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

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GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
W. ROBERT FOKES

June 30, 1994

BY HAND DELIVERY

RECEIVED

JUN 30 1994

Bureau of
Air Regulation

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Air Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach to request extension of the referenced air construction permit for Unit 5 at the City's Municipal Power Plant in Indian River County, pursuant to Rule 17-4.080(3) F.A.C. The current expiration date for the permit is June 30, 1994, in accordance with Division Director Rhodes' letter of April 5, 1994. By separate letter of today's date, the City is requesting amendment of the construction permit to clarify and simplify certain of the permit conditions. Representatives of the City met with Preston Lewis, Teresa Herron and Doug Beason on June 1, 1994 to discuss the proposed amendments.

The City hereby requests a further extension of the permit expiration date until September 30, 1994, to allow sufficient time for consideration of the proposed amendments. A check in the amount of fifty dollars ($50.00) is enclosed, pursuant to Rule 17-4.050(4)(q)3, F.A.C.

Emissions compliance testing of Unit 5 with the Dry Low NOx combustors has been completed and test reports demonstrating compliance with applicable limits were forwarded to the Department on February 25, 1994. The City recognizes that all current construction permit conditions will remain in effect if the expiration date extension is approved. As discussed in our recent meeting, resolution of the construction permit issues will help to facilitate issuance of a mutually acceptable air operation permit for Unit 5.

Your consideration in this matter is very much appreciated. If there are any questions regarding the City's request, please do not hesitate to call me.

Sincerely,

Peter C. Cunningham
Gary V. Perko

cc: Mr. Preston Lewis
Ms. Teresa Herron
Mr. Charles Collins
Mr. Doug Beason, Esq.
Mr. Shuler Massey
Mr. Mike Siefert
C. Holladay
J. Harper
J. Bunyak

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF VERO BEACH, Municipal Power Plant, Unit 5, Petitioner, vs. STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, Respondent.	)	OGC CASE NO. 93-4099

REQUEST FOR EXTENSION OF TIME

Petitioner, CITY OF VERO BEACH ("City"), by and through undersigned counsel, hereby requests an extension of time, through and until September 30, 1994, to file a petition for formal administrative proceedings in accordance with Section 120.57(1), Florida Statutes, in response to a proposed air operation permit for Unit 5, a 60 MW combined cycle gas turbine located at the Vero Beach Municipal Power Plant in Indian River County [Permit No. AO31-227564]. This request for an extension of time is filed pursuant to Rule 17-103.070, Florida Administrative Code. In support of the request, the City states:

1. On or about October 14, 1993, the City received the Department's Notice of Permit Issuance for the above-referenced permit. By Order dated April 13, 1994, the Department extended the deadline for filing a petition for formal administrative proceedings on the proposed permit to June 30, 1994.

2. The above-referenced permit contains thirty-one (31) specific conditions, several of which appear to require

modification or clarification. Among other things, several permit conditions have been rendered obsolete by installation of new low-NOx burners in accordance with the construction permit issued for the Unit 5 on June 28, 1991. [Permit No. AC 31-184928].

3. Additional time is needed to allow representatives of the City and the Department to confer about revisions to the existing construction permit and proposed operation permit, including those rendered necessary by the recent installation of the lox NOx burner system. In that regard, the City has applied for an extension of the construction permit through and until September 30, 1994, to allow the parties to develop mutually acceptable permit language.

4. This request is filed simply as a protective measure to avoid waiver of the City's right to challenge the objectionable permit conditions. 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 conferred with W. Douglas Beason of the Department's Office of General Counsel, and have been authorized to state that Mr. Beason does not object to the requested extension.

WHEREFORE, Petitioner respectfully requests that the Department enter an order granting it through and until September 30, 1994, to file a petition for formal administrative proceedings regarding the Department's Air Operation Permit No. AO31-227564.

Respectfully submitted this 30th day of June, 1994.

HOPPING BOYD GREEN & SAMS

By: _____

Peter C. Cunningham
Gary V. Perko
Post Office Box 6526
123 South Calhoun Street
Tallahassee, FL 32314

Attorneys for Petitioner, CITY OF VERO BEACH.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the original and one true and correct copy of the foregoing motion was hand-delivered to Kathy Carter, Clerk, Department of Environmental Protection, 2600 Blair Stone Road, Room 672, Tallahassee, Florida 32399-2400, and a true and correct copy was sent to the following this 30th day of June, 1994.

BY HAND-DELIVERY

Douglas Beason, Esquire
Office of General Counsel
Department of Environmental Protection
2600 Blair Stone Road, Room 668C
Tallahassee, Florida 32399-2400

BY U.S. MAIL

Alex Alexander, P.E.
Director of District Management
Department of Environmental Protection
Central Florida District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Attorney

41202.1

6/1/94

Vero Beach

Name	Representing	Telephone
Preston Lewis	FDEP - AIR	(904) 488-1344
Teresa Heron	FDEP - AIR	(904) 488-1344
MIKE SIEFERT	City of VERO BEACH	(407) 562-7231
PETER CUNNINGHAM	HSBGS/VERO BEACH	(904) 222-7500
Charles M. Mosser	City of Vero Beach, Fl.	(407) 562-7231
W. DOUGLAS BEASLEY	DEP/OGC	(904) 488-9730

NEW TABLE 1
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year[(a)]	Basis
NOx - Base Load	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	239	BACT
NOx - Peak Load	60 ppmvd at 15% oxygen on a dry basis	NA		
SO_2	Natural gas as fuel	0.25 percent S by weight	135	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	20.6	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	20.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	41.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0013	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	4.04	BACT

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Tons per year figures based on 400 hours Peak Load operation on gas annually.

(c) Based on following heat input rates:
Based Load (gas) : 414 MMBtu/hr
Peak Load (gas) : 442 MMBtu/hr
Base Load (oil) : 455 MMBtu/hr

COMPARISON

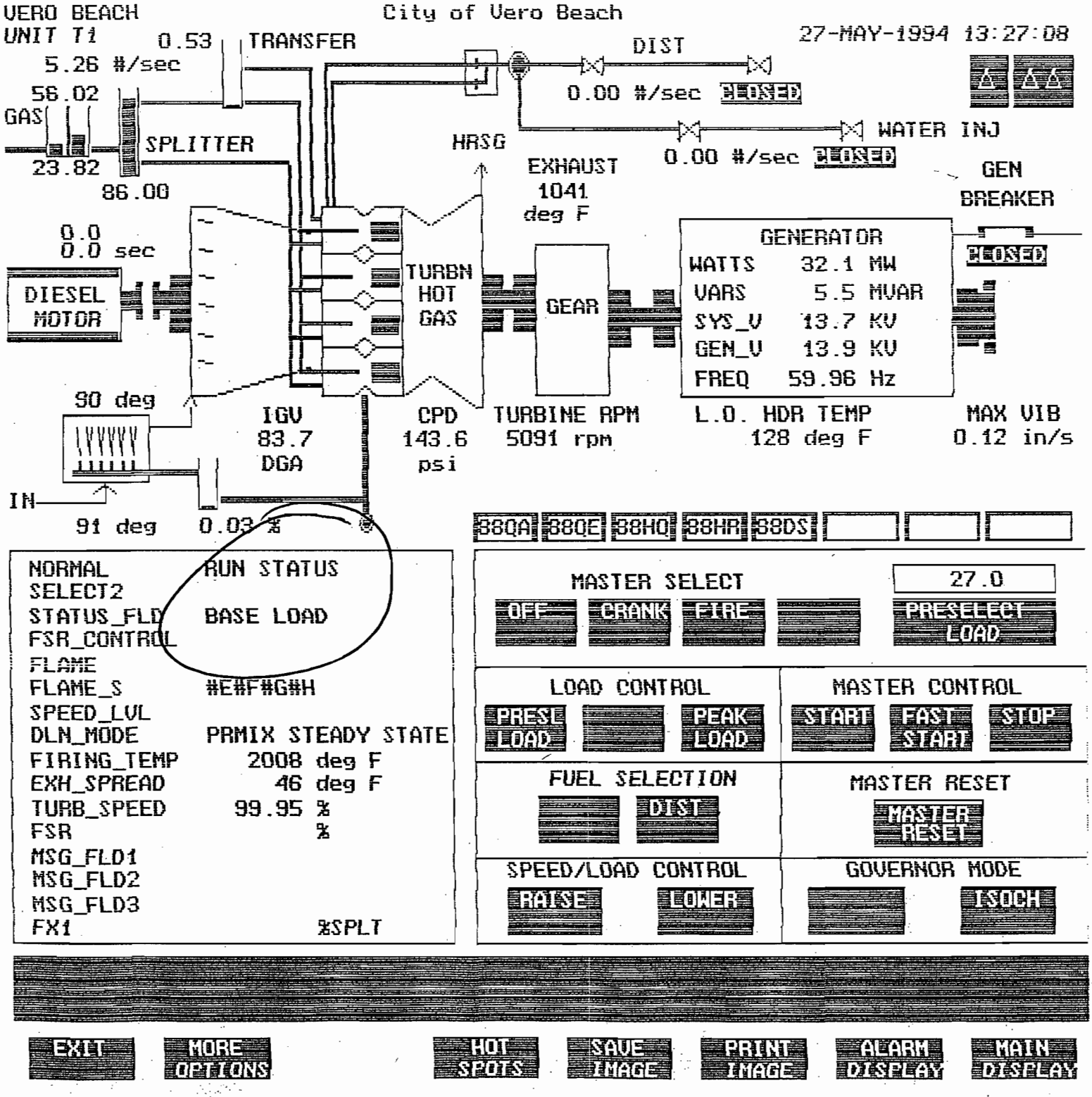
25% CF

Pollutant	Old Table 2, 3 Combined TPY	New Table 1 TPY
NOx	278.8 (T2)	239
SO2	173.6 (T3)	135
PM	21.79	20.6
VOC	21.9	20.9
CO	43.8	41.8
Mercury (Hg)	0.0019 (T3)	0.0015
Lead (Pb)	0.018 (T3)	0.014
Beryllium (Be)	0.0016 (T3)	0.0013
Sulfuric Acid Mist	5.2 (T3)	4.04

(a) Tons per year figures based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil firing.

(b) Tons per year figures based on 400 hours Peak Load operation on gas annually.

(c) Based on following heat input rates:
Based Load (gas) : 414 MMBtu/hr
Peak Load (gas) : 442 MMBtu/hr
Base Load (oil) : 455 MMBtu/hr


VERO BEACH
UNIT T1
City of Vero Beach
27-MAY-1994 13:27:08
0.53
TRANSFER
5.26 #/sec
56.02
GAS
23.82
SPLITTER
86.00
DIST
0.00 #/sec
WATER INJ
0.00 #/sec
HRSG
EXHAUST
1041
deg F
GEN
BREAKER
0.0
0.0 sec
DIESEL
MOTOR
TURBN
HOT
GAS
GEAR
GENERATOR
WATTS 32.1 MW
VARS 5.5 MVAR
SYS_V 13.7 KV
GEN_V 13.9 KV
FREQ 59.96 Hz
90 deg
IGV
83.7
DGA
CPD
143.6
psi
TURBINE RPM
5091 rpm
L.O. HDR TEMP
128 deg F
MAX VIB
0.12 in/s
IN
91 deg
0.03 %
88QA
88QE
88HQ
88HR
88DS
NORMAL
SELECT2
STATUS_FLD
FSR_CONTROL
FLAME
FLAME_S
SPEED_LVL
DLN_MODE
FIRING_TEMP
EXH_SPREAD
TURB_SPEED
FSR
MSG_FLD1
MSG_FLD2
MSG_FLD3
FX1
RUN STATUS
BASE LOAD
#E#F#G#H
PRMIX STEADY STATE
2008 deg F
46 deg F
99.95 %
%
%SPLT
MASTER SELECT
OFF
CRANK
FIRE
27.0
PRESELECT LOAD
LOAD CONTROL
PRESET LOAD
PEAK LOAD
MASTER CONTROL
START
FAST START
STOP
FUEL SELECTION
DIST
MASTER RESET
MASTER RESET
SPEED/LOAD CONTROL
RAISE
LOWER
GOVERNOR MODE
ISOCH
EXIT
MORE OPTIONS
HOT SPOTS
SAVE IMAGE
PRINT IMAGE
ALARM DISPLAY
MAIN DISPLAY

Florida Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 5, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

Dear Mr. Cunningham:

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Construction
Permit No. AC 31-184928, PSD-FL-152

The Department is in receipt of your letter dated March 23, 1994, on behalf of the City of Vero Beach Municipal Power Plant requesting an extension of the expiration date of the above mentioned permit. This request is acceptable. The expiration date for this permit will be changed as follows:

FROM: March 31, 1994

TO: **June 30, 1994**

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 applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. 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.

Is your RETURN ADDRESS completed on the reverse side?

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 will show to whom the article was delivered and the date delivered.

RECEIVED
APR 12 1994
Bureau of Air Regulation

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery
Consult postmaster for fee.

3. Article Addressed to:
Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

4a. Article Number
P 872 563 612

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

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

6. Signature (Agent)
[signature]

USPS APR 1994 TALLAHASSEE, FL

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

P 872 563 612

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

UNITED STATES POSTAL SERVICE

Sent to: Mr. Peter Cunningham	
Street and No.: P. O. Box 6526	
P.O., State and ZIP Code: Tallahassee, FL 32314	
Postage	$
Certified Fee	
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: Mailed: 4/6/94 AC 31-184928, PSD-FL-152	

PS Form 3800, JUNE 1991

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;
(g) A statement of the relief sought by petitioner, stating precisely the action the 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/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 amendment 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.

A copy of this letter shall be attached to the above mentioned permit and shall become a part of this permit.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/TH/bjb

Attachment to Be Incorporated:

Mr. Peter Cunningham's letter of March 23, 1994.

cc: Charles Collins, CD

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on April 6, 1994 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.

Barbara J. Boutwell 4/6/94
Clerk Date

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: April 5, 1994

SUBJECT: Request for Permit Amendment
Vero Beach Municipal Power Plant, Unit No. 5
AC31-184928 and PSD-FL-152

Attached for your approval and signature is an amendment to the City of Vero Beach's construction permit prepared by the Bureau of Air Regulation. The purpose of the amendment is to extend the expiration date of the above mentioned permit.

I recommend your approval and signature.

CF/TH/bjb

Attachment

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

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GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
R. SCOTT RUTH
JULIE ROME STEINMEYER

OF COUNSEL
W. ROBERT FOKES

March 23, 1994

BY HAND DELIVERY

RECEIVED
MAR 23 1994
Bureau of
Air Regulation

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Request for Extension of Construction
Permit No. AC 31-184928, PSD-FL-152

Dear Mr. Fancy:

I am writing on behalf of the City of Vero Beach to request extension of the referenced air construction permit for Unit 5 at the City's Municipal Power Plant in Indian River County, pursuant to Rule 17-4.080(3) F.A.C. The current expiration date for the permit is March 31, 1994, in accordance with Division Director Rhodes' letter dated January 13, 1994. As we have discussed, the City is now requesting a further extension of the permit expiration date until June 30, 1994 to allow sufficient time for consideration of proposed amendments intended to clarify and simplify certain of the permit conditions. A check in the amount of fifty dollars ($50.00) is enclosed, pursuant to Rule 17-4.050(4)(q)3, F.A.C.

Emissions compliance testing of Unit 5 with the Dry Low NOx combustors has been completed and test reports demonstrating compliance with applicable limits were forwarded to the Department on February 25, 1994. The City recognizes that all current construction permit conditions will remain in effect if the expiration date extension is approved. The City expects to submit a letter requesting clarifying and simplifying amendments to the permit no later than April 15, 1994. Representatives of the City would be glad to arrange a meeting with members of your staff to discuss the proposed amendments if you believe it would be appropriate. Resolution of the construction permit issues will help to facilitate issuance of a mutually acceptable air operation permit for Unit 5.

Your consideration in this matter is very much appreciated. If there are any questions regarding the City's request, please do not hesitate to call me.

Sincerely,

Peter C. Cunningham

cc: Mr. Preston Lewis
Ms. Teresa Herron
Mr. Charles Collins

Is your RETURN ADDRESS completed on the reverse side?

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 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.

3. Article Addressed to:
Mr. Gary V. Perko
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

4a. Article Number
P 872 562 584

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
1-24-94

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 872 562 584

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

UNITED STATES POSTAL SERVICE

Sent to: Mr. Gary V. Perko	
Street and No.: P. O. Box 6526	
P.O., State and ZIP Code: Tallahassee, FL 32314	
Postage	$
Certified Fee	
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: Mailed: 1/20/94 AC 31-184928 and PSD-FL-152	

PS Form 3800, JUNE 1991

Florida Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

January 13, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Gary V. Perko
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

Dear Mr. Perko:

RE: Vero Beach Municipal Power Plant, Unit No. 5
AC31-184928 and PSD-FL-152

The Department is in receipt of your letter dated December 21, 1993, on behalf of the City of Vero Beach Municipal Power Plant requesting an extension of the expiration date of the above mentioned permit. This request is acceptable to the Department. The expiration date of this permit will be changed as follows:

FROM: December 31, 1993

TO: **March 31, 1994**

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 applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. 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;
(g) A statement of the relief sought by petitioner, stating precisely the action the 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/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 amendment 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.

A copy of this letter shall be attached to the above mentioned permit and shall become a part of this permit.

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/TH/bjb

Attachment to Be Incorporated:

Mr. Gary Perko's letter of December 21, 1993.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 1/20/94 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.

Barbara J. Bontwell 1/20/94
Clerk Date

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: Clair Fancy

DATE: January 13, 1994

SUBJECT: Request for Permit Amendment
Vero Beach Municipal Power Plant, Unit No. 5
AC31-184928 and PSD-FL-152

Attached for your approval and signature is an amendment to the City of Vero Beach's construction permit prepared by the Bureau of Air Regulation. The purpose of the amendment is to extend the expiration date of the above mentioned permit.

I recommend your approval and signature.

CF/TH/bjb

Attachment

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

CARLOS ALVAREZ
JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

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 P. PETROVICH
DOUGLAS S. ROBERTS
KRISTIN C. RUBIN
JULIE ROME STEINMEYER

OF COUNSEL
W. ROBERT FOKES

December 21, 1993

BY HAND DELIVERY

Mr. Clair E. Fancy, P.E.
Bureau of Air Regulation
Department of Environmental Protection
111 South Magnolia Street, Suite 29
Tallahassee, Florida 32399-2400

RE: Vero Beach Municipal Power Plant, Unit 5
Application to Extend Air Construction Permit No. AC 31-184928,
PSD-FL-152

Dear Mr. Fancy:

Please consider this letter an application, pursuant to Rule 17-4.080(3), F.A.C., to extend the expiration date of Air Construction Permit No. AC 31-184928 for Unit 5 at the Vero Beach Municipal Power Plant in Indian River County. The permit's current expiration date is December 31, 1993. As discussed more fully below, the City of Vero Beach requests extension of that date until March 31, 1994, to allow sufficient time to complete installation of low NOx combustors and to request permit modifications determined necessary and appropriate. Pursuant to Rule 17-4.050(4)(p)3., F.A.C., I have enclosed an application fee of $50.00.

As originally issued on June 28, 1991, Specific Condition #2 of the above-referenced permit required installation of low NOx combustors or SCR within one year after the date Unit 5 commenced commercial operation. In the spring of 1992, the City learned from its construction engineers, General Electric (GE), that estimated CO performance levels (20 ppm) for the low NOx combustors exceeded the CO emission limit (9 ppm) specified in the construction permit. As indicated in the attached memorandum, the City's consulting engineers, Black & Veatch, subsequently informed the Department of this new information by telephone on May 19, 1992. At that time, the Department advised that a permit modification was not necessary unless and until compliance testing of the low NOx burners indicated emissions in excess of permit limits. As part of the low NOx burner installation, GE recently performed preliminary stack tests indicating excess CO emissions well above the 20 ppm estimate. In order to evaluate the cause of these unusually high CO levels, GE must disassemble the low NOx burners and conduct additional testing. Accordingly, the City requests an extension of the construction permit until March 31, 1994, to allow GE to determine and correct the problem and

to allow the City to request modification of CO emission limits and other permit conditions as may be necessary and appropriate.

I have provided a copy of this letter to Mr. Preston Lewis because he has previously discussed this with representatives of the City. I will contact Mr. Lewis in the near future to schedule a meeting with appropriate Department officials to discuss available data and the need for substantive permit modifications. In the meantime, if you or anyone else at the Department have any questions or comments, please do not hesitate to call me.

Sincerely,

HOPPING BOYD GREEN & SAMS

By: _____
Gary V. Perko

cc: Mr. Preston Lewis
Mr. Charles Collins
J. Heron
Q. Harper, EPA

BLACK & VEATCH

TELEPHONE MEMORANDUM

City of Vero Beach
Unit 5
Permit Concerns - Low NOx Combustors

B&V Project 16834
B&V File 32.0200
May 19, 1992
9:30 a.m.

From: Preston Lewis
Company: FDER
Phone No.: (904) 488-1344

Recorded by: M. L. Pelan/L. W. Sherrill

Preston Lewis returned our call in response to our permitting questions regarding the installation of low NO_x combustors. Our main concern was the potential increase in CO emissions resulting from the lower combustion temperatures with low NO_x combustors. GE has stated that they will only guarantee CO emissions from the CT with low NO_x combustors down to 20 ppm (19 lb/h). The air permit sets CO emission limits for the CT of 9 ppm (10 lb/h).

Preston indicated that similar situations have resulted from retrofits on GE LM-6000 units. Preston's initial concern was that the increase in CO emissions would trigger PSD significance for CO. We told Preston that based on GE's estimates, at 20 ppm, the annual emissions would continue to be less than 100 tpy (approximately 83 tpy) and therefore, below the PSD significance criteria.

Preston advised us to provide the FDER with a formal notice of the City's decision to install low NO_x combustor technology. In addition to the notice, we should include all applicable GE combustion estimates and guarantees regarding pollutant levels. Preston feels a permit amendment is not needed at this time. He recommended that when we stack test for CO compliance, if 9 ppm cannot be met, that we request an amendment at that time. As long as the stack test results show emissions that are below PSD significance levels, the amendment will be simple. If PSD levels are exceeded, then a BACT evaluation of catalytic oxidation control technology will be required.

We asked Preston if multiple emission compliance tests would be necessary for standard and low NO_x combustor operations. Preston stated that he would not require testing for standard combustor compliance if the retrofit took place within the 1-year period designated in the permit. However, we should indicate in our formal notice that this is our understanding of the FDER's position so that others at FDER will comply with this position.

City of Vero Beach
Unit 5
Permit Concerns - Low NOx Combustors

B&V Project 16834
May 19, 1992

Because Wade must go before the Vero Beach City Council for approval of the purchase of the low NO_x combustor equipment, we will wait until receiving the Council's approval before drafting the formal notice to the FDER for Shuler Massey's signature.

cc: Shuler Massey
Earl Windisch
Ron Peine
Anne Harris
File Copy

I N T E R O F F I C E M E M O R A N D U M

Date: 06-Jan-1994 01:13pm EST
From: Preston Lewis TAL
LEWIS_P
Dept: Air Resources Management
Tel No: 904/488-1344
SUNCOM:

TO: Charles Collins ORL (COLLINS_C @ A1 @ ORL1)

CC: Patty Adams TAL (ADAMS_P)
CC: Teresa Heron TAL (HERON_T)

Subject: Vero Beach Permit

Chuck,

I have reviewed the City of Vero Beach permit file (AC 31-184928) and cannot find a reason why Specific Condition 12, shown in the Intent to Issue (dated 12/21/90), was deleted from the the Final Determination (dated 6/19/91). I assume that it was **inadvertently omitted** and should have been included. Since this condition specifies under what conditions VOC compliance testing should be done (VOC limits are specified in the tables), I am recommending that the applicant comply with it. The condition is worded as follows:

"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."

Obviously, if the applicant objects we will need to **formally amend** the construction permit to restore this condition which just delays compliance testing.

Preston

12/14 ~~Reston~~ OK, GPL 12/10
mike

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

November 22, 1993

Mr. Clair H. Fancy
Bureau of Air Quality Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Notification of the rescheduling of the Compliance Tests for Unit 5 Combustion Turbine following retrofit of Dry Low NOx Burners.

Dear Mr. Fancy:

In accordance with the requirements of Construction Permit No. AC31-184928 Specific Condition No. 15, the City notified you of the Compliance Tests which would be conducted on the Combustion Turbine following the Dry Low NOx Burner retrofit. The tests were originally scheduled to occur the week of December 6, 1993. However, problems which have developed during construction have pushed the completion date back several weeks.

This letter serves as notice of the cancellation of the December 6, 1993, test date. Environmental Science and Engineering (ESE) headquartered in Gainesville, Florida, will conduct the compliance tests. The tests have been rescheduled for the week of January 10, 1994. Once a schedule has been developed for the week's testing, a copy will be forwarded to you.

If you have any questions concerning this change in schedule, please contact Mike Siefert at (407) 562-7231.

Sincerely yours,

for Shuler W. Massey
Director of Power Resources

SWM/ms
cc: Anne Harris B&V
Wade Sherrill B&V
Peter Cunningham HBG&S
Gary Perko HBG&S
Mike Siefert CVB
Tom Nason CVB
Charles Collins FDEP
Garry Kuberski FDEP

Federal Express #7877108245

\ws\air\dep\unit5\cf112293

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

October 29, 1993

Mr. Clair H. Fancy
Bureau of Air Quality Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Notification of Compliance Tests for Unit 5 Combustion Turbine following retrofit of Dry Low NOx Burners.

Dear Mr. Fancy:

In accordance with the requirements of Construction Permit No. AC31-184928 Specific Condition No. 15, this letter hereby notifies you of the Compliance Tests which will be conducted on the Combustion Turbine following the Dry Low NOx Burner retrofit. Environmental Science and Engineering (ESE) headquartered in Gainesville, Florida, will conduct the compliance tests. The tests will be conducted the week of December 6, 1993. Once a schedule has been developed for the week, a copy will be forwarded to you.

If you have any questions concerning this package, please contact Mike Siefert at (407) 562-7231.

Sincerely yours,

for Shuler W. Massey
Director of Power Resources

SWM/ms
cc: Anne Harris B&V
Wade Sherrill B&V
Peter Cunningham HBG&S
Gary Perko HBG&S
Mike Siefert CVB
Tom Nason CVB

Federal Express #7877108304

\ws\air\dep\unit5\cf102993

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TRACKING NUMBER 7877108304

7877108304

RECIPIENT'S COPY

1 Date 10/20/93

From (Your Name) Please Print: Ike Stefert
Your Phone Number (Very Important):
Company:
Department/Floor No.:
Street Address:
City: State: ZIP Required:

2 To (Recipient's Name) Please Print:
Recipient's Phone Number (Very Important):
Company: Bureau of Air Quality Management
Department/Floor No.: FL Dept. of Environmental Protection
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): Twin Towers Office Building
2600 Blair Stone Road
City: Tallahassee State: FL ZIP Required: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 [ ] OTHER PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon No Saturday delivery†)
51 [ ] OTHER PACKAGING
56 [X] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY*
* Economy Letter Rate not available. Minimum charge: One pound Economy rate.

Government Overnight (Restricted for authorized users only)
46 [ ] GOVT LETTER
41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**
† Delivery commitment may be later in some areas
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
1 [ ] HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
2 [X] DELIVER WEEKDAY

Saturday Service
31 [ ] HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
9 [ ] SATURDAY PICK-UP (Extra charge)

Special Handling
4 [ ] DANGEROUS GOODS (Extra charge)
6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice 9, UN 1845, ____ X ____ kg, 904 III
[ ] DRY APPLICATION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] lbs.
L X W X H

Received At:
[ ] Regular Stop [ ] Drop Box
[ ] On Call Stop [ ] Station

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

7 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 12/92
FORMAT #158
158

Florida Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

October 6, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. T. R. Nason
City Manager/Utilities Director
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

Dear Mr. Nason:

RE: Vero Beach Municipal Power Plant
Permit Number AC 31-184928, PSD-FL-152
Unit 5 - 60 MW Combined Cycle Gas Turbine

The Department is in receipt of your letter dated August 31, 1993, on behalf of the above mentioned facility, requesting a permit amendment to clarify: 1) Applicable emission limits during co-firing of natural gas and No. 2 fuel oil and 2) Monitoring & reporting requirements after Low NOx burner installation. The Department has considered your request and has agreed to amend the permit as proposed in your letter. This permit will be amended to include the following:

EMISSION LIMIT FOR CO-FIRING OF NATURAL GAS AND OIL:

The footnote below will be added to each of the four ALLOWABLE EMISSION TABLES listed in Specific Conditions Nos. 1 and 2 of this permit:

The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Standard for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

The restrictions for the emissions limits (ppmvd, lb/hr, tons/yr) and the limitations on oil firing (% capacity factor, gal/hr, gal /yr) set forth in Specific Condition No. 7 will remain as originally specified in this permit.

MONITORING & REPORTING REQUIREMENTS AFTER LOW NO_X BURNER INSTALLATION:

The Department is not in agreement with your rationale regarding the 40 CFR 60, Subpart D, excess emission definition when the new NOx continuous emission monitor (CEMS) is installed. We have determined that excess emissions should be defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60 minutes period exceed the applicable emission limit. Therefore, Specific Condition No 16 e. will be amended as follows:

FROM:

For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Specific Condition No. 22 herein, which exceeds the applicable emission limits in Specific Condition No. 1.

TO:

For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60 minutes period exceed the applicable emission limit in Specific Condition No 1. Quarterly excess emission reports, in accordance with the July 1, 1992, edition of 40 CFR 60.7 and 40 CFR 60.13 shall be submitted to DEP's Central District office. The continuous emission monitor system (CEMS) shall comply with 40 CFR Appendix F - Quality Assurance Procedure and 40 CFR Appendix B - Performance Specification 2. Method 7E or equivalent shall be used as the Reference Method for the Determination of Nitrogen Oxide Emissions.

In addition, we recommend that the NO_X CEMs be used to demonstrate compliance with the emission limitation on a continuous basis and that the quarterly report include the NO_X mass emissions for the reported period.

It is our understanding, that the City will continue to monitor fuel and water-to-fuel ratios, as specified in 40 CFR 60, Subpart GG, when water injection is used for NOx control during 100% oil firing.

As you are aware, the certification of the CEMS will be handled at the Central District Office. Please contact Charles Collins at (407)894-7555 on this issue.

If you have any questions, please contact Teresa Heron at (904) 488-1344 or write to me.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/TH/bjb

cc: Charles Collins
J. Harper

Remaining Attachments
Available Upon Request

City of Vero Beach
1053 20th PLACE - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 567-5151

OFFICE OF THE
CITY MANAGER

0000436

August 31, 1993

Mr. Clair Fancy, P.E.
Bureau of Air Quality Management
Florida Department of Environmental Protection
Magnolia Courtyard, Suite 4
Tallahassee, Florida 32301

Mr. Charles M. Collins, P.E.
Central District
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

RE: Vero Beach Municipal Power Plant
Unit 5 - 60 MW Combined Cycle Combustion Turbine
FDEP Permit No. AC31-184928
Request for Clarification & Proposed Permit Modification

Dear Sirs:

On July 23, 1993, the City of Vero Beach (City) submitted, for the Department's approval, a certification of the Continuous Emissions Monitoring Systems (CEMS) for nitrogen oxide (NOx) emissions from Unit 5 at the City's Municipal Power Plant. Based on prior communications with the Central District, it is our understanding that approval of the CEMS certification is the only remaining item to be resolved prior to issuance of an operating permit for Unit 5. In the interim, however, we are writing to confirm our understanding of certain monitoring and reporting requirements in the above referenced construction permit and to request a permit modification to clarify applicable emission limits during co-firing of natural gas and No. 2 fuel oil.

October 4, 1993, is the scheduled date to begin the Low NOx Burner retrofit for the combustion turbine. General Electric will be the contractor on site to perform the retrofit.

Clarification of Monitoring & Reporting Requirements after Low NOx Burner Installation:

The City's main area of concern centers on the monitoring of fuel consumption and water-to-fuel ratios after installation of low NOx burners pursuant to the Department's Best Available Control Technology (BACT) determination for Unit 5. Specific Condition 19 of the construction permit specifically requires compliance with the Standards of Performance (NSPS) for Stationary Gas Turbines set forth in 40 CFR 60, Subpart GG and incorpo-

rated by reference in Rule 17-2.660 (now 17-296.800), F.A.C. In relevant part, Subpart GG requires installation and operation of a continuous monitoring system to monitor and record fuel consumption and water-to-fuel ratios of "any stationary gas turbine subject to the provisions of this subpart and using water injection to control NOx emissions." 40 CFR 60.334(a) (1992). Pursuant to 40 CFR 60.335, this "monitoring device" is to be used to determine the fuel consumption and water-to-fuel ratio necessary to comply with the NOx emission standard set forth in 40 CFR 60.332. For reporting purposes, 40 CFR 60.334(c)(1) defines "excess emissions" to include any one-hour period in which the average water-to-fuel ratio falls below the ratio necessary to demonstrate compliance with 60.332.

By cover letter dated March 19, 1993, the City submitted performance testing and monitoring results which demonstrated compliance with the required fuel consumption and water-to-fuel ratios for the current water injection system. With installation of low NOx burners on Unit 5, however, water injection will no longer be used for NOx control during natural gas firing. Because there will be no water-to-fuel ratio to monitor under such circumstances, under the clear language of 40 CFR 60.334(a) (quoted above), the requirement to monitor fuel consumption and water-to-fuel ratios will no longer apply. Instead, the City will use the new NOx CEMS to monitor compliance with applicable emission standards. In that regard, Specific Condition 16(b) of the construction permit states that CEMS data "shall be recorded and reported in accordance with ... 40 CFR 60." Because Subpart GG does not require the use of CEMs and, therefore, does not define "excess emissions" when CEMs are utilized to monitor compliance, the City will follow the relevant monitoring and reporting requirements of Subpart D. For example, whereas Subpart GG defines "excess emissions" in terms of water-to-fuel ratios, Subpart D more appropriately defines the term "as any three hour period during which the average emissions (arithmetic average of three contiguous one hour periods) exceed the applicable standards[.]" See, 40 CFR 60.45. The City will continue to monitor fuel and water-to-fuel ratios when water injection is utilized for NOx control during 100% oil firing.

Proposed Emission Limits for Co-Firing of Natural Gas and Oil:

Another ambiguity in the construction permit involves applicable emission limits when Unit 5 co-fires natural gas and No. 2 fuel oil. The permit includes four separate tables which specify emission standards for combustion of natural gas and No. 2 fuel oil under different scenarios. However, the permit does not specify emissions standards for the co-firing of natural gas and

No.2 fuel oil. To date, the City has not co-fired oil and gas in Unit 5. Nevertheless, we would like to clarify the applicable emission limits in case the need to co-fire arises in the future. Accordingly, the City proposes to add the following footnote to each of the four respective emission tables:

(x) The following equation shall be used to determine the emission standard applicable during co-firing of natural gas and No. 2 fuel oil:

$$\frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Standard for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

In essence, the proposed calculation would weight the already applicable emission standards for natural gas and No. 2 fuel oil on the basis of the specific heat input attributable to each fuel. The equation would affect neither the "Tons per year" standards in the various tables nor the limitations on oil-firing set forth in Specific Condition No. 7.

Conclusion

Pursuant to Rule 17-4.050(4)(p), I have enclosed a check for $250.00 to initiate the Department's review of the proposed permit modification relating to emission limits during co-firing of natural gas and No. 2 fuel oil. In addition, the City requests that the Department advise us of any disagreement with the City's understanding of the monitoring and reporting requirements applicable after low NOx burner installation (as outlined).

The City will be happy to discuss these matters further either by telephone or in person. In that regard, if you have any questions or comments, please contact either Shuler W. Massey or Mike Siefert at (407) 562-7231.

Sincerely yours,

T. R. Nason
City Manager/Utilities Director

TRN/ms

Enclosure.

cc: Alan Zahm, FDEP
John Turner, FDEP
Anne Harris, B&V
L. Wade Sherrill, B&V
Peter Cunningham, HBGS
Gary Perko, HBGS
Shuler W. Massey, CVB
Mike Siefert, CVB

Federal Express #7877107674

T. Nason
C. Holladay
G. Harper, EPA

\ws\air\dep\unit5\cf083193

Patty
For File

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 567-5151
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

March 22, 1993

Mr. Charles E. Collins, P.E.
Administrator, District Air Program
Florida Department of Environmental Regulation
Central District
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803

Subject: Unit 5 Certificate of Completion of Construction

Dear Mr. Collins,

Enclosed for your records are four copies of the Certificate of Completion of Construction for the Vero Beach Unit 5 Combustion Turbine. As noted on the application, there are no deviations from the conditions in the construction permit.

On March 19, 1993, a Performance Test Results package for Unit 5 was sent to Mr. Garry Kuberski in the Central District and Mr. Jim Pennington in the Tallahassee Office.

If you have any questions, please contact either myself at (407) 562-7231 or L. Wade Sherrill at (913) 339-7244.

Sincerely yours,

for Richard M. Siefert
Shuler W. Massey
Director of Power Resources

SWM/ms

cc:

	Clair Fancy	FDER ✓
	Anne Harris	B&V
	L. Wade Sherrill	B&V
	Peter Cunningham	HBG&S
	Tom Nason	CVB
	Mike Siefert	CVB

Federal Express #6313236042

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC 31-184928 DATE: March 8, 1993

Company Name: City of Vero Beach County: Indian River

Source Identification(s): Municipal Power Plant, Combustion Turbine - Unit 5

Actual costs of serving pollution control purpose: $ N/A

Operating Rates: 34,840 kW at 90°F Design Capacity: 38,000 kW at 90°F

Expected Normal 34,840 kW at 90°F During Compliance Test See Table 3-2 through 3-9

Date of Compliance Test: January 18 to January 21, 1993 (Attach detailed test report)

Test Results:	Pollutant	Actual Discharge	Allowed Discharge
	NOx	See Table 3-2--3-9	See Table 1-1
	CO	See Tables 3-5 & 3-9	See Table 1-1
	Particulate	See Table 3-10	See Table 3-10

Date plant placed in operation: December 1, 1992

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 31-184928 dated July 1, 1991

A. Applicant:

Shuler Massey, Director of Power Resources — Shuler Massey
Name of Person Signing (Type) — Signature of Owner or Authorized Representative and Title

Date: March 8, 1993 Telephone: 407-562-7231

B. Professional Engineer:

Lloyd Wade Sherrill — Lloyd Wade Sherrill
Name of Person Signing (Type) — Signature of Professional Engineer

Black & Veatch — Florida Registration No. 29138
Company Name

Date: March 5, 1993

(Seal)

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

913-339-7244
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.

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

December 22, 1992

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

Subject: Notification of initial startup of the new Unit 5 Combustion Turbine

Dear Mr. Fancy:

In accordance with the requirements of 40 CFR 60.7 (a) (3), this letter serves as formal notification that the initial startup of the City of Vero Beach Municipal Power Plant's Unit 5 occurred on October 8, 1992.

Mr. Garry Kuberski, Florida Department of Environmental Regulation, Orlando, Florida and the Director of the Environmental Protection Agency (EPA), Atlanta, Georgia have also been notified.

Very truly yours,

Shuler W. Massey

Shuler W. Massey
Director of Power Resources

SWM/js

cc: T. R. Nason
L. W. Sherrill
Anne Harris
Mike Siefert

mail certified P 301 839 286

ws/judy/fder/fancy

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

November 4, 1992

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

Subject: Rescheduled Date for Certification of the new Continuous Emissions Monitoring System (CEMS) and the new Continuous Opacity Monitoring System (COMS) for Unit 4.

Attention: Mr. Clair H. Fancy

Gentlemen,

In accordance with the requirements of 40 CFR 60.7 paragraphs (5) and (6), this letter is to notify you of the impending certification of the City of Vero Beach's new CEMS and COMS that are currently being installed on Unit 4 Stack. These new systems are replacements for the existing CEMS and COMS. The Certification Test is scheduled to begin the week of December 7, 1992.

Mr. Garry Kuberski, Florida Department of Environmental Regulation (FDER) Central District and the Director of the EPA office in Atlanta, have been notified of this impending Certification Test.

If you have any questions, please contact Mike Siefert at (407) 562-7231.

Very truly yours,

Richard M. Lupfer

for Shuler W. Massey
Director of Power Resources

SWM/js

cc: T. R. Nason
L. W. Sherrill
Anne Harris
Mike Siefert

Federal Express # 6093285903

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

October 23, 1992

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

Subject: Notification of Certification of the new Continuous Emissions Monitoring System (CEMS) and the new Continuous Opacity Monitoring System (COMS) for Unit 4.

Attention: Mr. Clair H. Fancy

Gentlemen,

In accordance with the requirements of 40 CFR 60.7 paragraphs (5) and (6), this letter is to notify you of the impending certification of the City of Vero Beach's new CEMS and COMS that are currently being installed on Unit 4 Stack. These new systems are replacements for the existing CEMS and COMS. The Certification Test is scheduled to begin the week of November 30, 1992.

Mr. Garry Kuberski, Florida Department of Environmental Regulation (FDER) Central District and the Director of the EPA office in Atlanta, have been notified of this impending Certification Test.

If you have any questions, please contact Mike Siefert at (407) 562-7231.

Very truly yours,

Richard M. Siefert
for Shuler W. Massey
Director of Power Resources

SWM/js

BEST AVAILABLE COPY

FEDERAL EXPRESS

[redacted]

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER 4509722291

4509722291

RECIPIENT'S COPY

[redacted]

Date: 10-30-9[illegible]

1 From (Your Name) Please Print: [illegible]
Your Phone Number (Very Important): (407) 562-7731
Company: [illegible] of Vero Beach Power Plant
Department/Floor No.:
Street Address: [illegible] 17th Street
City: Vero Beach State: FL ZIP Required: 32960

2 To (Recipient's Name) Please Print: Bureau of Air Quality Mgmt.
Recipient's Phone Number (Very Important): ( )
Company: Florida Dept. of Environmental Regul.
Department/Floor No.: Twin Towers Office Building
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.D. Zip Codes.): 2600 Blair Stone Road
City: Tallahassee State: FL ZIP Required: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check [redacted]

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon† No Saturday delivery†)
11 ☐ YOUR PACKAGING	51 ☐ YOUR PACKAGING
16 ☐ FEDEX LETTER*	56 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*	52 ☐ FEDEX PAK*
13 ☐ FEDEX BOX	53 ☐ FEDEX BOX
14 ☐ FEDEX TUBE	54 ☐ FEDEX TUBE
Economy Two-Day (Delivery by second business day†)	**Government Overnight** (Restricted for authorized users only)
30 ☐ ECONOMY	46 ☐ GOV'T LETTER
	41 ☐ GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** 80 ☐ TWO-DAY FREIGHT**
(Confirmed reservation required)
† Delivery commitment may be later in some areas *Declared Value Limit $500 **Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☐ DELIVER WEEKDAY
3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Lbs.
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐
11 ☐
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE
Total Total Total
DIM SHIPMENT (Chargeable Weight) lbs.
Received At: 1 ☐ Regular Stop 3 ☐ Drop Box 2 ☐ On-Call Stop

Emp. No. | Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By:
X
Date/Time Received FedEx Employee Number

7 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137205 GBFE
FORMAT #126
126
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cc: T. R. Nason
L. W. Sherrill
Anne Harris
Mike Siefert

Federal Express # 4509722291

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

AUG 12 1991

RECEIVED

AUG 14 1991

Division of Air
Resources Management

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: Vero Beach Municipal Power Plant (PSD-FL-152)

Dear Mr. Fancy:

This is to acknowledge receipt of the final determination and permit for the above referenced facility dated July 1, 1991. As discussed between Mr. Barry Andrews of your staff and Mr. Gregg Worley of my staff on August 2, 1991, we have reviewed the package and have the following comment.

A preliminary determination was made by FDER on December 21, 1990, that the application of selective catalytic reduction was appropriate as best available control technology for the 60 MW combined cycle turbine of this project. EPA concurred with this determination by letter dated January 28, 1991. Since that time, the applicant has proposed the use of low-NO_x burners under the "innovative control technology" provisions of the PSD regulations. Under the scenario proposed by the applicant and accepted by FDER, the GE Frame 6 turbine would be retrofitted with a low-NO_x burner no later than one year after operation commenced. In the event that the low-NO_x technology is not available, the applicant must retrofit SCR. The permit apparently allows the system to operate continuously at full capacity during the first year of operation. This is not consistent with other recently issued PSD permits for combustion turbines.

We have no adverse comments concerning the use of the "innovative control technology" provisions of the PSD regulations as they apply to this specific project; however, in order to maintain consistency we must strongly recommend that the permit be conditioned such that operation during the first year be limited to 25% (i.e., limit on the hours of operation).

Thank you for the opportunity to review and comment on this package and for addressing our earlier concerns. If you have any questions or comments, 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: S. Heron
B. Andrews
C. Holladay
C. Collins, C Dist.
S. Massey, Va Beach
CTF

File

BEST AVAILABLE COPY

8/10
Kim — copy district, since it is to Preston
Copy and to Central

City of Vero Beach
[illegible] 17th STREET · P. O. BOX 1389
VERO BEACH, FLORIDA 32961-1389
Telephone (407) 562-7231
Fax (407) 569-5981

MUNICIPAL POWER PLANT

August 7, 1992

Mr. Barry Kuberski
Air Compliance Engineer
Florida Department of Environmental Regulation
St. Johns River District
Suite 232
3319 Maguire Boulevard
Orlando, Florida 32803-3767

Subject: Notification of Startup

Dear Mr. Kuberski:

In accordance with the requirements of 40 CFR 60.7, this letter is to notify you of the impending startup of the City of Vero Beach's new Unit 5 combustion turbine. The first firing of the combustion turbine, in simple cycle, is anticipated on September 7, 1992.

Mr. Clair H. Fancy, in the Tallahassee bureau, was also notified of this impending startup.

Very truly yours,

CITY OF VERO BEACH

Shuler W. Massey
Director of Power Resources

SWM/js

cc: R. Nason
W. Sherrill
Anne Harris
Mike Siefert

mail certified No. P 301 893 225

AIR039 300RL31002905 AIR PROGRAM INFORMATION SYSTEM 02/03/92
SOURCE COMMENTS 15:55:39

FACIL: OWN: VERO BEACH POWER N/L: 100 17TH ST SOURCE UPDATED: 02/03/92
SRC: 005 MAJOR FAC: Y CITY: VERO BEACH FAC STATUS: A = ACTIVE
SOURC DESC: 60 MW COMBINED CYCLE GAS TURBINE(UNIT #5).
PERMIT/PPS: AC31-184927 MAJOR SRC: Y SRC STATUS: C = CONSTRCT
NSPS: GG NESHAP: ... 111D: ... PSD: 152 NAA/NSR: ... RACT: ...

	COMMENTS:	DATE	ACTION
0001	OPERATING PERMIT CONDITIONS SHALL REFLECT NORMAL OPERA-	02 / 03 / 92	_
0002	TING LIMITS FOR THIS 50MW COMBUSTION TURBINE SYSTEM	02 / 03 / 92	_
0003	AFTER APPROPIATE CONTROL EQUIPMENT SELECTION AS RE-	02 / 03 / 92	_
0004	QUIRED IN THE BACT DETERMINATION.	02 / 03 / 92	_
0005	SCREEN 40 SHALL BE UPDATED TO REFLECT BACT DETERMINA-	02 / 03 / 92	_
0006	TION LIMITS.	02 / 03 / 92	_
0000		__ / __ / __	_
0000		__ / __ / __	_
0000		__ / __ / __	_
0000		__ / __ / __	_
0000		__ / __ / __	_
0000		__ / __ / __	_

MORE COMMENT RECORDS ON FILE? NO ACTION TAKEN: _ TRANSMIT HERE: _

City of Vero Beach
100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

September 24, 1991

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

Subject: Notification of Commencement of Construction

Attention: Mr. Clair H. Fancy
Chief

Gentlemen:

As required under the Standards of Performance for New Stationary Sources, 40 CFR 60.7 (a) (1), this letter serves as notification to you and the U. S. Environmental Protection Agency that construction has commenced on Unit 5 of the City of Vero Beach's Municipal Power Plant.

The building permit for Unit 5 was issued on September 11, 1991. The General Contractor, The Hardaway Company, has mobilized and excavation for the foundation has begun. The piling construction has been completed, and the actual construction of Unit 5 is now underway.

Under the definitions of "commenced" and "construction," as provided in 40 CFR 60.2, the City of Vero Beach believes that these activities qualify as commencement of construction.

The City will be happy to provide any additional information that you may require regarding this matter.

Very truly yours,

Shuler W. Massey
Director of Power Resources

SWM/dg

cc: Mr. J. A. Harper (EPA)
Mr. P. C. Cunningham (HBG&S)
Mr. M. E. Fagan (B&V)
Ms. A. F. Harris (B&V)
Mr. M. L. Pelan (B&V)
Mr. G. V. Perko (HBG&S)
Mr. L. W. Sherrill(B&V)

Certified Mail P 905 682 617

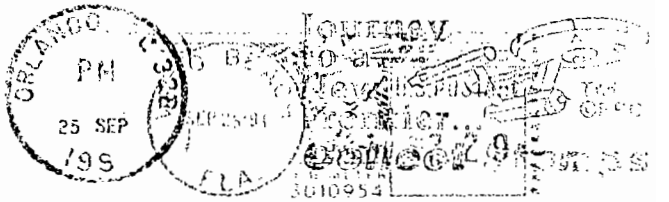
City of Vero Beach
MUNICIPAL POWER PLANT
100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389

Fold at line over top of envelope to the right of the return address

CERTIFIED

P 905 682 617

MAIL



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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961-1389

DER File No. AC 31-184928
PSD-FL-152
Indian River County

Enclosed is Permit Number AC 31-184928, PSD-FL-152 to construct a 60 MW combined gas turbine system to be located in Vero Beach, Indian River, 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 7-1-91 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) 7-1-91 (Date)

Copies furnished to:
Charles Collins, CD
Lloyd Wade Sherrill, P.E.
Jewell Harper, EPA

a copy was picked-up by HBG&S for Mr. Perko 7-1-91 RGR

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Vero Beach Municipal Power Plant
P.O. BOX 1389
Vero Beach, Fl
32961-1389

4. Article Number
P 832 539 797

Type of Service:
- ☑ Registered
- ☑ Certified
- ☑ Express Mail
- ☐ Insured
- ☐ COD
- ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
7/3/91

8. Addressee's Address *(ONLY if requested and fee paid)*

FT. PIERCE FL JUL 3 1991 USPS

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

P 832 539 797

Certified Mail Receipt

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

UNITED STATES POSTAL SERVICE

Sent to Vero Bch MPP	
Street & No. PO BOX 1389	
P.O., State & ZIP Code Vero Bch Fl	
Postage	$
Certified Fee	
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 7-1-91 AC 31-184928 PSD-FL-152	

PS Form **3800**, June 1990

Final Determination

Vero Beach Municipal Power Plant
Indian River, Florida

60 MW Combined Cycle Gas Turbine System

Permit Number: AC 31-184928
PSD-FL-152

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

June 19, 1991

FINAL DETERMINATION

The City of Vero Beach ("City") submitted an application for an air pollution source construction permit authorizing construction of a 60 megawatt combined cycle combustion turbine unit at the Vero Beach Municipal Power Plant. The Florida Department of Environmental Regulation ("Department") reviewed the application and issued a Preliminary Determination and Technical Evaluation, along with its Notice of Intent to Issue a permit for the combustion turbine unit on December 21, 1990. The U.S. Environmental Protection Agency ("EPA") submitted a letter commenting on the Preliminary Determination on January 28, 1991. On February 14, 1991, the City filed a Petition for Administrative Proceedings challenging certain nitrogen oxide ("NOx") emission limitations proposed as best available control technology ("BACT") in the Department's proposed permit. On March 27, 1991, the City submitted additional information, including revised incremental cost figures for controlling NOx emissions with selective catalytic reduction ("SCR"). On May 9, 1991, the City submitted additional information and proposed alternative NOx emission limitations as BACT for NOx.

Revised BACT Analysis

Department staff preliminarily determined that NOx emission limitations requiring use of SCR would be BACT for the City's combustion turbine project. In its Petition for Administrative Proceedings, the City challenged the appropriateness of SCR at the Vero Beach plant. Among other things, the City claims the significant capital and operating costs, loss of energy output, and need to handle and store ammonia near an adjacent residential area make SCR particularly inappropriate and unreasonable for the combustion turbine project.

Since filing the petition, the City has learned that low NOx combustors capable of achieving a NOx emissions rate of 25 ppmvd (at 15% O_2 on a dry basis) during natural gas firing are being developed for the combustion turbine selected for the City's project. If installed on the proposed combustion turbine, low NOx combustors would alleviate the need to handle and store the ammonia required for operation of an SCR system. In addition, unlike SCR, the low NOx combustors currently under development would reduce NOx emissions from the new combustion turbine during both combined and simple cycle modes of operation. Although these combustors are not available prior to shipment of the combustion turbine selected for the City's project, a retrofit low NOx combustion system should be available in the near future. Consequently, the City has proposed to install low NOx combustors or SCR within one year of the date the new combustion

turbine commences commercial operation. In addition, the City has proposed to accept a capacity factor limit on oil-firing of the new unit, unless SCR is installed. The City has also agreed to accept a 25 percent capacity factor limit on simple cycle operation, if SCR is installed.

Information submitted by the City and Department calculations indicate that, when compared with low NOx combustors, the incremental cost of controlling NOx emissions with SCR for natural gas firing ($5,907/ton) is high compared to other BACT determinations which require SCR. Although the incremental cost of SCR for 100% oil firing ($4,630) could be considered reasonable, SCR is not cost effective when the agreed upon capacity factor limit on oil firing is considered. Based on the information presented by the City and the studies conducted, the Department believes that emission limitations requiring use of low NOx combustors would have been established as BACT if low NOx combustors had been available at the time of the City's original application. Consequently, the Department has determined that a permit requiring SCR for NOx control is not justifiable. Instead, the Department has revised the PSD permit to require the City to install low NOx combustors or SCR within one year of the date the combined cyle unit commences commercial operation. Until that time, NOx emissions shall be controlled by the use of wet injection to achieve 42 ppmvd and 65 ppmvd (at 15% O_2 on a dry basis) when firing natural gas and fuel oil, respectively.

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:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

Permit Number: AC 31-184928
Expiration Date: December 31, 1993
County: Indian River
Latitude/Longitude: 27°37'59"N
80°22'41"W

Project: 60 MW Combined Cycle
Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapter 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(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 construction of a 60 MW combined cycle gas turbine to be located at the Vero Beach Municipal Power Plant in Vero Beach, Florida. The UTM coordinates are 561.385 km East and 3056.538 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. Vero Beach Municipal Power Plant's application dated August 13, 1990.
2. Department's letter dated September 11, 1990.
3. Vero Beach Municipal Power Plant's letter received on October 1, 1990.
4. Letter from EPA dated November 30, 1990.
5. Letter from EPA dated January 28, 1991.
6. Letter from Hopping Boyd Green & Sams received on March 27, 1991.
7. Letter from Hopping Boyd Green & Sams received May 9, 1991.

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 acknowledgment 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 plan 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 provisions 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.

GENERAL CONDITIONS:

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.

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.

GENERAL CONDITIONS:

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 Rule 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.

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 rules.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;

GENERAL CONDITIONS:

- 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. During the first year of commercial operation of Unit 5, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1. In addition, when constructing the combined cycle generating unit, the permittee shall install duct modules suitable for later installation of a selective catalytic reduction (SCR) system.

2. Within one year of the date Unit 5 commences commercial operation, the permittee shall install low NOx combustors or an SCR system to control NOx emissions from the unit. If low NOx combustors are installed, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 2. However, should compliance testing performed in accordance with Specific Condition No. 10 establish, to the satisfaction of the Department, a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the emission limitations listed in Table 3 shall apply. In the event an SCR system is installed, the emission limitations listed in Table 4 shall apply. If an SCR system is installed, it may be bypassed during simple cycle operation.

3. 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:

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

4. Visible emissions shall not exceed 10% opacity.

Operating Rates

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

6. This source is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr., unless SCR is installed. If low NOx burners are installed and compliance testing in accordance with Specific Condition No. 16 establishes a NO_x emission rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the limit on No. 2 fuel oil consumption shall be raised to 10,000,000 gals./yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor, unless SCR is installed. If low NO_x combustors are installed and compliance testing in accordance with Specific Condition No. 10 establishes a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the annual limit on firing of No. 2 fuel oil shall be raised to 33% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor unless low NOx combustors are installed.
- Maximum sulfur (S) content in the oil shall not exceed 0.25 percent by weight.

SPECIFIC CONDITIONS:

- Maximum heat input shall not exceed 446 MMBtu/hr (gas) or 443 MMBtu/hr (oil), based on sea level pressure at 59° F ambient dry bulb temperatures & 60% relative humidity (ISO conditions).

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

9. 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.

Compliance Determination

10. 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.

SPECIFIC CONDITIONS:

11. 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.

12. Compliance with the SO_2 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.

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:

$$NO_x = (NO_{x\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

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 Central District 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 Central District office no later than 45 days after completion.

SPECIFIC CONDITIONS:

15. After the installation of low NO_x combustors or SCR, the permittee shall determine compliance with the NO_x standards in accordance with Specific Conditions Nos. 10 and 13.

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

Rule Requirements

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

SPECIFIC CONDITIONS:

19. 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.

20. 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)).

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

22. 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 rate and emissions from the 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 Central District office.

23. 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 befor the expiration of the permit (F.A.C. Rule 17-4.090).

24. An application for an operation permit must be submitted to the Central 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 28th day of June, 1991.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Carol M. Browner

CAROL M. BROWNER, Secretary

Revised Best Available Control Technology (BACT) Determination
City of Vero Beach
Indian River County

The applicant proposes to install a combustion turbine generator system at their facility in Vero Beach. The generator system will consist of a single 40 megawatt (MW) combustion turbine and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 20 MW steam turbine.

The combustion turbine will be capable of both combined cycle and simple cycle operation. It is anticipated that the combustion turbine will use natural gas as the primary fuel and distillate oil as the backup fuel. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity for natural gas firing and 25% for oil-firing at ISO conditions to be as follows:

Pollutant	Potential Emissions (tons/yr)		PSD Significant Emission Rate (tons/yr)
	Natural Gas	Fuel Oil	
NO_x	328.5	132.5	40
SO_2	1.3	130.8	40
PM	11.0	11.0	25
PM_{10}	11.0	11.0	15
CO	43.8	11.0	100
VOC	21.9	5.5	40
H_2SO_4	0.019	3.9	7
Be	0.0	0.0012	0.0004
Hg	0.0	0.0015	0.1
Pb	0.0	0.0125	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

May 9, 1991

BACT Determination Requested by the Applicant

Pollutant	Determination
NO_x	25 ppmvd @ 15% O_2 (natural gas burning)* 65 ppmvd @ 15% O_2 (No. 2 fuel oil firing)
SO_2	Firing of natural gas or No. 2 fuel oil with a maximum sulfur content of 0.25%
PM and PM_{10}	Combustion control
H_2SO_4	Firing of No. 2 fuel oil with a maximum sulfur content of 0.25%
Be	Firing of No. 2 fuel oil

* The applicant proposes to install low NOx combustors or SCR within one year after the date the combustion turbine commences commercial operation. The above NO_x emission limitations would apply only if low NOx combustors are installed. If SCR is installed, the NOx emission limitations would be 9 ppmvd or 25 ppmvd (@ 15% O_2) for natural gas or No. 2 fuel oil firing, respectively. Until installation of low NOx combustors or SCR, the applicant proposes to limit NO_x emissions to 42 ppmvd and 65 ppmvd @ 15% oxygen when from natural gas and oil, respectively.

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 of 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 of 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:

- Combustion Products (Particulates and Heavy Metals). Controlled generally by good combustion of clean fuels.
- Products of Incomplete Combustion (CO, VOC, Toxic Organic Compounds). Control is largely achieved by proper combustion techniques.
- Acid Gases (SO_x, NO_x HCl, Fl). 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 Vero Beach's projected emissions of particulate matter, PM_{10}, 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 review of the BACT/LAER Clearinghouse indicates that the applicants proposed emission rate (equivalent to 0.025 lb/MMBtu) is representative of BACT for turbines of similar size.

As this is the case, a PM/PM_{10} emissions limitation of 0.025 lb/MMBtu for No. 2 fuel oil firing is reasonable as BACT for the Vero Beach 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 0.025 lb/MMBtu for particulate matter PM_{10} 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 0.25% 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 0.25% is judged to represent BACT.

The applicant has stated that BACT for nitrogen oxides (NO_x) will be complied with by installing low NO_x combustors capable of limiting NOx emissions to 25 ppmvd or 65 ppmvd at 15% oxygen when burning natural gas or No. 2 fuel oil, respectively, or by installing selective catalytic reduction ("SCR") capable of limiting NOx emissions to 9 ppmvd or 25 ppmvd at 15% oxygen when burning natural gas and No. 2 fuel oil, respectively, within one year after the date the new unit commences commercial operation. Until the installation of low NOx combustors or SCR, wet injection will limit NO_x emissions from Unit 5 to 42 ppmvd or 65 ppmvd at 15% oxygen when burning natural gas or No. 2 fuel oil, 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 SCR system.

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% 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 95 percent capacity factor is $1,080,000. 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 NO_x emissions with low NO_x combustors from the Vero Beach facility will be 186 tons/year, at a total levelized annual cost of $377,000. Assuming that SCR would reduce the NO_x emissions by an additional 80%, the SCR would control 119 tons of NO_x annually for natural gas firing. When this reduction is taken into consideration with the incremental annual cost of $703,000 (cost of SCR less cost of low NOx combustors) the cost per ton of controlling NO_x is $5,907. This cost ($5,907/ton) exceeds costs that have been previously justified 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 is made:

> "In order to reject a control program 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 NO_x 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 NO_x injection ratio. For natural gas firing operation NO_x 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 NO_x 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 NO_x emissions 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 NO_x emissions by 65%, the SCR would control 310 tons (62% of 503 tons/yr) of NO_x annually for oil firing. When this reduction is taken into consideration with the total annual cost of SCR, the cost per ton of controlling NO_x is $4,630. This cost is lower than that determined for natural gas firing and is could be considered reasonable. However, when the proposed 25% capacity factor limit on oil-firing is taken into consideration, SCR technology is not cost effective.

Environmental Impact Analysis

The predominant environmental impacts associated with this proposal are related to the use of SCR for NO_x control. The use of SCR results in emissions of ammonia, which may increase with increasing levels of NO_x 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 NO_x 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 NO_x 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 NO_x with SCR ($5,907/ton) for natural gas is high compared to other BACT determinations which require SCR. Although the cost of SCR for oil firing ($4,630/ton) could be considered reasonable, when a 25% capacity factor limit on oil-firing is considered, SCR technology is not cost effective. Based on the information presented by the applicant and the studies conducted, the Department believes a permit requiring the use of SCR for NOx control is not justifiable.

Pursuant to Florida Administrative Code ("FAC") Rule 17-2.630(3)(a), the Department may approve the use of a system of innovative control technology as BACT if:

> 1. The proposed system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function.
>
> 2. The owner or operator shall be required to achieve a level of continuous emissions reduction equivalent to that which would have been required under a Section 17-2.630(1) BACT determination within a reasonable period of time specified by the Department, but not later than four years from the time of startup or seven years from the date of issuance of the construction permit.
>
> 3. Use of the proposed system would not:
>
> a. Cause or contribute to a violation of any ambient air quality standard;
>
> b. Have a significant impact on any Class I area; or
>
> c. Have a significant impact on any area where an applicable maximum allowable increase is known to be violated.

"Innovative control technology" is defined as "[a]ny system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts." Rule 17-2.100(98), FAC.

Under the terms of the above rules, the low NOx combustion system proposed by the City qualifies as a system of innovative control technology. Therefore, the Department has revised the permit to require retrofit installation of low

NOx combustors or SCR within one year of the date the new combustion turbine begins commercial operation. In accordance with the above BACT analysis, unless SCR is installed, No. 2 fuel oil firing must be limited to 25% of the annual capacity factor. However, if low NOx combustors are installed, and compliance testing establishes a NOx emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the annual limit on No. 2 fuel oil firing shall be 33% of the annual capacity factor. The additional capacity for oil firing at the 42 ppmvd NOx emissions rate is consistent with recent BACT determinations in Florida. In addition, in response to comments from EPA, simple cycle operation of the new unit shall be limited to 25% of the annual capacity factor during the first year of commercial operation and thereafter if SCR is installed.

SO_2 Control

For sulfur dioxide BACT is represented by firing natural gas or No. 2 fuel oil with an average sulfur content not to exceed 0.25 percent.

Other Emissions Control

The emission limitations for PM and PM_{10}, 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 Vero Beach project are thereby established as follows:

Pollutant	Emission Limit Natural Gas Firing	No. 2 Fuel Oil Firing
NOx	25 ppmvd @ 15% O_2	65 ppmvd @ 15% O_2 *
SO_2	Natural gas as fuel	Sulfur content not to exceed 0.25%
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	

* The permittee must install low NOx combustors or SCR within one year after the date the combustion turbine commences commercial operation. The above NO_x emission limitations

apply only if low NOx combustors are installed. If SCR is installed, the NOx emission limitations will be 9 ppmvd or 25 ppmvd (@ 15% O_2) for natural gas or No. 2 fuel oil firing, respectively. Until low NOx combustors or SCR are installed, the permittee must limit NO_x emissions to 42 ppmvd and 65 ppmvd @ 15% oxygen when from natural gas and oil, respectively.

Details of the Analysis May be Obtained by Contacting:

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

Recommended by:

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

June 17, 1991
Date

Approved by:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

June 28, 1991
Date

TABLE 2
ALLOWABLE EMISSION LIMITS
(If Low NOx Combustors Are Installed)

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year[a]	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x	25 ppmvd at 15% oxygen on a dry basis	65 ppmvd at 15% oxygen on a dry basis	278.8	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	131.9	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	19.16	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.939	BACT

(a) Emission limitations based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil-firing.

TABLE 1
ALLOWABLE EMISSION LIMITS
(Before Installation of Low NOx Combustors or SCR)

Pollutant	Standards		Gas Turbine and HRSG[a]	Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year	
NO_x	42 ppmvd at 15% oxygen on a dry basis	65 ppmvd at 15% oxygen on a dry basis	378.9	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	131.9	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	19.16	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.939	BACT

(a) Emission limitations based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil-firing.

TABLE 3
ALLOWABLE EMISSION LIMITS
(If Low NOx Combustors Are Installed)

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year[a]	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	173.6	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	21.79	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0019	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.20	BACT

(a) Emission limitations based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil-firing.

TABLE 4
ALLOWABLE EMISSION LIMITS
(If SCR is Installed)

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Gas	Oil	
NO_x - combined cycle[a]	9 ppmvd at 15% O_2 on a dry basis	25 ppmvd at 15% O_2 on a dry basis	65.7	186	BACT
NO_x - simple cycle[b]	42 ppmvd at 15% O_2 on a dry basis	65 ppmvd at 15% O_2 on a dry basis	82.1	132.5	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	1.3	523	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	10.95	43.8	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu		0.006	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu		0.05	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu		0.005	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	0.019	15.7	BACT

(a) Emission limitations based on 100 percent capacity factor for combined cycle operation.

(b) Emission limitations based on 25 percent capacity factor for simple cycle operation.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Carol M. Browner

FROM: Steve Smallwood

DATE: June 25, 1991

SUBJ: Approval of Construction Permit AC 31-184928/PSD-FL-152
Vero Beach Municipal Power Plant

Attached for your approval and signature is a permit and corresponding Best Available Control Technology (BACT) determination prepared by the Bureau of Air Regulation for the above mentioned company to construct a 60 MW combined cycle gas turbine system. The project is not controversial.

I recommend your approval and signature.

SS/PL/plm

Attachments

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CITY OF VERO BEACH,

Petitioner,

vs.

OGC FILE NO. 91-0376
DOAH CASE NO. 91-1400

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION,

Respondent.

_____/

FINAL ORDER

On February 14, 1991, the State of Florida Department of Environmental Regulation ("Department") received a request for administrative hearing from Petitioner, the City of Vero Beach. The Petitioner challenged certain permit conditions in the Department's decision to issue Permit No. AC31-184928 to construct a 60 MW combined cycle gas turbine at the Vero Beach Municipal Power Plant in Vero Beach, Florida.

On May 23, 1991, after receiving a Stipulation for Dismissal the assigned Hearing Officer issued an Order which closed the Division of Administrative Hearings file and relinquished jurisdiction back to the Department. (Exhibit 1) There being no further matters to consider,

IT IS ORDERED:

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Air Resources Mgmt.
2.
3.
4.

Remarks:

RECEIVED

JUN 0 6 1991

Division of Air
Resources Management

From: Karen Kast - OGC

Date 6-5-91

Phone 488-9730

The petition is hereby dismissed and the Department's Division of Air Resources Management is directed to issue Permit No. AC31-184928 as modified in the Stipulation for Dismissal as soon as possible.

Any party to this 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 this Order is filed with the clerk of the Department.

DONE AND ORDERED this 4 day of June, 1991, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

CAROL M. BROWNER
Secretary

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Telephone: (904) 488-4805

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

6-5-91
Date

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished to Peter C. Cunningham, Esquire, Gary V. Perko, Post Office Box 6526, Tallahassee, Florida 32314, by U.S. Mail on this 5th day of June, 1991.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

DOUGLAS H. MACLAUGHLIN
Assistant General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Telephone: (904) 488-9730

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

VERO BEACH MUNICIPAL POWER PLANT, Petitioner, vs. STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION, Respondent.	)	CASE NO. 91-1400 EPP

ORDER CLOSING FILE AND
RETURNING CASE TO THE AGENCY

On May 20, 1991, the parties filed a stipulation for dismissal in the above-styled matter. A true copy of such stipulation is attached hereto. The parties' resolution of their dispute pursuant to Section 120.57(3), Florida Statutes, renders these proceedings moot. Accordingly, it is

ORDERED that the file of the Division of Administrative Hearings is closed, and this matter is hereby returned to the agency for final disposition.

DONE AND ORDERED in Tallahassee, Leon County, Florida, this 22nd day of May 1991.

WILLIAM J. KENDRICK
Hearing Officer
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-1550
(904) 488-9675

EXHIBIT I

Filed with the Clerk of the
Division of Administrative Hearings
this 22nd day of May 1991.

Copies furnished:

Peter C. Cunningham, Esquire
Gary V. Perko
Post Office Box 6526
Tallahassee, Florida 32314

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

Case No. 91-1400EPP

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

VERO BEACH MUNICIPAL POWER PLANT Petitioner, vs. STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION Respondent.	DOAH Case No. 91-1400 EPP

STIPULATION FOR DISMISSAL

Pursuant to Florida Administrative Code Rule 22I-2.033, Petitioner, City of Vero Beach ("City") and Respondent, State of Florida Department of Environmental Regulation ("Department") jointly file this Stipulation for Dismissal and request the Hearing Officer to enter an order recommending dismissal of this case in accordance with the following settlement agreement. The parties jointly agree:

1. This proceeding relates to the City's application to the Department for an air pollution source construction permit authorizing construction of a 60 megawatt combined cycle gas turbine at the Vero Beach Municipal Power Plant in Vero Beach, Florida. In its Petition For Administrative Proceedings, filed on February 14, 1991, the City contested certain nitrogen oxide (NOx) emission limitations for the proposed combined cycle unit as set forth in the Department's Intent to Issue Permit.

2. The parties agree to a mutually acceptable resolution of this proceeding in accordance with the attached permit. The Department agrees to issue a final construction permit in

accordance with the terms of the attached permit within one week of the date of the Hearing Officer's Recommended Order of Dismissal, or as soon as possible thereafter.

DEPARTMENT OF ENVIRONMENTAL REGULATION

Douglas H. MacLaughlin
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32399-2400
(904) 488-9730

Attorney for Respondent

Date 15 May 1991

HOPPING BOYD GREEN & SAMS

Peter C. Cunningham
Gary V. Perko
Post Office Box 6526
Tallahassee, FL 32314
(904) 222-7500

Attorneys for Petitioner

Date 15 May 1991

PERMITTEE:
Vero Beach Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

Permit Number: AC 31-184928
Expiration Date: December 31, 1993
County: Indian River
Latitude/Longitude: 27°37'59"N
80°22'41"W

Project: 60 MW Combined Cycle
Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapter 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(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 construction of a 60 MW combined cycle gas turbine to be located at the Vero Beach Municipal Power Plant in Vero Beach, Florida. The UTM coordinates are 561.385 km East and 3056.538 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. Vero Beach Municipal Power Plant's application dated August 13, 1990.
2. Department's letter dated September 11, 1990.
3. Vero Beach Municipal Power Plant's letter received on October 1, 1990.
4. Letter from EPA dated November 30, 1990.
5. Letter from EPA dated January 28, 1991.
6. Letter from Hopping Boyd Green & Sams received on March 27, 1991.
7. Letter from Hopping Boyd Green & Sams received May 9, 1991.

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 acknowledgment 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 plan 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 provisions 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.

GENERAL CONDITIONS:

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.

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.

GENERAL CONDITIONS:

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 Rule 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.

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 rules.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;

GENERAL CONDITIONS:

- 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. During the first year of commercial operation of Unit 5, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1. In addition, when constructing the combined cycle generating unit, the permittee shall install duct modules suitable for later installation of a selective catalytic reduction (SCR) system.

2. Within one year of the date Unit 5 commences commercial operation, the permittee shall install low NOx combustors or an SCR system to control NOx emissions from the unit. If low NOx combustors are installed, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 2. However, should compliance testing performed in accordance with Specific Condition No. 10 establish, to the satisfaction of the Department, a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the emission limitations listed in Table 3 shall apply. In the event an SCR system is installed, it may be bypassed during simple cycle operation.

3. 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:

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
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	-

4. Visible emissions shall not exceed 10% opacity.

Operating Rates

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

6. This source is allowed to use either natural gas or No. 2 fuel oil.

7. 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 3,390 gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 7,500,000 gals/yr., unless SCR is installed. If low NOx burners are installed and compliance testing in accordance with Specific Condition No. 16 establishes a NO_x emission rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the limit on No. 2 fuel oil consumption shall be raised to 10,000,000 gals./yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 25% of the annual capacity factor, unless SCR is installed. If low NO_x combustors are installed and compliance testing in accordance with Specific Condition No. 10 establishes a NO_x emissions rate of 42 ppmvd (at 15% O_2 on a dry basis) or lower, the annual limit on firing of No. 2 fuel oil shall be raised to 33% of the annual capacity factor.
- Maximum annual simple cycle operation shall not exceed 25% of the annual capacity factor unless low NOx combustors are installed.

SPECIFIC CONDITIONS:

- Maximum sulfur (S) content in the oil shall not exceed 0.25 percent by weight.
- Maximum heat input shall not exceed 446 MMBtu/hr (gas) or 443 MMBtu/hr (oil), based on sea level pressure at 59° F ambient dry bulb temperatures & 60% relative humidity (ISO conditions).

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

9. 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.

Compliance Determination

10. 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 wast regulations SW 846.

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

11. Method 5 must be used to determine the initial compliance status

SPECIFIC CONDITIONS:

of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

12. Compliance with the SO_2 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.

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:

$$NO_x = (NO_{x\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19 (H_{obs} - 0.00633)} \frac{(288°K)}{T_{AMB}}^{1.53}$$

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 Central District 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 Central District office no later than 45 days after completion.

15. After the installation of low NO_x combustors or SCR, the permittee shall determine compliance with the NO_x standards in accordance with Specific Conditions Nos. 10 and 13.

SPECIFIC CONDITIONS:

16. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

Rule Requirements

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

19. 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.

SPECIFIC CONDITIONS:

20. 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)).

21. This source shall comply with F.A.C. Rule 17-2.700, Stationary Paint Source Emission Test Procedure.

22. 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 rate and emissions from the 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 Central District office.

23. 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 befor the expiration of the permit (F.A.C. Rule 17-4.090).

24. An application for an operation permit must be submitted to the Central 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 _____ day of _____, 1991.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
STEVE SMALLWOOD, P.E., Director
Division of Air Resources Management

TABLE 1
ALLOWABLE EMISSION LIMITS
(Before Installation of Low NOx Combustors or SCR)

Pollutant	Standards		Gas Turbine and HRSG[a] Tons Per Year	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x	42 ppmvd at 15% oxygen on a dry basis	65 ppmvd at 15% oxygen on a dry basis	378.9	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	131.9	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	19.16	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.939	BACT

(a) Emission limitations based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil-firing.

TABLE 2
ALLOWABLE EMISSION LIMITS
(If Low NOx Combustdrs Are Installed)

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year[a]	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x	25 ppmvd at 15% oxygen on a dry basis	65 ppmvd at 15% oxygen on a dry basis	278.8	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	131.9	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	19.16	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0015	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.014	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0012	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	3.939	BACT

(a) Emission limitations based on 75 percent capacity factor for gas-firing; 25 percent capacity factor for oil-firing.

TABLE 3
ALLOWABLE EMISSION LIMITS
(If Low NOx Combustors Are Installed)

Pollutant	Standards		Gas Turbine and HRSG Tons Per Year[a]	Basis
	Gas Firing	No. 2 Fuel Oil Firing		
NO_x	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	173.6	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	21.79	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0019	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.20	BACT

(a) Emission limitations based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil-firing.

TABLE 4
ALLOWABLE EMISSION LIMITS
(If SCR is Installed)

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year: Gas	Gas Turbine and HRSG Tons Per Year: Oil	Basis
NO_x - combined cycle[a]	9 ppmvd at 15% O_2 on a dry basis	25 ppmvd at 15% O_2 on a dry basis	65.7	186	BACT
NO_x - simple cycle[a]	42 ppmvd at 15% O_2 on a dry basis	65 ppmvd at 15% O_2 on a dry basis	82.1	132.5	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	1.3	523	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	10.95	43.8	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.9	21.9	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	43.8	43.8	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu		0.006	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu		0.05	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu		0.005	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	0.019	15.7	BACT

(a) Emission limitations based on 100 percent capacity factor for combined cycle operation.

(b) Emission limitations based on 25 percent capacity factor for simple cycle operation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

NOV 28 1990

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: Vero Beach Municipal Power Plant (PSD-FL-152)
Vero Beach, Florida

Dear Mr. Fancy:

This is to acknowledge receipt of the above referenced facility's application for a prevention of significant deterioration (PSD) construction permit, transmitted by your letter dated October 7, 1990. As discussed between Mr. Barry Andrews of FDER and Ahmed Amanulah of my staff on October 30, 1990, we have the following comments regarding this application.

Vero Beach is proposing to construct a 58 MW combined cycle power plant with its own heat recovery system. This combined cycle power plant is projected to burn natural gas as the primary fuel and No. 2 fuel oil as an alternate fuel.

Our major point of concern is in regards to the BACT determination for NO_x. The applicant proposed wet injection as the control technology for NO_x, rejecting the use of Selective Catalytic Reduction (SCR). The basis for rejection, according to the applicant, was significant adverse energy, economic and environmental impacts.

The major environmental concerns raised by the applicant appear to be the possibility of ammonia slip, the possibility of the formation of SO_3 and ammonium bisulfate, the deactivation of the catalyst due to plugging from sulfur oxides, and the disposal problems related to changing out any vanadium pentoxide catalysts - a hazardous waste under RCRA regulations. What the applicant fails to point out, however, is that there are SCR systems on the market which do not use vanadium pentoxide, or any other metal, as a catalyst. For example, one SCR system makes use of a ceramic molecular sieve to promote the reaction. The ceramic catalyst system has been applied on gas

turbines and diesel engines. The system does not promote the conversion of SO_2 to SO_3 and has virtually no catalyst poisoning, plugging or masking problems. The ammonia slip is also limited. In addition, the catalyst is not considered a hazardous waste.

The energy impacts described by the applicant are not those which would put a strain on the local energy supply or which appear to be significantly different than typical plant energy usage.

The applicant's argument regarding the adverse effects of SCR usage while firing #2 fuel oil also appears to be unjustified. We have contacted other Regions where similar types of combustion turbines are currently operating with SCR controls. Most of these turbines use natural gas as the primary fuel and No. 2 fuel oil as a backup fuel.

Information from Region I also indicates that a SCR system is continuously being utilized, even while the turbine fires oil.

Also, a feasibility study by the Stationary Source Committee of the Northeast States for Coordinated Air Use Management (NESCAUM) on emission limits for gas turbines (October 1988) revealed that sulfur containing fuels could present somewhat of a problem in promoting the use of SCR in the Northeast. However, information recently obtained from Japan and Europe show that as of April 1986, SCR experience extends back eight and a half years on oil-fired boilers, eight years on gas, and six and a half on coal. Japan currently has at least 22 SCR units for coal-fired boilers, 55 SCR units for oil-fired boilers, and 13 SCR units for liquid natural gas (LNG) boilers. In general, figures show that with coal, SCR catalyst life is 2-3 years; 4-7 years with oil; and with LNG or gas, catalyst life is in excess of 6 years. During the initial installations of SCR units, NO_x reductions averaged 30 percent. With operating experience, more recent installations show reductions in most cases of 70-80%.

In any case, the justifications presented by the applicant for rejecting SCR as a control technology do not appear to be convincing. There are SCR technologies on the market which do not have a hazardous waste by-product. SCR has been applied in the United States on gas and fuel oil fired turbines and diesel engines. It would seem, then, that technical feasibility is not an issue, and, achieving a lower NO_x emission limit than the proposed 42 ppm and 65 ppm for a combined cycle unit is reasonable.

Thank you for the opportunity to review this package before the preliminary determination. If you have any questions regarding these comments, please contact Mr. Ahmed Amanulah of my staff at (404) 347-2904.

Sincerely yours,

Douglas Neeley Jr.

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

cc: Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

B. Andrews
D. Heron
C. Halladay
C. Collins

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Ms. Jewell A. Hayer, Chief
2. Air Enforcement Branch
3. U.S. EPA, Region IV
4. 345 Courtland St, NE

Remarks: Atlanta, Georgia 30365

PSD-FL-152

From	Date
C. H. Fancy FL DER / OARM / BAR	3-29-91 Phone 904-488-1344

KATHLEEN BLIZZARD
RICHARD W. MOORE
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
DIANA M. PARKER
LAURA BOYD PEARCE
GARY V. PERKO
MICHAEL P. PETROVICH
DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH

OF COUNSEL
W. ROBERT FOKES

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Supporting
NO_x Control

Selective
Vero Beach

Attachment "C" -- Comparison of Permitted and Projected NO_x Emission Levels from City of Vero Beach Municipal Power Plant.

The City hopes that the information provided in these attachments will be of assistance to the Department in

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Chuck Collins Date: 3-29-91

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**	
	Bartow	Southwest District Satellite Office	
	Venice	Southwest District Satellite Office	
X	**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:

From: C. H. Fancy Tel.: 305/278-1344

MS

VED

1991

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consideration in
please find the
the City of Vero
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on Supporting
NO_x Control

n Selective
f Vero Beach

Attachment "C" -- Comparison of Permitted and Projected NO_x Emission Levels from City of Vero Beach Municipal Power Plant.

The City hopes that the information provided in these attachments will be of assistance to the Department in

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

October 2, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Harper:

Re: Completeness Review

The enclosed information is being forwarded to you for completeness review.

1. Vero Beach Municipal Power Plant: 58 MW combined cycle plant; PSD-FL-152; please submit comments by October 29, 1990;

2. Farmland Industries, Inc. - Green Bay Complex: Sulfuric Acid Plant No. 5 modification; PSD-FL-143A; please submit comments as soon as possible;

3. CF Industries - "C" and "D" Double Absorption Sulfuric Acid Plants modifications; PSD-FL-155; please submit comments by October 25, 1990; and,

4. Anheuser-Busch Companies, Inc. - lid production capacity modification; PSD-FL-153; currently incomplete and their response will be forwarded upon receipt; please review for comments.

5. Ft. Pierce Utilities Authority - H.D. King Unit 9: modification; PSD-FL-154; currently incomplete and their response will be forwarded to you upon receipt; please review for comments.

If there are any questions, please call Barry Andrews at (904) 488-1344 or write to me at the above address. All comments, written or oral, should be received by the above requested dates. If it is convenient to FAX a response to us, the FAX number to use is (904)922-6979.

Sincerely,

Barry D. Andrews for

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

CHF/BM/t

CM: P-254-195-015
9-28-90: Vero Beach, FL

File Copy
PSD-FL-152
AC 31-184928

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

RECEIVED
OCT 1 1990
DER-BAQM

City of Vero Beach, Florida
Combustion Turbine - Unit 5
FDER Air Permit

B&V Project 16834
B&V File 32.0402
September 25, 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:

This is in response to your letter of September 11, 1990, to Mr. Shuler Massey, Vero Beach Municipal Power Plant, requesting additional information about application AC 31-184928 for a Permit to Construct the above project. Subsequent to your letter, Black & Veatch contacted Ms. Teresa Heron of your staff to clarify the information requested. The answers to the questions are provided in the paragraphs below. A copy of your September 11 letter is also attached for reference.

1. What is the basis for the calculations?

Manufacturer's combustion parameters for the GE Model PG6541(B) Frame 6 combustion turbine have been provided as guarantees by General Electric and are presented in the permit application (final table in the "Vendor Information Applicable to Application to Construct" section). These parameters were the basis for all calculations and modeling inputs. The parameters are based on International Standards Organization (ISO) conditions (59 F, 14.7 psi, and 60 percent relative humidity). The following information should clarify additional questions you have:

Condition	Units	Methane	Distillate
Fuel LHV	Btu/lb	21,515	18,550
	Btu/kWh	11,290	11,430
	kJ/Wh	11.902	12.018
Fuel Bound Nitrogen	percent	N/A	<0.015

The heat recovery steam generator (HRSG) will not have supplementary firing (duct burning). Therefore, no additional emissions will be generated from the HRSG.

2. What is the net emission increase from your facility as a result of this modification?

The net emission increase for the addition of the new combustion turbine is given in Table 3-4 of the permit application. These values represent the total emission increase for the facility. No contemporaneous emission increases have occurred during the past five year period.

Currently, the City of Vero Beach Municipal Power Plant has operating permits for four existing units. Permits for Units 2, 3, and 4 were renewed during 1988 with no changes in operating conditions or emission limitations. The permit for Unit 1 is currently being renewed (expires 12/10/90). No changes in operating conditions or emission limits are proposed or expected.

No new sources or equipment such as fuel oil tanks or diesel engine generators have been added that would potentially add contemporaneous increases to the total facility emissions.

3. Provide a flow diagram identifying emission points for the combined cycle plant.

Process flow and plant site arrangement drawings were included in the permit application (Figures 2 and 3 in the "Drawings and Figures Applicable to the Application to Construct" section). These figures clearly show the fuel and combustion gas flows applicable to the turbine addition. One item excluded in the process flow diagram was the bypass option for the HRSG. The bypass option is now shown in the diagram.

In the discussions with Ms. Teresa Heron, Mr. Mike Pelan (B&V) verified that the exhaust gases from the new combustion turbine installation is independent of any of the existing exhaust stacks. A revised process flow diagram is provided to supplement the application.

4. Submit a completed page 1 of 12 of DER Form 17-1.202(1).

Discussions with Ms. Heron indicated that page 1 of 12 of DER Form 17-1.202(1) required resubmission because the document was not signed and dated. While the City's records indicate that this form was completed, a new page 1 is included for your files.

5. Consideration of Diesel Starter

One additional item has arisen subsequent to the submittal of the permit application. As is evident from the attached process flow diagram, a diesel starter will be used for periods of initial turbine startup. The diesel starter is shown in the revised process flow diagram.

The diesel starting motor will be a Detroit diesel engine rated 630 horsepower at 2300 rpm. The engine will operate approximately 15 minutes during the startup sequence and an automatic clutch will disengage the engine when the turbine has reached self-sustaining speed.

The diesel starter and the turbine will not run concurrently. Further, the emissions from the starter are significantly less that those generated by the turbine operating under a base load condition. Therefore, the analysis performed for the air quality impacts continues to represent a worst case situation.

If you have any further questions, please let us know.

Very truly yours,

BLACK & VEATCH

L. W. Sherrill

AFH:rs
Attachments

cc: Shuler Massey, City of Vero Beach, Florida
BA/CHF
Teresa Heron
Chuck Collins, Cent. Dist.
Jewell A. Harper, EPA
Cleve Holladay
Barry Andrews
} 10/2/90 RAM

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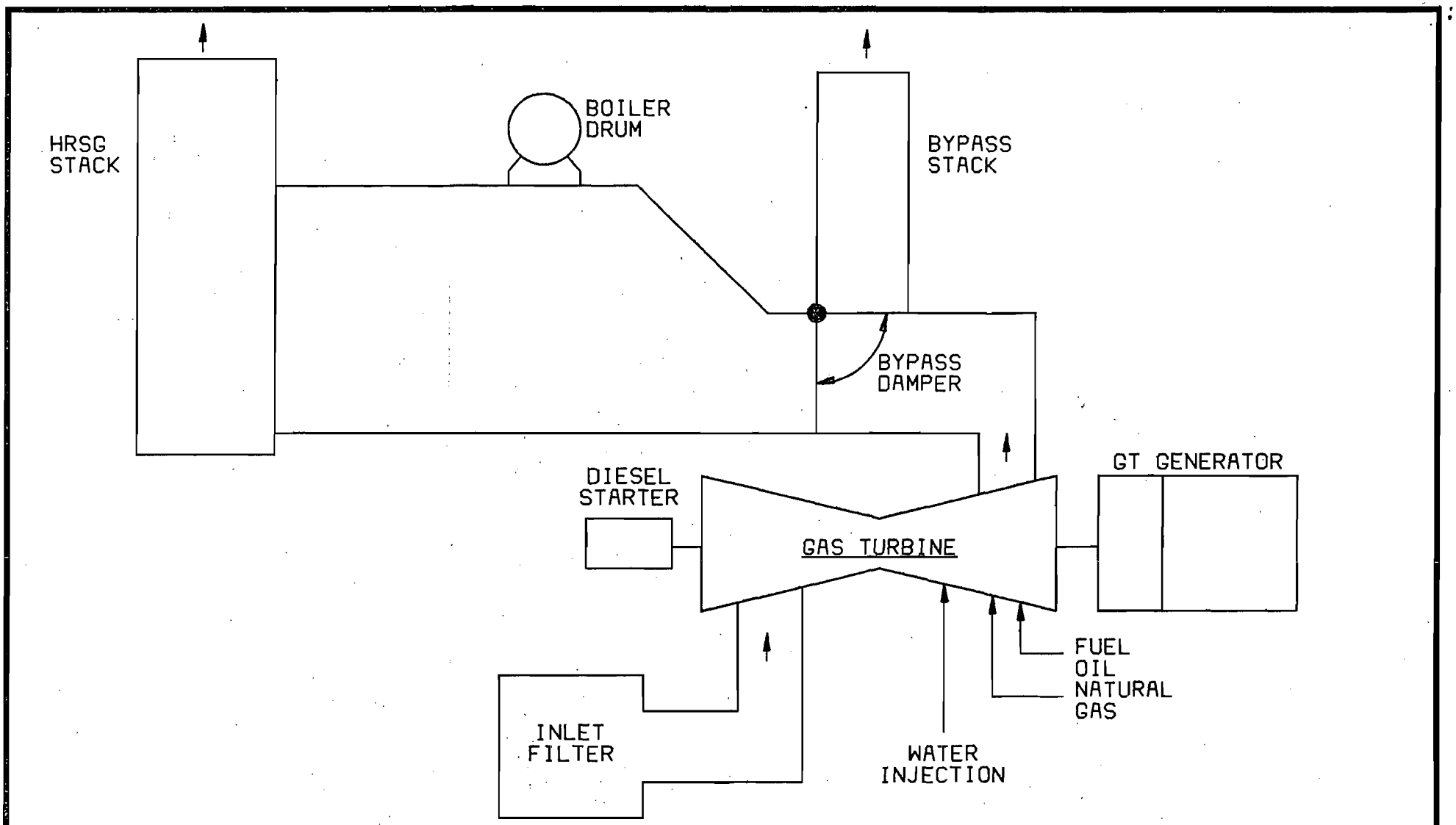

NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHK	APP	FLM

BLACK & VEATCH

CITY OF VERO BEACH FLORIDA
COMBUSTION TURBINE UNIT 5

PROJECT 16835-SK-091790-01
DRAWING NUMBER
REV

ENGINEER
DRAWN DKB
CHECKED
DATE

COMBINED CYCLE
MAIN PROCESS FLOW DIAGRAM

CODE
AREA

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: The City of Vero Beach, Florida COUNTY: Indian River

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

SOURCE LOCATION: ~~Street~~ Vero Beach Municipal Power Plant City Vero Beach

UTM: East 561.385 km North 3056.538 km

Latitude 27 ° 37 ' 59 "N Longitude 80 ° 22 ' 41 "W

APPLICANT NAME AND TITLE: _____

APPLICANT ADDRESS: _____

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of the City of Vero Beach

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 permitted establishment.

*Attach letter of authorization

Signed: Shuler W. Massey

Shuler W. Massey, Director of Power Resources
Name and Title (Please Type)

Date: 9-28-90 Telephone No. 407-562-7231

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)

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

September 11, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

Dear Mr. Massey:

Re: AC 31-184928 and PSD-FL-152
58 MW Combined Cycle Plant

The Department has received your application for a permit to construct a 58 MW combined cycle plant at the Vero Beach Municipal Power Plant in the city of Vero Beach, Indian River County, Florida. We need more information to process this application. Please complete the application by supplying the information requested below:

Please submit basis of calculations used as follows:

- Manufacturer's heat input rate at manufacturer's rated load (kilojoules/watt-hr).
- Allowance for fuel-bound nitrogen.
- What is the heat input (LHV supplemental heat) to the HRSC?

What is the net emission increase for your facility as a result of this modification? As per F.A.C. Rule 17-2.500(2)(3)., any emission increase at your facility during a 5 year period will be considered a contemporaneous emissions increase and it will be counted towards the net significance level increase.

Provide a flow diagram identifying the emission points for the combined cycle plant. Are these single emission points or will they share the stack with one or more existing sources? Please explain.

Submit a completed page 1 of 12 of DER Form 17-1.202(1).

If you have any questions on the data requested, please call Teresa M. Heron at (904)488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

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

CHF/TH/plm

c: Chuck Collins
Lloyd Wade Sherrill, P.E.

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mr. Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961-1389

4. Article Number
P 256 396 189

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery
9/13/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

P 256 396 189

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

U.S.G.P.O. 1989-234-555

Sent to
Mr. Shuler W. Massey, City of Vero Beach
Street and No.
P. O. Box 1389
P.O., State and ZIP Code
Vero Beach, FL 32961-1389

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$

Postmark or Date
Mailed: 9-11-90
Permit; AC 31-184928
PSD-FL-152

PS Form 3800, June 1985

Florida Department of Environmental Regulation
Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

September 11, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
Vero Beach, Florida 32961-1389

Dear Mr. Massey:

Re: AC 31-184928 and PSD-FL-152
58 MW Combined Cycle Plant

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Please submit basis of calculations used as follows:

- Manufacturer's heat input rate at manufacturer's rated load (kilojoules/watt-hr).
- Allowance for fuel-bound nitrogen.
- What is the heat input (LHV supplemental heat) to the HRSC?

What is the net emission increase for your facility as a result of this modification? As per F.A.C. Rule 17-2.500(2)(3)., any emission increase at your facility during a 5 year period will be considered a contemporaneous emissions increase and it will be counted towards the net significance level increase.

Provide a flow diagram identifying the emission points for the combined cycle plant. Are these single emission points or will they share the stack with one or more existing sources? Please explain.

Submit a completed page 1 of 12 of DER Form 17-1.202(1).

If you have any questions on the data requested, please call Teresa M. Heron at (904)488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

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

CHF/TH/plm

c: Chuck Collins
Lloyd Wade Sherrill, P.E.
Quinell Harper, EPA

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

Vero Beach, Florida
Municipal Power Plant - Unit 5

B&V Project 16834
B&V File 32.0401
March 9, 1991

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

Attention: Mr. Clair Fancy

Gentlemen:

Enclosed is a copy of our conference memorandum from our visit with you on February 12, 1991.

If you have any questions or comments, please let us know.

Yours very truly,

BLACK & VEATCH

L. W. Sherrill

LWS
Enclosure

cc: Peter Cunningham
Shuler Massey

Black & Veatch

CONFERENCE MEMORANDUM

City of Vero Beach
Combustion Turbine Project
Meeting with Florida Department
of Environmental Regulation

B&V Project 16834
B&V File
March 8, 1991

Meeting held on Tuesday, February 12, 1991, at the offices of the Florida Department of Environmental Regulation (DER), Division of Air Resources Management, in Tallahassee, Florida.

Attending:

DER	Hopping, Green, Boyd, & Sams (HGB&S)	B&V
Claire Fancy	Peter Cunningham	Earl Windisch
Barry Andrews	Rick Melson	Wade Sherrill
	Gary Perkow	Morgan Fagan
City		Anne Harris
Shuler Massey		Mike Pelan

BACKGROUND INFORMATION

On December 21, 1990, the City of Vero Beach received a Notice of Intent (NOI) from the DER to issue an air construction permit (No. AC-31-184928:PAS -FL-152). The NOI was accompanied by a Technical Evaluation and Preliminary Determination for air emissions and pollutant control technology from the proposed Vero Beach combustion turbine facility. The proposed permit contains 24 specific conditions, including prescribed emission limits for a number of air pollutants based on the DER's preliminary determination of Best Available Control Technology (BACT). The DER's BACT for NOx during combined cycle operation would require the use of Selective Catalytic Reduction (SCR) to achieve an emission rate of 9 ppmvd or 25 ppmvd (at 15 percent oxygen) when firing natural gas or No. 2 fuel oil, respectively. In the BACT analysis portion of its permit application, the City determined that BACT for NOx emissions from the proposed combined cycle unit is the use of water injection necessary to limit emissions to 42 ppmvd or 65 ppmvd (at 15 percent oxygen) when burning natural gas or No. 2 fuel oil, respectively. The city rejected SCR as BACT for NOx because of site-specific energy, environmental, and economic concerns.

The purpose of this meeting was to acquaint the DER staff with the proposed project, to explain the proposed mode of operation of the new combustion turbine in conjunction with the existing Unit 2 steam turbine, and to demonstrate that the proposed mode of operation will result in a significant reductions in NOx emissions without the use of SCR technology.

Black & Veatch

CONFERENCE MEMORANDUM

City of Vero Beach
Combustion Turbine Project
Meeting with Florida Department
of Environmental Regulation

2

B&V Project 16834
March 8, 1991

Description of the Proposed Facility

B&V initiated the meeting by explaining the location of the proposed facility within the City's existing municipal electric system. B&V noted that load growth projections for the City had demonstrated a need for additional peaking capacity, and that this project was undertaken to provide the additional capacity.

There are currently 4 units in operation within the City's system. The operation of the new unit, referred to as unit 5, will present the City with considerable flexibility in meeting the system load requirements. The new Unit 5 combustion turbine can be operated independently, in simple cycle, or as a combined cycle with the existing Unit 2 steam turbine. When operated in combined cycle with Unit 2, Unit 5 will become the most efficient unit and will therefore become the base load unit at the Vero Beach plant. The existing Unit 4 or Unit 3 will become the regulating unit, and loading to these units will be variable depending on the system demand.

The existing Unit 2 steam generator is in excellent condition, and there are no plans to retire it. The Unit 2 gas/oil fired boiler will remain in standby operation and will be capable of supplying steam to the Unit 2 steam turbine at any time the new Heat Recovery Steam Generator (HRSG) is unavailable for service. The Unit 2 steam generator and the Unit 5 HRSG cannot operate at the same time. An operating diagram was presented during the meeting to indicate the two independent operating modes.

The City emphasized that the new unit includes numerous design features to ensure minimum environmental impacts resulting from construction and operation of the proposed facility. In addition to the reductions in air emissions from the facility that will be achieved by the operation of Unit 5, the facility will contain state-of-the-art noise attenuation features and will minimize City water use by utilizing sewage effluent from the City's municipal water treatment plant for cooling, water injection for NOx control, and steam cycle makeup

Environmental Considerations Associated with Operation of Unit 5

B&V discussed the environmental considerations associated with the operation of the proposed facility and the potential air quality impacts resulting from a number of operating scenarios. B&V first noted that the ambient air quality impacts as defined by the Environmental Protection Agency (EPA) resulting from the addition of the new combustion turbine are modeled to be less than significant.

B&V then presented Tables 1-8 (Attachment A) summarizing NOx emissions in various operating scenarios. B&V stressed that hourly emissions of NOx for a peak load and a base load condition will be higher if Unit 5 is not added, or if it is added and operated in simple cycle mode. The information presented in Tables 1-8 is summarized below.

Table 1: Current Permitted NOx Emission Rates at Full Plant Capacity All Existing Units In Operation

This table shows the currently permitted NOx emission rates in pounds per hour with all existing units operating at full capacity. Because Units 1, 2, and 3 do not have permit conditions limiting NOx emissions, the data are based on average AP-42 emission factors for natural gas and residual oil fuel for units of this size. The potential NOx emissions for the four units are 591.0 lbs/h when operating on gas and 559.7 lbs/h when operating on oil.

Table 2: Proposed NOx Emission Rates at Full Plant Capacity Unit 5 Operating in Simple Cycle

Table 2 shows the proposed NOx emission rates with the proposed Unit 5 combustion turbine operating in simple cycle and all other units operating at full capacity. Under this scenario, there would be an increase in overall emissions of NOx (75 lb/h) due to the addition of Unit 5. The emission rate of the new combustion turbine, however, is less than that of any of the existing units.

Table 3: Proposed NOx Emission Rates at Full Plant Capacity Unit 5 in Combined Cycle Without SCR

Table 3 shows the operating condition with the new Unit 5 combustion turbine operating in combined cycle (without SCR) with existing Unit 2 steam turbine and all other units operating at maximum capacity. This operating scenario shows a net decrease of 54.9 lb/h of NOx emissions from the facility when compared with the current condition when operating on gas and a 2.2 percent increase when operating on No. 2 fuel oil.

Table 4: Proposed NOx Emission Rates With Unit 5 Operating in Combined Cycle With SCR

This table shows the emission rates at full capacity when Unit 5 is operated in combined cycle with Unit 2 and SCR technology is employed. As expected, the NOx emission rates are further reduced by 60 lb/h on gas and 78.5 lb/h on No. 2 fuel oil.

Table 5: Current Permitted NOx Emission Rates at Base Load Capacity Unit 4 Operating At Base Load

Table 5 summarizes plant emissions with Unit 4 operating at base load condition without Unit 5. This is an operating scenario which currently exists at the plant a majority of the time. Since the existing Unit 4 is the most efficient unit in the plant, it would normally be in operation whenever system load is sufficient. Potential NOx emissions on gas are 137.0 lb/h, and on No. 2 fuel oil, 205.5 lb/h.

Table 6: Operating Unit 5 in Simple Cycle Mode

Table 6 shows a similar base load condition using the new Unit 5 combustion turbine in simple cycle and the existing Unit 2 operating as a conventionally fired boiler. This operating condition would meet approximately the same base load requirements. In this operating scenario, there would be a potential increase in NOx emissions of 67.9 lb/h on gas and 24.0 lb/h on No. 2 fuel oil.

Table 7: Operating Unit 5 in Combined Cycle Mode Without SCR

Table 7 shows Unit 5 operating in combined cycle operation (using the Unit 2 steam turbine) only. This operating scenario would result in a decrease in NOx emissions of 62 lb/h on gas and 84.5 lb/h on No. 2 fuel oil.

Table 8: Operating Unit 5 in Combined Cycle Mode With SCR

When Unit 5 is operating in combined cycle, and SCR technology is installed on the HRSG, there is the additional reduction in NOx emissions of 60 lb/h on gas and 78.5 lb/h on oil.

B&V noted that the information in the dispersion modeling and the emission scenario tables indicates that no major environmental benefits in the form of NOx emission reductions would be gained from installing SCR technology on Unit 5. Further, if SCR technology is required, other adverse environmental consequences may result. SCR technology requires onsite storage and handling of ammonia and could result in emissions of particulate ammonia sulfate compounds and potentially hazardous unreacted ammonia. In addition, SCR technology would require periodic replacement of catalytic elements, which could require implementation of hazardous waste disposal procedures. The minimal environmental benefit to be gained in decreases of NOx emissions and the potential risks associated with ammonia storage and use associated with the installation of SCR technology indicate that this control technology is not an appropriate requirement for this project.

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Cost of Installation of SCR

B&V noted that installation and use of an SCR technology would have a significant economic impact on the project. In the BACT presented to the DER with the air permit application, the City noted that installation and operation of SCR would increase total cost for the project by $790,000 per year, resulting in an incremental cost of $3,050 per ton of NOx removed while burning natural gas and $2,290 per ton of NOx removed while burning No. 2 fuel oil. Since submitting its permit application for the proposed combined cycle unit, the City has performed a refined economic analysis which establishes the incremental cost of SCR to be between $4,500 and $4,700 per ton of NOx removed, depending on whether the unit is firing natural gas or No. 2 fuel oil. This refined analysis will be presented to the DER in the near future.

DER Comments

DER noted that EPA's main interest is whether other, similarly sized facilities of a particular type have successfully implemented a particular control technology. EPA is less interested in the cost per ton of pollutant removed. If the technology has been operated successfully, a strong case must be made to EPA to justify why it should not be employed in the case being considered. Further, EPA only considers environmental impacts AFTER evaluating the economic impact of employing the technology.

B&V emphasized that the City has demonstrated a decrease in NOx without the use of SCR when Unit 5 is operated in combined cycle mode with the HRSG. In this scenario, Unit 2 cannot operate. The City is retaining Unit 2 only to maintain its operating flexibility.

DER noted that EPA will also question actual versus potential emissions. The tables presented show only potential emissions. B&V noted, however, that the City was not attempting to use offsets, but that the City was arguing that these potential NOx reductions should be included as environmental considerations in the BACT analysis.

DER stated that they did not fully understand the potential impacts of operating the facility in the various modes described during this meeting. DER suggested that the City submit a letter to the DER describing the information presented in the tables and include both historical and projected emissions. Emission evaluations on other pollutants (e.g. SO2) should also be included. The new economic analysis should accompany this submittal. The City should justify the source of its calculations. The DER will send a copy of the City's letter to EPA.

Black & Veatch

CONFERENCE MEMORANDUM

City of Vero Beach
Combustion Turbine Project
Meeting with Florida Department
of Environmental Regulation

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DER noted that other proposed Florida combustion turbine projects are basically new generation. DER anticipates that all of these projects would be required to employ SCR for NOx reduction.

It is not clear what restrictions EPA has recommended during operation in simple cycle mode. The DER stated that the Northeast States Commission on Air Use Management (NESCAUM) provided a guidance document in the fall of 1990 which stated that 2,500 hours on simple cycle operation should be the threshold. DER will consult the EPA on this matter.

Summary

HBG&S summarized the presentations and noted that the City would submit additional information for the DER's consideration in the near future. He emphasized that the proposed project would result in lower hourly emissions than if no new unit were added or the new unit were operated in simple cycle mode. If the combined cycle option is not available, the City could operate Unit 5 in simple cycle, but NOx controls such as quiet combustors are not yet available for this size unit. Vendors have confirmed that quiet combustors will not be available until at least 1993. The City must ensure that it can meet its capacity requirements in the near future.

HBG&S also noted that the City wishes to continue its dialogue with the DER to explore the options of modification of the permit conditions to eliminate the requirement for including SCR on the proposed facility. However, to avoid waiver of the City's right to challenge the DER's proposed actions as set forth in the NOI, the City does plan to file a petition for formal administrative proceedings to challenge certain construction permit conditions. He emphasized that the City hopes to achieve a mutually acceptable resolution without the initiation of formal administrative proceedings.

afh

cc: E. C. Windisch
L. W. Sherrill
M. E. Fagan
A. F. Harris
M. L. Pelan

Hand Delivered: 3-28-91

File Copy

HOPPING BOYD GREEN & SAMS

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DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH

OF COUNSEL
W. ROBERT FOKES

March 27, 1991

RECEIVED

MAR 28 1991

DER - BAQM

Clair Fancy, P.E.
Bureau Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road, Room 338
Tallahassee, Florida 32399-2400

Re: City of Vero Beach
Municipal Power Plant - Unit 5
Permit File Nos. AC 31-184982
and PSD-FL-152
OGC File No. 91-0376
DOAH Case No. 91-1400EPP

Dear Clair:

Enclosed for the Department's consideration in connection with the referenced matter please find the following documents submitted on behalf of the City of Vero Beach as a follow up to our meeting last month:

Attachment "A" -- Summary of Information Supporting City of Vero Beach Position Regarding NO_x Control for Unit 5.

Attachment "B" -- Information on Selective Catalytic Reduction Costs for City of Vero Beach "Unit 5" Project.

Attachment "C" -- Comparison of Permitted and Projected NO_x Emission Levels from City of Vero Beach Municipal Power Plant.

The City hopes that the information provided in these attachments will be of assistance to the Department in

reconsidering the proposed emission limits and preliminary BACT determination for nitrogen oxides applicable to Unit 5 when operated in the combined cycle mode.

Your continued consideration in this matter is much appreciated.

Sincerely,

Peter C. Cunningham

VeroBeach:gbb

cc: Douglas MacLaughlin, Esquire
Barry Andrews ✓ 3-28-91
Teresa Heron
Clem Holladay
Jewell A. Harper, ECA
Chuck Collins, CD
CHF w/o Attachments
3-29-91 RAM

ATTACHMENT "A"

SUMMARY OF INFORMATION SUPPORTING CITY OF VERO BEACH POSITION REGARDING NO_x CONTROL FOR UNIT 5

(SCR COST INFORMATION IS DETAILED IN ATTACHMENT "B")

(NO_x EMISSION COMPARISONS ARE DETAILED IN ATTACHMENT "C")

Existing Generation

The City of Vero Beach Municipal Electric Plant currently consists of four gas and oil fired steam boilers and their related steam turbine electric generators, as follows:

Unit 1	12.5 MW
Unit 2	16.5 MW
Unit 3	33.0 MW
Unit 4	55.0 MW
Total	117.0 MW

Proposed Unit 5

The proposed Unit 5 combustion turbine will provide 40 MW of new gas or oil fired electric generating capacity. The proposed heat recovery steam generator (HRSG) to be built in conjunction with Unit 5 will enable the City to use waste heat from Unit 5 to provide an alternative source of steam for the existing Unit 2 steam turbine electric generator.

The existing Unit 2 steam boiler is in excellent condition and there are no plans to retire it. This boiler will remain in standby, and will be capable of supplying steam to the Unit 2 steam turbine electric generator at any time the new HRSG is unavailable for service. Of course, both the Unit 2 steam boiler and the Unit 5 HRSG will not operate at the same time.

Typical Operation Today

Unit 4 is currently the most efficient unit at the Vero Beach plant. It therefore dispatches first and operates essentially as a base load unit. The next most efficient unit at the Vero Beach plant, Unit 3, typically operates in the intermediate load range in response to system demand.

Typical Operation With Unit 5

The new Unit 5 combustion turbine, when operated in the combined cycle mode with the HRSG and the existing Unit 2 steam turbine electric generator, will be the most efficient unit at the Vero Beach plant. It will therefore be the first unit to be dispatched and will effectively substitute

for Unit 4 as a base load unit. Unit 3 or Unit 4 will then become the "regulating" unit for the Vero Beach system, and the loading on these units will vary depending on the system demand.

NOx Emission Characteristics of Unit 5

The new Unit 5 has the lowest NOx emission rate of any of the units at the Vero Beach plant in pounds per megawatt hour, as shown in the following table. This remains true whether the unit is operated in the simple cycle mode (producing 40 MW) or in the combined cycle mode (producing 60 MW).

	Potential NOx Emissions (Pounds/MWH)	
	Natural Gas	Oil
Unit 1	8.456	5.000
Unit 2	7.873	6.576
Unit 3	6.618	5.548
Unit 4	2.491	3.736
Unit 5 (Simple Cycle)	1.875	3.025
Unit 5 (Combined Cycle)	1.250	2.017

This low emission rate means that hourly NOx emissions from the Vero Beach plant will be reduced in the typical situation in which electricity generated by Unit 5 displaces generation by one of the other units at plant. 1/

1/ The only situation in which hourly NOx emissions would be increased is if the electricity generated by Unit 5 was in addition to generation by the other units. This situation could occur if the HRSG were not in operation and the City needed to call on the maximum capacity of all of its generating units. In that case, Unit 5 could operate in the simple cycle mode while Unit 2 was being fired by its existing steam generator. Even in this situation, the average NOx emissions per MWH of electricity generated would be lower than today, because of the relatively low emissions rate enjoyed by Unit 5.

Maximum Permitted NOx Emissions of Vero Beach Plant

The Vero Beach plant currently has permitted maximum annual NOx emissions of 2,589 tons/year (gas) and 2,451 tons/year (oil), assuming that existing Units 1 to 4 operate continuously at their maximum rated capacities. (See Base Case on Tables A and B)

The Notice of Intent to Issue Permit would allow Unit 5 to operate in a simple cycle mode with a NOx emissions limit of 42 ppmvd (gas) and 65 ppmvd (oil). These limits are based on using water injection as BACT in the simple cycle mode. The permitted maximum annual NOx emissions of the plant would thus increase to 2,917 tons/year (gas) and 2,981 tons/year (oil), assuming that all five units operate continuously at their maximum rated capacities, with Unit 5 operating in the simple cycle mode. (See Option 1 on Tables A and B)

Under the City's proposal for NOx emissions limits of 42 ppmvd (gas) and 65 ppmvd (oil) using water injection as BACT in the combined cycle mode, the permitted maximum annual NOx emissions would be 2,348 tons/year (gas) and 2,506 tons/year (oil). This assumes that all five units operate continuously at their maximum rated capacities, with Unit 5 operating in the combined cycle mode. (See Option 2 on Tables A and B).

For the natural gas firing scenario, the City's proposal represents a decrease in annual permitted NOx emissions of 241 tons/year compared to current permit levels, and a decrease of 569 tons/year compared to the level that would be allowed assuming simple cycle operation of Unit 5 under the Notice of Intent to Issue Permit.

For the oil firing scenario, the City's proposal represents a slight increase of 55 tons/year in annual permitted NOx emissions compared to current permit levels, but a decrease of 475 tons/year compared to DER's proposed permit levels for Unit 5 in simple cycle operation.

Potential NOx Emissions Under Projected Load Conditions

As an alternative to analyzing maximum annual permitted NOx emissions, the City has also examined potential NOx emissions under projected load conditions. The results of this analysis are shown in graphic form on Figure 3. As that figure demonstrates, the projected annual NOx emissions with Unit 5 available to run only in the simple cycle mode

are significantly lower than expected NOx emissions without Unit 5. This reduction occurs because the electricity generated by Unit 5, with its relatively low emissions rate, displaces electricity that would otherwise have been generated by units with higher emissions rates.

This projected reduction in annual NOx emissions is even greater when Unit 5 operates in the combined cycle mode, which is expected to be its normal method of operation.

Tables C and D present these comparative NOx emissions projections in tabular form for the years 1992 and 1999. As these tables show, total annual NOx emissions are reduced approximately 197 tons/year (1992) and 239 tons/year (1999) if Unit 5 is added and operated only in the simple cycle mode. These reductions are even greater, approximately 417 tons/year (1992) and 507 tons/year (1999), if Unit 5 is added and operated in the combined cycle mode. This represents a 38% decrease in the combined cycle mode and an 18% decrease in the simple cycle mode in annual NOx emissions compared to the base case scenario in which the same amount of electricity is generated by the existing Units 1 to 4.

Conclusion

The City's proposal for NOx emissions limits of 42 ppmvd (gas) and 65 ppmvd (oil) based on water injection provides significant emission reductions whether compared to the maximum permitted emissions for the Vero Beach plant or to the expected emissions from that plant under projected load conditions.

While additional emission reductions could be obtained by the use of selective catalytic reduction (SCR) when Unit 5 is operated in the combined cycle mode, the City submits that these additional reductions are not justified when consideration is given to (1) the significant reductions which already result from the addition of Unit 5 with water injection to the Vero Beach plant, (2) the significant additional cost (approximately $4,500 to 4,700 per ton) associated with the incremental NOx reductions that could be achieved by the use of SCR.

Table A

PERMITTED MAXIMUM -- 100% GAS FIRING

	NOx Emissions on Natural Gas (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	2,589	---	-328
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	2,917	+328	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	2,348	-241	-569
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	2,085	-504	-832

Table B

PERMITTED MAXIMUM -- 100% OIL FIRING

	NOx Emissions On Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	2,451	---	-530
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	2,981	+530	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	2,506	+55	-475
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	2,162	-289	-319

Table C

PROJECTED EMISSIONS -- 1992

	NOx Emissions On Gas & Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	1,091	---	+197
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	894	-197	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	674	-417	-220
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	523	-568	-371

Table D

PROJECTED EMISSIONS -- 1999

	NOx Emissions On Gas & Oil (Tons/Yr)	Emissions Difference from Base Case (Tons/Yr)	Emissions Difference from Option 1 (Tons/Yr)
BASE CASE			
Existing Plant (Permitted)	1,328	---	+239
OPTION 1			
Existing Plant & Unit 5 (Simple Cycle) without SCR (Proposed by Appliant and Permittable per Notice of Intent)	1,089	-239	---
OPTION 2			
Existing Plant & Unit 5 (Combined Cycle) without SCR (Proposed by Applicant)	821	-507	-268
OPTION 3			
Existing Plant & Unit 5 (Combined Cycle) with SCR (Proposed by DER)	637	-691	-452

ATTACHMENT "B"

INFORMATION ON SELECTIVE CATALYTIC REDUCTION COSTS FOR CITY OF VERO BEACH "UNIT 5" PROJECT

Prepared by Black & Veatch

Capital Cost	Scope	Price $ 1,000
1)SCR Reactor	Evaporator System HRSG Modifications Catalyst & Housing CEM Analyzer Inj. Grid Piping & Valves (AIG to Header) Dilution Fan	$1,154
2) SCR Auxiliaries and NH_3 Storage	Tank Piping & Valves Burm Pumps	$125
3) Erection & Engineering	Installation	$218
4) Balance of Equipment	Foundations Ammonia System Erection Misc. Piping & Valves	$37
Total Capital Cost		$1,534
5) Contingency (15%)	Accounts for unforseen price increases.	$230
6) Escalation (6%)	Accounts for price increase between the time of the evaluation and when the equipment is purchased (mid-point of construction)	$70
7) Indirects (16%)	Accounts for the cost of goods and services that are not directly related to the cost of the equipment.	$293
8) Interest During Construction (8%)	Assumes that all payments are made on a lump sum basis at the midpoint of construction. It represent the interest accrued on the capital from the time it is spent until commercial operation.	$83
Total Installed Cost		$2,210

Annual Operating Costs:		
9) Operation and Maintenance Cost	Catalyst replacement Maintenance Labor Operating Labor ECM parts and service Catalyst freight	$614
10) Ammonia Usage	Cost of the ammonia used in the process.	$68
11) Heat Rate Penalty	Includes the additional fuel cost as a result of the additional back pressure created by the SCR.	$Neg.
12) Power Consumption	Auxiliary power requirements to run the SCR system.	$41
13) Lost Generating Capacity	The additional back pressure created by SCR reduces the output of the CT. This lost power will then have to be replaced by other system capacity. There are two components; 1) the cost of building additional capacity and 2) the operating cost of the additional capacity.	$149
Total Operating Cost		$873
14) Fixed Charges on Capital	This represents the annualized portion of total capital cost. The fixed charge rate includes the cost of money, taxes, insurance, and administrative costs.	$248
Total Annual Cost		$1,121

CAPITAL COSTS:	Standard Combustor Design Plus SCR	Standard Combustor Design
	$1,000	$1,000
Differential Combustion(1) turbine costs	Base	Base
HRSG Modification	NA	Base
SCR reactor	1154	Base
SCR Auxilliaries and ammonia storage	125	Base
Water treatment, storage, and injection equipment	NA	Base
SCR Erection	218	Base
Foundations, Ammonia System Erection & BOP Equipment	37	Base
Total Capital Cost	1534	Base
Contingency, (15%)	230	Base
Subtotal	1764	Base
Escalation, (6%)	70	Base
Total Escalated Cost	1834	Base
Sales Tax, (0%)	0	Base
Subtotal	1834	Base
Indirects, (16.0%)	293	Base
IDC, (8.00%)	83	Base
Total Installed Costs	2210	Base

LEVELIZED ANNUAL COST:

Differential O&M Cost	614	Base
Ammonia	68	NA
Energy		
Heat Rate Penalty	0	Base
Power Consumption	41	Base
Lost Generating Capacity & Energy	149	Base
	873	Base
Fixed Charges on Capital,(11.20%)	248	Base
Total Annual Cost	1121	Base
Incremental Total Annual Cost	1121	Base
Annual NOx Emission, tpy		
Gas, tpy	67	312
Oil, tpy	0	0
	67	312
Tpy removed	245	
$/ton Removed	4573	

Oil

Capital Cost	Scope	Price $ 1,000
1)SCR Reactor	Evaporator System HRSG Modifications Catalyst & Housing CEM Analyzer Inj. Grid Piping & Valves (AIG to Header) Dilution Fan	$1,154
2) SCR Auxiliaries and NH_3 Storage	Tank Piping & Valves Burm Pumps	$125
3) Erection & Engineering	Installation	$219
4) Balance of Equipment	Foundations Ammonia System Erection Misc. Piping & Valves	$37
Total Capital Cost		$1,535
5) Contingency (15%)	Accounts for unforseen price increases.	$230
6) Escalation (6%)	Accounts for price increase between the time of the evaluation and when the equipment is purchased (mid-point of construction)	$70
7) Indirects (16%)	Accounts for the cost of goods and services that are not directly related to the cost of the equipment.	$294
8) Interest During Construction (8%)	Assumes that all payments are made on a lump sum basis at the midpoint of construction. It represent the interest accrued on the capital from the time it is spent until commercial operation.	$84
Total Installed Cost		$2,213

Oil

Annual Operating Costs:		
9) Operation and Maintenance Cost	Catalyst replacement Maintenance Labor Operating Labor ECM parts and service Catalyst freight	$836
10) Ammonia Usage	Cost of the ammonia used in the process.	$86
11) Heat Rate Penalty	Includes the additional fuel cost as a result of the additional back pressure created by the SCR.	$Neg.
12) Power Consumption	Auxiliary power requirements to run the SCR system.	$61
13) Lost Generating Capacity	The additional back pressure created by SCR reduces the output of the CT. This lost power will then have to be replaced by other system capacity. There are two components; 1) the cost of building additional capacity and 2) the operating cost of the additional capacity.	$212
Total Operating Cost		$1194
14) Fixed Charges on Capital	This represents the annualized portion of total capital cost. The fixed charge rate includes the cost of money, taxes, insurance, and administrative costs.	$248
Total Annual Cost		$1,442

CAPITAL COSTS:	Standard Combustor Design Plus SCR	Standard Combustor Design
	$1,000	$1,000
Differential Combustion(1) turbine costs	Base	Base
HRSG Modification	NA	Base
SCR reactor	1154	Base
SCR Auxilliaries and ammonia storage	125	Base
Water treatment, storage, and injection equipment	NA	Base
SCR Erection	219	Base
Foundations, Ammonia System Erection & BOP Equipment	37	Base
Total Capital Cost	1535	Base
Contingency, (15%)	230	Base
Subtotal	1765	Base
Escalation, (6%)	70	Base
Total Escalated Cost	1835	Base
Sales Tax, (0%)	0	Base
Subtotal	1835	Base
Indirects, (16.0%)	294	Base
IDC, (8.00%)	84	Base
Total Installed Costs	2213	Base

Oil

LEVELIZED ANNUAL COST:

Differential O&M Cost	836	Base
Ammonia	86	NA
Energy		
Heat Rate Penalty	0	Base
Power Consumption	61	Base
Lost Generating Capacity & Energy	212	Base
	1194	Base
Fixed Charges on Capital,(11.20%)	248	Base
Total Annual Cost	1442	Base
Incremental Total Annual Cost	1442	Base
Annual NOx Emission, tpy		
Gas, tpy	0	0
Oil, tpy	193	503
	193	503
Tpy removed	310	
$/ton Removed	4658	

ATTACHMENT "C"

COMPARISON OF PERMITTED AND PROJECTED NO_x EMISSION LEVELS FROM CITY OF VERO BEACH MUNICIPAL POWER PLANT

Prepared by Black & Veatch

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

Vero Beach, Florida
Municipal Power Plant - Unit 5

B&V Project 16834
B&V File 32.0402
March 11, 1991

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

Attention: Mr. Clair Fancy

Gentlemen:

Thank you for the opportunity to meet with you in your offices on February 12, 1991. We are anxious to work with you to allow construction to begin on the new generating unit in a timely manner in order to meet load demands which are forecasted for the City of Vero Beach Municipal Electric System.

As we discussed, the new combustion turbine project which is being planned for the City of Vero Beach is unique in the manner in which it will be operating. Some of the project's features include the following:

The Combustion turbine unit will be capable of black start to loaded condition within ten minutes. This feature will allow the unit to meet the Florida Coordinating Group's criteria for spinning reserve and could thus avoid the requirement of having a spare steam-turbine generator in operation to handle unexpected outages on the interconnected system.

The existing unit 2 steam generator is in excellent condition and there are no plans to retire it. The unit will remain in standby and will be capable of supplying steam to the unit 2 steam turbine at any time the new Heat Recovery Steam Generator (HRSG) is unavailable for service. Of course, both the Unit 2 steam generator and the Unit 5 HRSG will not operate at the same time. The attached operating diagram (figure 1) we presented during the meeting indicate the two distinct operating modes.

The City of Vero Beach owns 10.8 MW of generation at the St. Lucie Nuclear station and 18.8 MW of the coal fueled Stanton Energy Center in Orlando. These units will normally be dispatched first since they are the most efficient generation owned by the City, however the operation of the Vero Beach plant with Unit 5 in service will provide the City with another very efficient generation source and will also provide considerable flexibility in meeting the system load. The new Unit 5 Combustion Turbine, when

operated in combined cycle with Unit 2 steam turbine, will become the most efficient unit at the Vero Beach plant and will therefore become the first units to be dispatched from the Vero Beach plant site. The existing Unit 3 or Unit 4 will then become the regulating unit for the Vero Beach system. The instantaneous loading of these units will be variable, depending on the system demand.

The attached tables were presented at our meeting to show that the potential hourly NO_x emissions from the plant will decrease with the operation of Unit 5 combustion turbine when it is operated with existing unit 2 in the combined cycle mode. Tables 1 through 8 show various system operating conditions and the resulting NO_x emissions rates in pounds per hour as follows. A brief explanation of the information which was presented in each table is repeated here for your convenience.

Table 1 shows the currently permitted NO_x emission rates in pounds per hour with all existing units operating at full capacity. Unit 1, 2, and 3 do not have a permit restriction on NO_x, therefore the data is based on average AP-42 emission factors for natural gas and residual oil fuel for units of this size.

Table 2 shows the NO_x emission rates with the proposed Unit 5 combustion turbine operating in simple cycle mode and all other units operating at full capacity. There would of course be an increase in NO_x emissions under this scenario by the amount of new emissions attributed to Unit 5. Note, however, that the NO_x emission rate of the new combustion turbine is less than that of any other existing units.

Table 3 shows the operating condition with the new combustion turbine Unit 5 operating in combined cycle with existing Unit 2 steam turbine and all other units operating at maximum capacity. This operating scenario shows a net decrease of 9.3 % in NO_x emission rates from the current condition when operating on natural gas and only a 2.2 % increase when burning number 2 fuel oil.

Table 4 shows the emission rates of the plant at full capacity if the new Unit 5 were operated in combined cycle with Unit 2 and a Selective Catalytic Reduction device were also installed. The emission rates in this instance are further reduced by another 11 % when firing gas and 13.2 % when burning oil.

Table 5 shows Unit 4 only operating at full load condition while all other units are off. This is an operating scenario which currently is not unusual at the Vero Beach plant during light system load conditions. Since the existing Unit 4 is the most efficient unit at the Vero Beach plant, it would normally be the first unit at the plant to be dispatched.

Table 6 shows a similar load condition using the new Unit 5 combustion turbine operating in simple cycle and the existing unit 2 operating as a conventionally fired boiler. This operating condition would meet approximately the same load as that shown in Table 5.

Table 7 shows Unit 5 in combined cycle operation with Unit 2 only. This condition will result in a decrease in emissions of 62 lb/hr or 45.3 % on gas and 84.5 lb/h or 42.2% on oil over existing unit 4 operation.

Table 8 is the comparable case when Unit 5 is operating in combined cycle with Unit 2 and an SCR is installed on the HRSG. This shows an additional reduction of 60 lb/hr on gas and 78.5 lb/hr on oil from table 7.

As you requested, we are also enclosing additional data which reasonably address the total annual NO_x emissions under projected load conditions. In order to establish a baseline for comparison of NO_x emissions from the Vero Beach plant, both with and without an SCR on the new HRSG, the future net annual KWHR energy requirements for the Vero Beach system was used to establish the maximum potential generating hours for the plant. This projection was made by R. W. Beck and Associates. The generation available at both St. Lucie nuclear and Stanton Energy Center were not included in the analysis.

The annual Kilowatt-hour (KWHR) energy load growth projection is shown in Figure 3. The projected peak load kilowatt (KW) demand growth is shown in Figure 2.

The allocation of generation from each of the four existing units was made using the same percent contribution of total annual KWHR energy generation that each unit actually contributed in 1990. For example, in 1990 Unit 1 was responsible for 3.2 % of the total generation. Units 2, 3, and 4 were responsible for 4.8, 18.4, and 73.6 percent of the total annual KWHR of generation, respectively. The City could meet the annual Kilowatt-hour energy projection through 1999 (see figure 3) utilizing the existing capacity at the plant. However, it could not meet the projected Kilowatt peak demand after 1993 without the additional generating capacity from the new Unit 5 (see figure 2).

The annual NO_x emissions for this baseline reference case is shown in the top curve of Figure 4. This projection was made using the same ratio of natural gas to fuel oil usage as the past three years' average fuel use. Annual NO_x emissions for each unit were based on the unit's rated capacity and its potential NO_x emission rate. The potential NO_x emission rates were derived from AP-42 emission factors (Units 1, 2, and 3) and NSPSs criteria for Unit 4. The emission rates are consistent with the rates used in the earlier analysis (submitted during our meeting of 2/12/91) and FDER emission inventory methods.

A second case for projected annual NO_x emissions shown in the center curve of Figure 4 was made for the scenario where Unit 5 is installed as a simple cycle unit only, beginning in 1992 with 5000 hours of operation. Hours of operation for subsequent years were then incremented upward at the same percentage rate as the KWHR energy load projection. Annual NO_x emissions for Unit 5 were based on the proposed (and approved) BACT limits of 42/65 ppmvd for natural gas and fuel oil firing in the simple cycle mode,

respectively. The load distribution percentages for Units 1 through 4 is in the same ratio as in the first case.

The third case shown on the bottom curve of figure 4 is for annual NO_x emissions with Unit 5 and Unit 2 operating in combined cycle. Otherwise the distribution of total generation is the same as in case 2. In this case however, the Unit 2 steam generator is not operating and therefore does not contribute any NO_x emission.

The results shown in Figure 4 demonstrate that, with this model, the potential annual NO_x emissions from the Vero Beach plant with Unit 5 installed are less than the potential emissions using the current plant configuration (i.e. without Unit 5).

The current permitted maximum potential annual NO_x emission from the Vero Beach plant is 2,589 tons per year for natural gas and 2,451 tons per year for fuel oil. These values will increase to a maximum of 2,917 and 2,981 tons per year for natural gas and fuel oil respectively with the addition of Unit 5 in the simple cycle mode at the permit conditions of 25/65 ppmvd. With Unit 5 operating in the combined cycle mode, even <u>without</u> Selective Catalytic Reduction, the maximum potential annual NO_x emission would be lower (2,348 tons per year for natural gas, and 2,506 tons per year for fuel oil combustion).

Although the above annual operating models are straight line examples, we believe that the relative NO_x emissions would be comparable to any actual operating scenarios.

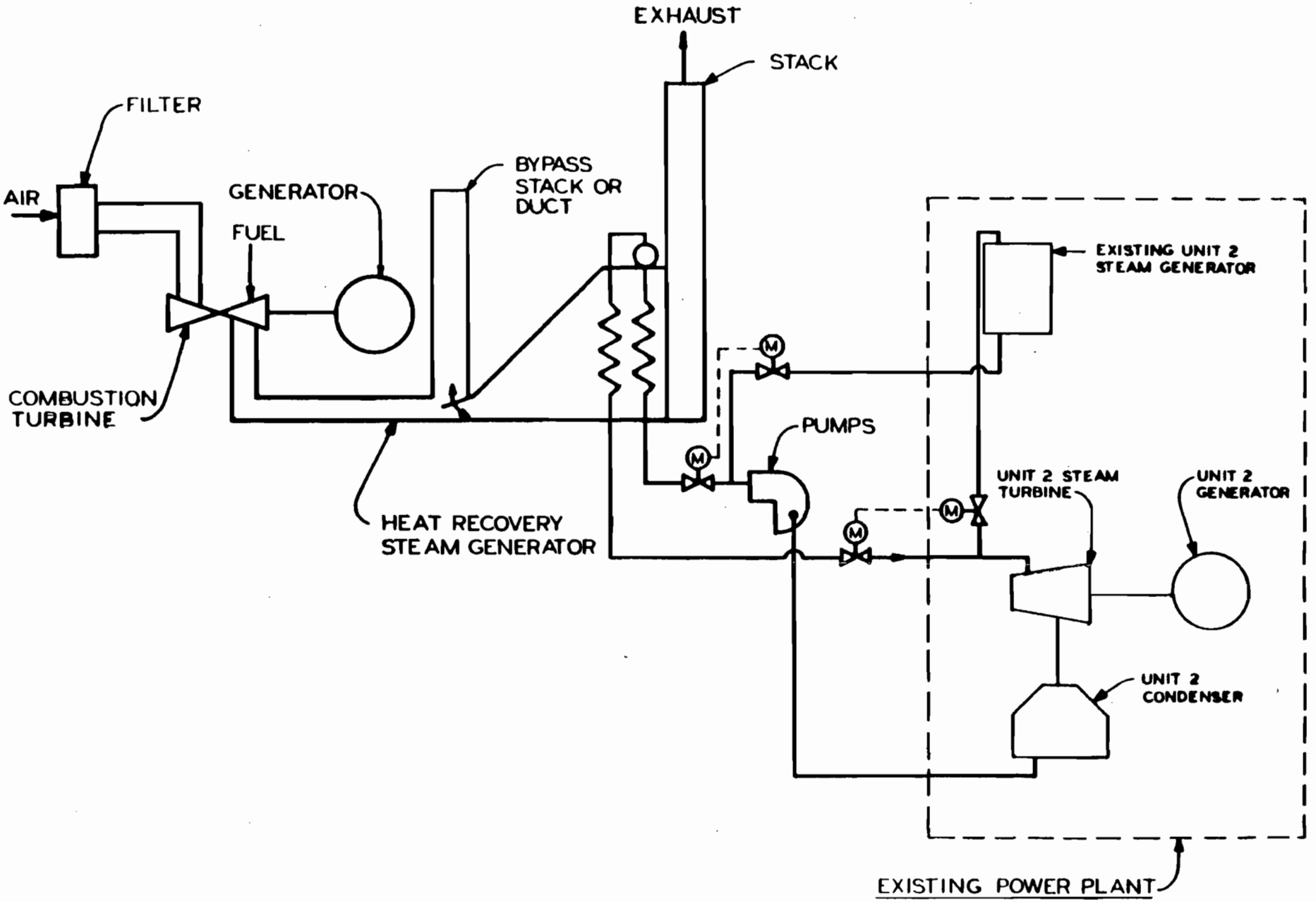
We appreciate this opportunity to respond to your concerns. If you have any questions, please let us know.

Yours very truly,

BLACK & VEATCH

L. W. Sherrill

cc: Mr. Shuler Massey
Mr. Peter Cunningham



VERO BEACH
COMBUSTION TURBINE COMBINED CYCLE PROJECT

FIGURE 1

FIGURE 2

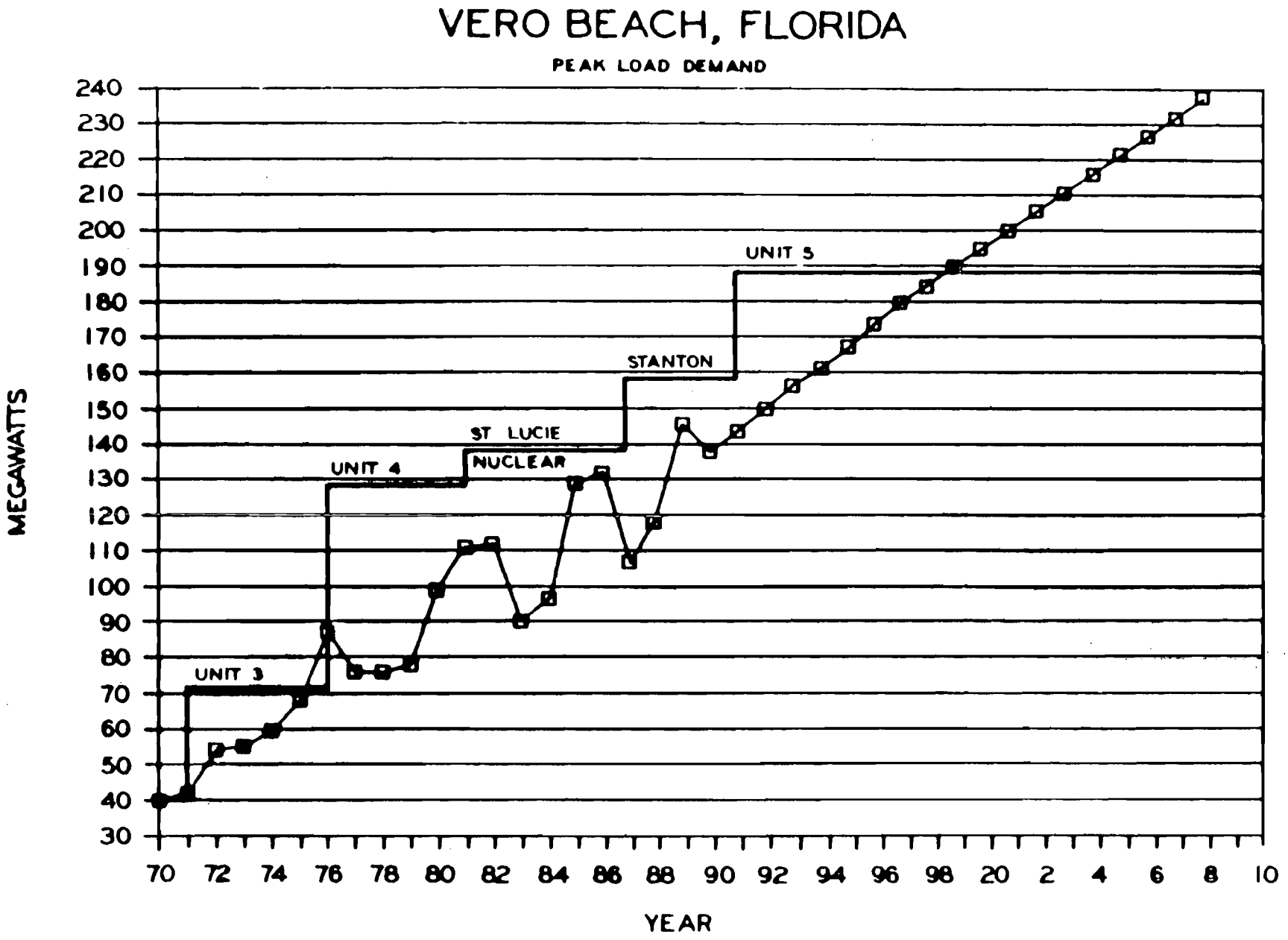


FIGURE 2

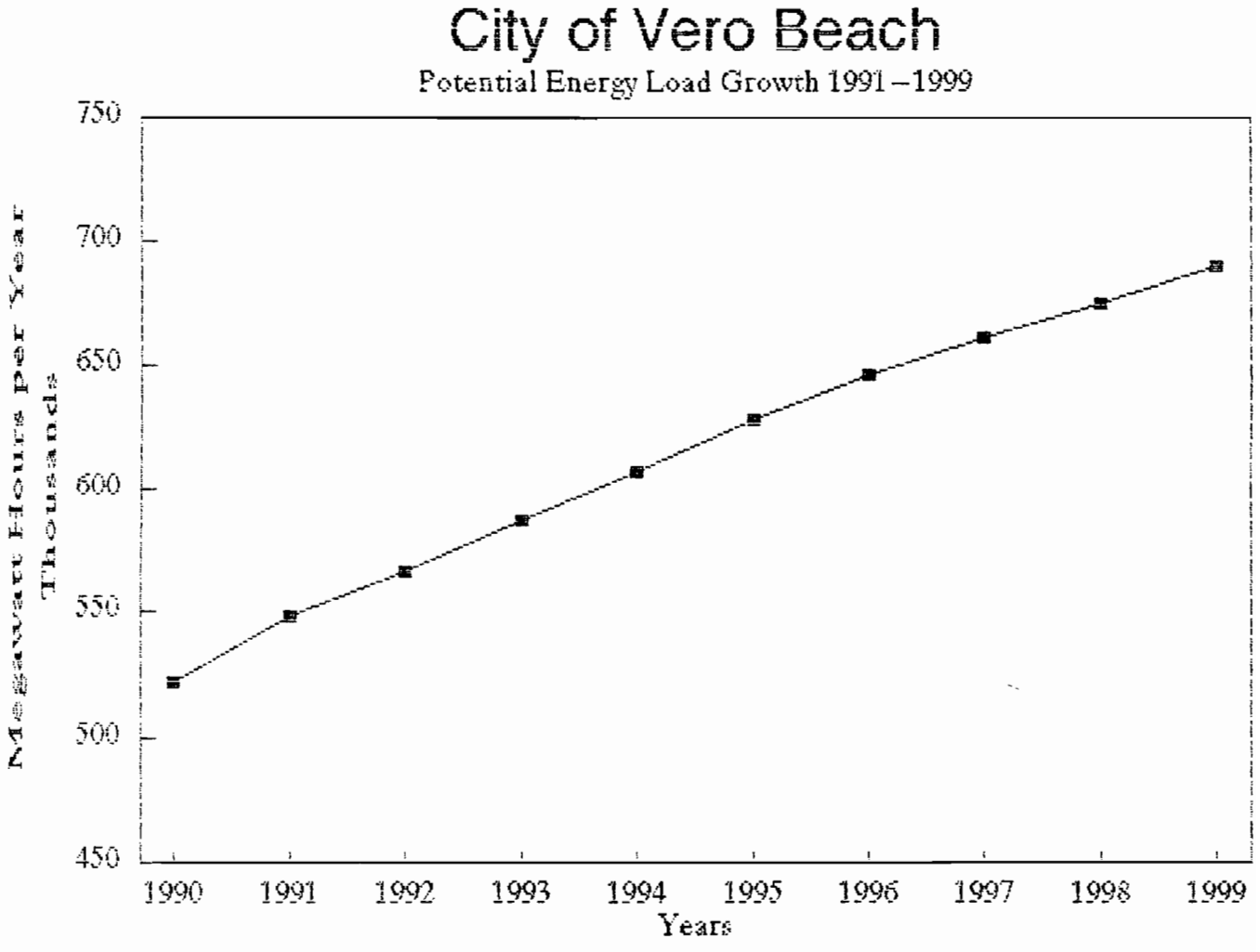
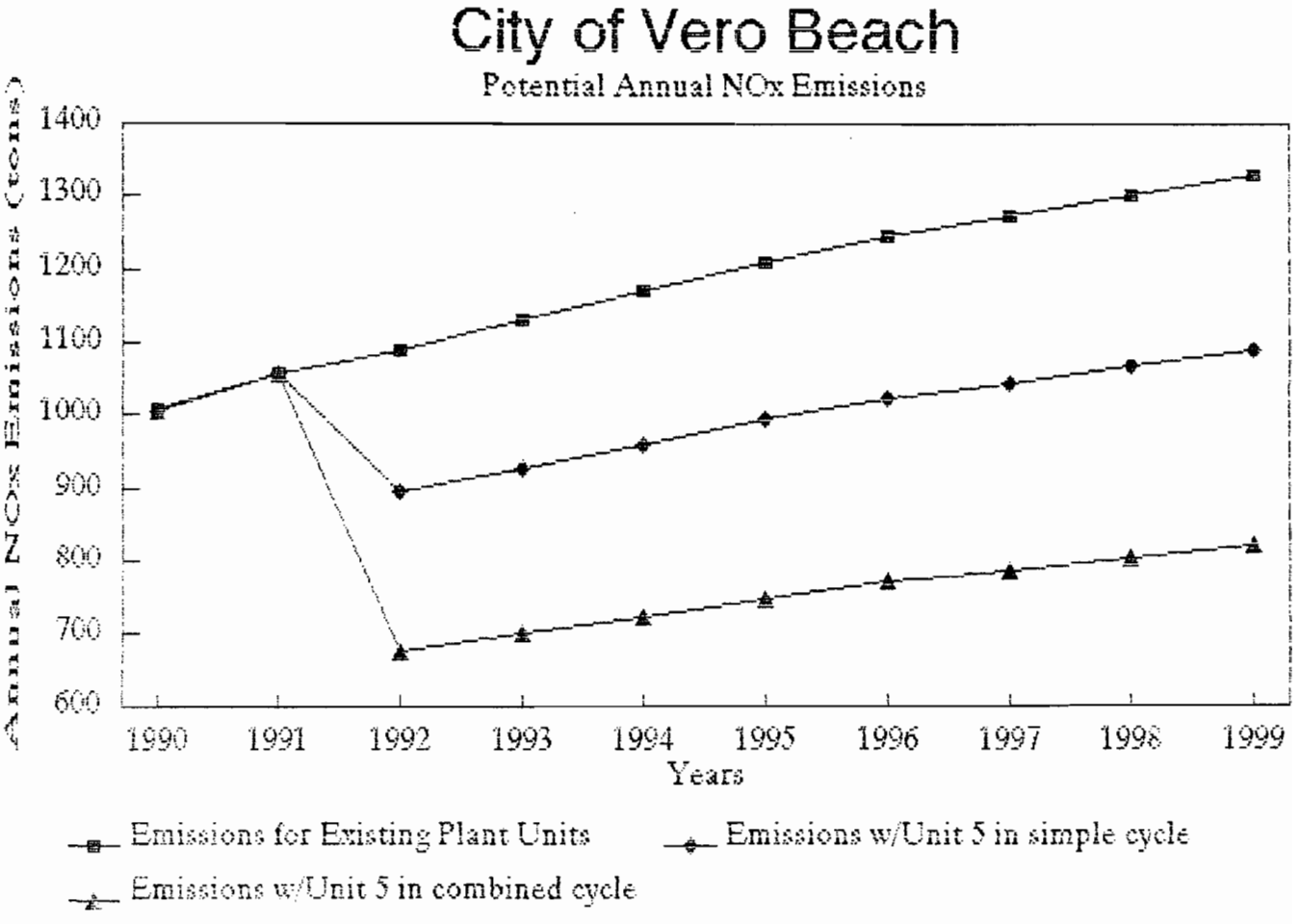

City of Vero Beach
Potential Energy Load Growth 1991 – 1999
Megawatt Hours Per Year
Thousands
750
700
650
600
550
500
450
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Years

FIGURE 3



Based on Operations at the Vero Beach Plant Necessary to Meet Projected Load Growth

FIGURE 4

TABLE 1

CURRENT PERMITTED NOX EMISSION RATES
FULL PLANT CAPACITY

	NATURAL GAS					FUEL OIL			
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	12.5	201.8	0.192	105.7	1	12.5	140.0	0.933	62.5
2	16.5	248.0	0.236	129.9	2	16.5	243.0	1.620	108.5
3	33.0	417.0	0.397	218.4	3	33.0	410.0	2.733	183.1
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
	117.0	1551.8	1.478	591.0		117.0	1478.0	9.853	559.7

Note: Potential NOx emission rates for Units 1-3 are based on AP-42 emission factors for natural gas and residual oil combustion.

Natural Gas - 550 lb/mcf (Table 1.4-1 Uncontrolled Emission Factors for Natural Gas Combustion)
No. 6 Fuel Oil - 67 lb/kgal (Table 1.3-1 Uncontrolled Emission Factors for Fuel Oil Combustion)

Potential NOx emission rate for Unit 4 are based on NSPS and permit conditions.

TABLE 2

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 1 - Operating Unit 5 in simple cycle mode:

	NATURAL GAS				FUEL OIL				
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	12.5	201.8	0.192	105.7	1	12.5	140.0	0.933	62.5
2	16.5	248.0	0.236	129.9	2	16.5	243.0	1.620	108.5
3	33.0	417.0	0.397	218.4	3	33.0	410.0	2.733	183.1
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
5	40.0	446.0	0.425	75.0	5	40.0	443.2	2.955	121.0
	157.0	1997.8	1.903	666.0		157.0	1921.2	12.808	680.7
Increase from current NOx emission (lb/h):				75.0	Increase from current NOx emission (lb/h):				121.0

TABLE 3

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 2 - Operating Unit 5 in combined cycle mode (without SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	12.5	201.8	0.192	105.7
2	0.0	0.0	0.000	0.0
3	33.0	417.0	0.397	218.4
4	55.0	685.0	0.652	137.0
5	60.0	446.0	0.425	75.0
	160.5	1749.8	1.666	536.1

Increase from current NOx emission (lb/h): -54.9
Increase from simple cycle operation (lb/h): -129.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	12.5	140.0	0.933	62.5
2	0.0	0.0	0.000	0.0
3	33.0	410.0	2.733	183.1
4	55.0	685.0	4.567	205.5
5	60.0	443.2	2.955	121.0
	160.5	1678.2	11.188	572.2

Increase from current NOx emission (lb/h): 12.5
Increase from simple cycle operation (lb/h): -108.5

TABLE 4

PROPOSED NOX EMISSION RATES - FULL PLANT CAPACITY

Option 3 Operating Unit 5 in combined cycle mode (with SCR)

	NATURAL GAS				FUEL OIL				
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	12.5	201.8	0.192	105.7	1	12.5	140.0	0.933	62.5
2	0.0	0.0	0.000	0.0	2	0.0	0.0	0.000	0.0
3	33.0	417.0	0.397	218.4	3	33.0	410.0	2.733	183.1
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
5	60.0	446.0	0.425	15.0	5	60.0	443.2	2.955	42.5
	160.5	1749.8	1.666	476.1		160.5	1678.2	11.188	493.7
Increase from current NOx emission (lb/h):				-114.9	Increase from current NOx emission (lb/h):				-66.0
Increase from simple cycle operation (lb/h):				-189.9	Increase from simple cycle operation (lb/h):				-187.0
Increase from combined cycle operation without SCR (lb/h):				-60.0	Increase from combined cycle operation without SCR (lb/h):				-78.5

Note: Potential NOx emission rates for Unit 5 are based on BACT analysis provided in the PSD application.

TABLE 5

CURRENT PERMITTED NOX EMISSION RATES
BASE LOAD CAPACITY

	NATURAL GAS				FUEL OIL				
Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions	Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h		MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0	1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0	2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0	3	0.0	0.0	0.000	0.0
4	55.0	685.0	0.652	137.0	4	55.0	685.0	4.567	205.5
	55.0	685.0	0.652	137.0		55.0	685.0	4.567	205.5

Note: Potential NOx emission rates for Units 1-3 are based on AP-42 emission factors for natural gas and residual oil combustion.

Natural Gas - 550 lb/mcf (Table 1.4-1 Uncontrolled Emission Factors for Natural Gas Combustion)
No. 6 Fuel Oil - 67 lb/kgal (Table 1.3-1 Uncontrolled Emission Factors for Fuel Oil Combustion)

Potential NOx emission rate for Unit 4 are based on NSPS and permit conditions.

TABLE 6

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 1 - Operating Unit 5 in simple cycle mode:

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	16.5	248.0	0.236	129.9
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	40.0	446.0	0.425	75.0
	56.5	694.0	0.661	204.9

Increase from current NOx emission (lb/h): 67.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	16.5	243.0	1.620	108.5
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	40.0	443.2	2.955	121.0
	56.5	686.2	4.575	229.5

Increase from current NOx emission (lb/h): 24.0

TABLE 7

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 2 - Operating Unit 5 in combined cycle mode (without SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	446.0	0.425	75.0
	60.0	446.0	0.425	75.0

Increase from current NOx emission (lb/h): -62.0
Increase from simple cycle operation (lb/h): -129.9

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	443.2	2.955	121.0
	60.0	443.2	2.955	121.0

Increase from current NOx emission (lb/h): -84.5
Increase from simple cycle operation (lb/h): -108.5

TABLE 8

PROPOSED NOX EMISSION RATES - BASE LOAD CAPACITY

Option 3 Operating Unit 5 in combined cycle mode (with SCR)

NATURAL GAS

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	mcf/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	446.0	0.425	15.0
	60.0	446.0	0.425	15.0

Increase from current NOx emission (lb/h): -122.0
Increase from simple cycle operation (lb/h): -189.9
Increase from combined cycle operation without SCR (lb/h): -60.0

FUEL OIL

Unit	Rated Capacity	Fuel Burn Rate	Fuel Usage Rate	Potential NOx Emissions
	MW	MBtu/h	kgal/h	lb/h
1	0.0	0.0	0.000	0.0
2	0.0	0.0	0.000	0.0
3	0.0	0.0	0.000	0.0
4	0.0	0.0	0.000	0.0
5	60.0	443.2	2.955	42.5
	60.0	443.2	2.955	42.5

Increase from current NOx emission (lb/h): -163.0
Increase from simple cycle operation (lb/h): -187.0
Increase from combined cycle operation without SCR (lb/h): -78.5

Note: Potential NOx emission rates for Unit 5 are based on BACT analysis provided in the PSD application.

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,718	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,550	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
		12,698	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,108	13,846	105.7	58.5	15	189	62.5	0.5	59.0
2	16.5	1,634	26,963	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,221	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	6,868	377,713	137.0	470.4	94	5,164	205.5	9.6	480.1
		13,313	540,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,144	14,305	105.7	60.5	16	196	62.5	0.5	61.0
2	16.5	1,685	27,857	129.9	109.7	23	381	108.5	1.3	110.9
3	33.0	3,826	126,274	218.4	417.9	52	1,727	183.1	4.8	422.6
4	55.0	7,095	390,238	137.0	486.0	97	5,336	205.5	10.0	496.0
		13,754	558,674		1,074.0	188	7,640		16.5	1,090.5

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,186	14,829	105.7	62.7	16	203	62.5	0.5	63.2
2	16.5	1,750	28,877	129.9	113.7	24	395	108.5	1.3	115.0
3	33.0	3,967	130,897	218.4	433.2	54	1,790	183.1	5.0	438.1
4	55.0	7,355	404,525	137.0	503.8	101	5,531	205.5	10.3	514.2
		14,258	579,128		1,113.3	195	7,919		17.1	1,130.4

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,226	15,350	105.7	64.9	17	210	62.5	0.5	65.4
2	16.5	1,812	29,892	129.9	117.7	25	409	108.5	1.3	119.0
3	33.0	4,106	135,497	218.4	448.4	56	1,853	183.1	5.1	453.5
4	55.0	7,613	418,740	137.0	521.5	104	5,725	205.5	10.7	532.2
		14,759	599,479		1,152.5	202	8,197		17.7	1,170.2

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,269	15,868	105.7	67.1	17	217	62.5	0.5	67.6
2	16.5	1,873	30,901	129.9	121.6	26	423	108.5	1.4	123.0
3	33.0	4,245	140,071	218.4	463.5	58	1,916	183.1	5.3	468.8
4	55.0	7,870	432,876	137.0	539.1	108	5,919	205.5	11.1	550.2
		15,257	619,716		1,191.4	209	8,474		18.3	1,209.7

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,307	16,333	105.7	69.1	18	223	62.5	0.6	69.6
2	16.5	1,928	31,806	129.9	125.2	26	435	108.5	1.4	126.6
3	33.0	4,369	144,175	218.4	477.1	60	1,972	183.1	5.5	482.6
4	55.0	8,101	445,559	137.0	554.9	111	6,092	205.5	11.4	566.3
		15,704	637,873		1,226.3	215	8,722		18.8	1,245.1

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,336	16,694	105.7	70.6	18	228	62.5	0.6	71.2
2	16.5	1,970	32,510	129.9	128.0	27	445	108.5	1.5	129.4
3	33.0	4,466	147,363	218.4	487.6	61	2,015	183.1	5.6	493.2
4	55.0	8,280	455,410	137.0	567.2	113	6,227	205.5	11.6	578.9
		16,052	651,977		1,253.4	219	8,915		19.3	1,272.6

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,364	17,053	105.7	72.1	19	233	62.5	0.6	72.7
2	16.5	2,013	33,207	129.9	130.7	28	454	108.5	1.5	132.2
3	33.0	4,561	150,526	218.4	498.1	62	2,058	183.1	5.7	503.8
4	55.0	8,458	465,185	137.0	579.4	116	6,360	205.5	11.9	591.2
		16,396	665,971		1,280.3	224	9,106		19.7	1,300.0

LOAD DISTRIBUTION AND NOx EMISSIONS - EXISTING PLANT CONFIGURATION

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,394	17,421	105.7	73.7	19	239	62.5	0.6	74.3
2	16.5	2,056	33,925	129.9	133.5	28	464	108.5	1.5	135.1
3	33.0	4,660	153,781	218.4	508.9	64	2,103	183.1	5.8	514.7
4	55.0	8,641	475,244	137.0	591.9	118	6,498	205.5	12.1	604.0
		16,751	680,371		1,308.0	229	9,303		20.1	1,328.1

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,718	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,550	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		12,698	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,108	13,846	105.7	58.5	15	189	62.5	0.5	59.0
2	16.5	1,634	26,963	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,221	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	6,868	377,713	137.0	470.4	94	5,164	205.5	9.6	480.1
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		13,313	540,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	740	9,254	105.7	39.1	10	127	62.5	0.3	39.4
2	16.5	1,092	18,017	129.9	70.9	15	247	108.5	0.8	71.7
3	33.0	2,475	81,674	218.4	270.3	34	1,121	183.1	3.1	273.4
4	55.0	4,589	252,409	137.0	314.4	63	3,465	205.5	6.5	320.8
5	40.0	4,933	197,320	75.0	185.0	67	2,680	121.0	4.1	189.0
		13,829	558,674		879.7	189	7,640		14.8	894.4

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	767	9,593	105.7	40.6	11	132	62.5	0.3	40.9
2	16.5	1,132	18,677	129.9	73.5	16	256	108.5	0.8	74.4
3	33.0	2,566	84,664	218.4	280.2	35	1,162	183.1	3.2	283.4
4	55.0	4,757	261,650	137.0	325.9	65	3,592	205.5	6.7	332.6
5	40.0	5,114	204,544	75.0	191.8	69	2,778	121.0	4.2	196.0
		14,336	579,128		911.9	196	7,919		15.3	927.2

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	794	9,930	105.7	42.0	11	136	62.5	0.3	42.3
2	16.5	1,172	19,333	129.9	76.1	16	265	108.5	0.9	77.0
3	33.0	2,656	87,639	218.4	290.0	36	1,203	183.1	3.3	293.3
4	55.0	4,924	270,845	137.0	337.3	68	3,718	205.5	6.9	344.3
5	40.0	5,293	211,732	75.0	198.5	72	2,875	121.0	4.3	202.8
		14,840	599,479		943.9	203	8,197		15.8	959.8

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	821	10,265	105.7	43.4	11	141	62.5	0.4	43.8
2	16.5	1,211	19,986	129.9	78.7	17	274	108.5	0.9	79.6
3	33.0	2,745	90,598	218.4	299.8	38	1,243	183.1	3.4	303.2
4	55.0	5,091	279,988	137.0	348.7	70	3,843	205.5	7.2	355.9
5	40.0	5,472	218,880	75.0	205.2	74	2,973	121.0	4.5	209.7
		15,341	619,716		975.8	210	8,474		16.4	992.2

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	845	10,566	105.7	44.7	12	145	62.5	0.4	45.0
2	16.5	1,247	20,571	129.9	81.0	17	282	108.5	0.9	81.9
3	33.0	2,826	93,252	218.4	308.6	39	1,280	183.1	3.6	312.1
4	55.0	5,240	289,191	137.0	358.9	72	3,956	205.5	7.4	366.3
5	40.0	5,632	225,293	75.0	211.2	76	3,060	121.0	4.6	215.8
		15,790	637,873		1,004.4	216	8,722		16.9	1,021.2

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	864	10,799	105.7	45.7	12	148	62.5	0.4	46.0
2	16.5	1,274	21,026	129.9	82.6	17	288	108.5	0.9	83.7
3	33.0	2,888	95,314	218.4	315.4	40	1,308	183.1	3.6	319.0
4	55.0	5,356	294,563	137.0	366.9	74	4,043	205.5	7.6	374.4
5	40.0	5,757	230,274	75.0	215.9	78	3,127	121.0	4.7	220.6
		16,139	651,977		1,026.6	221	8,915		17.2	1,043.8

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	883	11,031	105.7	46.6	12	151	62.5	0.4	47.0
2	16.5	1,302	21,477	129.9	84.5	18	294	108.5	1.0	85.5
3	33.0	2,950	97,360	218.4	322.2	40	1,336	183.1	3.7	325.9
4	55.0	5,471	300,886	137.0	374.7	75	4,130	205.5	7.7	382.5
5	40.0	5,880	235,217	75.0	220.5	80	3,194	121.0	4.8	225.3
		16,486	665,971		1,048.6	225	9,106		17.6	1,066.2

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (simple cycle mode)

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	902	11,270	105.7	47.6	12	155	62.5	0.4	48.0
2	16.5	1,330	21,942	129.9	86.4	18	301	108.5	1.0	87.4
3	33.0	3,014	99,465	218.4	329.1	41	1,365	183.1	3.8	332.9
4	55.0	5,589	307,392	137.0	382.8	77	4,219	205.5	7.9	390.7
5	40.0	6,008	240,303	75.0	225.3	82	3,263	121.0	4.9	230.2
		16,842	680,371		1,071.3	230	9,303		18.0	1,089.3

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1990

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,057	13,207	105.7	55.8	14	181	62.5	0.5	56.3
2	16.5	1,559	25,718	129.9	101.2	21	352	108.5	1.2	102.4
3	33.0	3,533	116,579	218.4	385.8	48	1,594	183.1	4.4	390.2
4	55.0	6,550	360,276	137.0	448.7	90	4,925	205.5	9.2	457.9
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		12,698	515,780		991.6	174	7,052		15.2	1,006.8

1991

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	1,108	13,846	105.7	58.5	15	189	62.5	0.5	59.0
2	16.5	1,634	26,963	129.9	106.1	22	369	108.5	1.2	107.3
3	33.0	3,704	122,221	218.4	404.4	51	1,671	183.1	4.6	409.1
4	55.0	6,868	377,713	137.0	470.4	94	5,164	205.5	9.6	480.1
5	0.0	0	0	75.0	0.0	0	0	121.0	0.0	0.0
		13,313	540,743		1,039.5	182	7,393		16.0	1,055.5

1992

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	566	7,080	105.7	29.9	8	98	62.5	0.2	30.2
2	20.0	4,933	98,660	0.0	0.0	67	1,340	0.0	0.0	0.0
3	33.0	1,894	62,492	218.4	206.8	26	861	183.1	2.4	209.2
4	55.0	3,511	193,122	137.0	240.5	48	2,661	205.5	5.0	245.5
5	40.0	4,933	197,320	75.0	185.0	67	2,680	121.0	4.1	189.0
		15,837	558,674		662.2	216	7,640		11.7	673.9

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1993

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	587	7,339	105.7	31.0	8	102	62.5	0.3	31.3
2	20.0	5,114	102,272	0.0	0.0	69	1,389	0.0	0.0	0.0
3	33.0	1,963	64,780	218.4	214.4	27	892	183.1	2.5	216.8
4	55.0	3,640	200,193	137.0	249.3	50	2,758	205.5	5.2	254.5
5	40.0	5,114	204,544	75.0	191.8	69	2,778	121.0	4.2	196.0
		16,417	579,128		686.5	224	7,919		12.1	698.6

1994

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	608	7,597	105.7	32.1	8	105	62.5	0.3	32.4
2	20.0	5,293	105,866	0.0	0.0	72	1,438	0.0	0.0	0.0
3	33.0	2,032	67,056	218.4	221.9	28	924	183.1	2.6	224.5
4	55.0	3,768	207,227	137.0	258.1	52	2,855	205.5	5.3	263.4
5	40.0	5,293	211,732	75.0	198.5	72	2,875	121.0	4.3	202.8
		16,994	599,479		710.6	232	8,197		12.5	723.1

1995

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	628	7,854	105.7	33.2	9	109	62.5	0.3	33.5
2	20.0	5,472	109,440	0.0	0.0	74	1,486	0.0	0.0	0.0
3	33.0	2,101	69,320	218.4	229.4	29	955	183.1	2.6	232.0
4	55.0	3,895	214,223	137.0	266.8	54	2,951	205.5	5.5	272.3
5	40.0	5,472	218,880	75.0	205.2	74	2,973	121.0	4.5	209.7
		17,568	619,716		734.6	240	8,474		12.9	747.5

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1996

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	647	8,084	105.7	34.2	9	112	62.5	0.3	34.5
2	20.0	5,632	112,646	0.0	0.0	76	1,530	0.0	0.0	0.0
3	33.0	2,162	71,351	218.4	236.1	30	983	183.1	2.7	238.8
4	55.0	4,009	220,499	137.0	274.6	55	3,038	205.5	5.7	280.3
5	40.0	5,632	225,293	75.0	211.2	76	3,060	121.0	4.6	215.8
		18,083	637,873		756.1	247	8,722		13.3	769.4

1997

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	661	8,262	105.7	34.9	9	114	62.5	0.3	35.2
2	20.0	5,757	115,137	0.0	0.0	78	1,564	0.0	0.0	0.0
3	33.0	2,210	72,929	218.4	241.3	30	1,005	183.1	2.8	244.1
4	55.0	4,098	225,375	137.0	280.7	56	3,105	205.5	5.8	286.5
5	40.0	5,757	230,274	75.0	215.9	78	3,127	121.0	4.7	220.6
		18,482	651,977		772.8	252	8,915		13.6	786.4

1998

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	675	8,440	105.7	35.7	9	117	62.5	0.3	36.0
2	20.0	5,880	117,608	0.0	0.0	80	1,597	0.0	0.0	0.0
3	33.0	2,257	74,494	218.4	246.5	31	1,026	183.1	2.8	249.4
4	55.0	4,186	230,212	137.0	286.7	58	3,172	205.5	5.9	292.6
5	40.0	5,880	235,217	75.0	220.5	80	3,194	121.0	4.8	225.3
		18,879	665,971		789.4	258	9,106		13.9	803.3

LOAD DISTRIBUTION AND NOx EMISSIONS - PROJECTED PLANT CONFIGURATION (combined cycle mode)

1999

		Natural Gas				Fuel Oil				
Unit	Unit Rating	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Operating Period	Energy Generation	Potential NOx Emission	Estimated NOx Emissions	Total NOx Emissions Gas+Oil
	(MW)	(h)	(MWh/y)	(lb/h)	(t/yr)	(h)	(MWh/y)	(lb/h)	(t/yr)	(t/yr)
1	12.5	690	8,622	105.7	36.5	10	119	62.5	0.3	36.8
2	20.0	6,008	120,151	0.0	0.0	82	1,632	0.0	0.0	0.0
3	33.0	2,306	76,105	218.4	251.8	32	1,048	183.1	2.9	254.7
4	55.0	4,276	235,190	137.0	292.9	59	3,240	205.5	6.1	299.0
5	40.0	6,008	240,303	75.0	225.3	82	3,263	121.0	4.9	230.2
		19,287	680,371		806.5	263	9,303		14.2	820.7

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CITY OF VERO BEACH, FLORIDA Petitioner, vs. STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION, Respondent.	)	CASE NO. _____

PETITION FOR FORMAL ADMINISTRATIVE PROCEEDINGS

Petitioner, City of Vero Beach, Florida, ("City" or "Petitioner"), by and through its undersigned counsel, hereby files this petition for formal administrative proceedings pursuant to Section 120.57(1) and Chapter 403, Florida Statutes, and Titles 17 and 28, Florida Administrative Code, in order to challenge certain construction permit conditions set forth in the Department of Environmental Regulation's ("DER" or "Respondent") December 21, 1990 Notice of Intent to Issue Permit. In support of this Petition, the City states:

IDENTIFICATION OF PARTIES

1. The name, address, and telephone number of the Petitioner is City of Vero Beach, Florida, Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, Florida, 32961-1389, 407/567-5151.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. ~~Steve Smallwood~~
2. Clair
3. RECEIVED
4. FEB 22 1991

DER - BAQM

Remarks:

FYI - Please have whoever on your staff is handling this to give me a call. Thanks.

Doug MacLaughlin

From	Date
Doug MacLaughlin	2-21-91
	Phone

2. The name and address of the Respondent is State of Florida, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

RESPONDENT'S FILE NUMBER AND COUNTY

3. DER has assigned File Nos. AC 31-184928 and PSD-FL-152 to this matter. This Petition relates to a DER air pollution source construction permit for a proposed sixty (60) megawatt (MW) combined cycle turbine system to be constructed at the existing Municipal Power Plant in Vero Beach, Indian River County, Florida. The City proposes to repower existing Unit 2 by installing a new 40 MW combustion turbine and a new heat recovery steam generator (HRSG) to be used in conjunction with an existing 20 MW steam turbine electric generator.

RECEIPT OF NOTICE OF AGENCY ACTION

4. The City of Vero Beach received DER's Intent to Issue Permit by U.S. Mail on or about December 27, 1990. By order dated January 24, 1991, DER extended the time for initiating administrative proceedings to and including February 14, 1991.

SUBSTANTIAL INTERESTS AFFECTED

5. The City of Vero Beach currently operates four natural gas and fuel oil fired steam turbine units, totaling 117 MW of electric power, at the existing Vero Beach Municipal Power Plant. The City has applied to DER for an

air pollution source construction permit to authorize the installation of a new 40 MW combustion turbine and new HRSG in order to repower the existing Unit 2 steam turbine electric generator. Certain conditions contained in the DER construction permit for the proposed facility are unreasonable and unnecessary under Chapter 403, Florida Statutes, and inconsistent with the rules promulgated thereunder. These conditions would without justification require the City to install and operate selective catalytic reduction (SCR) devices to control nitrogen oxide (NO_x) emissions from the repowered unit. Installation of an SCR system would expose the City of Vero Beach to excessive construction costs, as well as substantially increased operating costs. Therefore, the Intent to Issue Permit substantially and detrimentally impacts the City of Vero Beach and its electric customers.

DISPUTED ISSUES OF MATERIAL FACT

6. The disputed issues of material fact involve the NO_x emission limitations proposed by DER as best available control technology ("BACT") in the construction permit. DER's BACT determination, as currently proposed, is arbitrary and capricious. Specific issues of material fact include whether DER, in formulating NO_x BACT limitations applicable to the proposed combined cycle unit:

a. Is improperly and insufficiently accounting for energy, environmental and economic impacts;

b. Is acting in a manner that is not uniform and consistent with its previous actions on similar or analogous applications;

c. Has not articulated and is incapable of articulating facts and circumstances that justify any incipient agency policy embodied in the Intent to Issue Permit;

d. Is deviating from the Department's validly promulgated rules relating to BACT determination; and

e. Is improperly applying a statement of general applicability that implements, interprets or prescribes law or policy, without complying with applicable rulemaking procedures.

FACTS

7. The City of Vero Beach currently operates the Vero Beach Municipal Power Plant in Vero Beach, Indian River County, just east U.S. 1 and west of the Indian River. The existing plant consists of four natural gas and fuel oil fired steam turbine units, totaling 117 MW of electric power. Facilities at the plant site currently include the building housing the four existing turbine units, three fuel oil storage tanks, an electrical substation, and ancillary facilities.

8. On or about July 27, 1990, the City of Vero Beach submitted to DER an application for an air construction permit that would authorize construction of a sixty (60) MW combined cycle unit at the existing plant site. The City proposes to repower existing Unit 2 by installing a new 40 MW combustion turbine and new HRSG, which will be used in conjunction with an existing 20 MW steam turbine electric generator. The installation of the new combustion turbine will increase the City's electric generating capability by 40 MW. The new HRSG will provide more efficient generation than the existing natural gas and oil fired boiler that currently provides steam to the existing 20 MW turbine generator. The resulting combined cycle unit will burn natural gas as the primary fuel and No. 2 fuel oil as a backup fuel.

9. When operating in the simple cycle mode, the proposed unit will result in an increase in potential emissions of various regulated air pollutants from the existing power plant facilities. The United States Environmental Protection Agency ("EPA") and DER have promulgated regulations that require prevention of significant deterioration ("PSD") review in conjunction with modifications of existing sources that increase potential air emissions above specified threshold amounts. The City's application is subject to PSD review.

10. EPA's PSD regulations are found at 40 CFR §§51.166 and 52.21; the PSD program is administered by DER through Florida's EPA-approved State Implementation Plan, which is comprised of applicable portions of Chapter 17-2, Florida Administrative Code. DER's PSD regulations are codified at Florida Administrative Code Rule 17-2.500. These regulations require application of BACT, a term that is defined by Rule 17-2.100(28) as follows:

> An emission limitation, including a visible emissions standard, 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 (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

In addition to the factors specified in the above quoted definition, DER must consider the following in determining BACT:

> (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169 [of the Clean Air Act], 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.

§17-2.630(1), Florida Administrative Code.

11. Technical information and analyses required by the PSD regulations was set forth in the Ambient Air Quality Impact Analysis (AAQIA) attached to the City's application. Information pertaining to control technology review, and BACT, was set forth in Section 6 of the AAQIA.

12. Although DER has responsibility for making BACT determinations in Florida, EPA typically comments upon and participates informally in the process. In December, 1978, EPA published Guidelines for the Evaluation of BACT to assist states in rendering BACT determinations. The BACT evaluation process suggested by the 1978 guidelines generally provided for appropriate consideration of the factors specified in DER's definition of BACT in Rule 17-2.100(28), F.A.C. Until at least 1987, DER applied this approach in all BACT determinations in the State of Florida.

13. Late in 1987, EPA issued a memorandum advocating a so-called "top-down" approach to BACT determinations. [EPA Memorandum from J. Potter (Assistant Administrator for Air and Radiation) to Regional Administrators, "Improving New Source Review (NSR) Implementation," December 1, 1987] This memorandum reflects a significant shift in EPA policy in that it fails to provide for adequate case-by-case consideration of energy, environmental and economic impacts as required by DER's Rule 17-2.100(28), F.A.C. Instead, this new top-down approach requires that deliberations begin with the most stringent limitation that has been applied to

the same source category. The BACT determination must reflect this limitation unless there are specific facts warranting its rejection, such as site-specific technical or economic infeasibility. In effect, the "top down" approach shifts the burden of proof to the applicant to justify why the proposed source is unable to apply the most stringent technology available. In March, 1990, EPA made available a "draft" top-down BACT guidance document, which provided additional guidance on implementation of this new policy. [EPA Office of Air Quality Planning and Standards, "Top-Down" Best Available Control Technology Guidance Document, March 15, 1990]

14. Since EPA issued the 1987 memorandum advocating the "top down" BACT policy, DER has applied this new approach in virtually all, if not all, BACT determinations in the State of Florida. Because this new policy fails to provide for adequate consideration of the energy, environmental and economic factors specified in DER's definition of BACT, the "top down" approach is inconsistent with Rule 17-2.100(28), F.A.C.

15. Even using this "top-down" approach, DER has not previously imposed an emission limitation requiring the use of SCR as BACT for NO_x in its BACT determinations for any electrical generating facility. DER has failed to articulate any factors to justify the inconsistent treatment proposed for the City's electrical generating facility.

16. In the AAQIA accompanying its permit application, the City proposed that BACT for NO_x emissions from the proposed combined cycle unit is the use of water injection necessary to limit emissions to 42 ppmvd or 65 ppmvd (at 15% oxygen) when burning natural gas or No. 2 fuel oil, respectively. The City rejected SCR as BACT for NO_x because of site-specific energy, environmental, and economic concerns. First, the City noted that the energy requirements of an SCR system would reduce the energy output of the combustion turbines by approximately one percent. The City also identified potential adverse environmental impacts of SCR which would require on-site storage and handling of ammonia, and could result in emissions of particulate ammonia sulfate compounds and potentially hazardous unreacted ammonia. In addition, SCR would require periodic replacement of catalytic elements, which could require implementation of hazardous waste disposal procedures. Moreover, installation and use of an SCR system would have a significant economic impact on the project. In the AAQIA, the City noted that installation and operation of SCR would increase total costs for the project by $790,000 per year, resulting in an incremental cost of $3,050 per ton of NO_x removed while burning natural gas and $2,290 per ton of NO_x removed while burning No. 2 fuel oil.

17. Due to these significant energy, environmental, and economic considerations, the City asserts that BACT for NO_x

should be based upon water injection under either the approach to BACT recommended in EPA's 1978 guidelines and previously employed by DER, or the "top down" approach currently recommended by EPA.

18. Since submitting its construction permit application for the proposed combined cycle unit, the City has performed a refined economic analysis which establishes the incremental cost of SCR to be approximately $4,500 to $4,700 per ton of NO_x removed depending on whether the unit is firing natural gas or No. 2 fuel oil.

19. The City of Vero Beach received DER's Intent to Issue Permit on or about December 27, 1990. In the accompanying Technical Evaluation and Preliminary Determination, BACT Determination, and construction permit, DER used the new "top down" approach to preliminarily determine that BACT for NO_x during combined cycle operation would be the use of SCR to achieve an emission rate of 9 ppmvd or 25 ppmvd (at 15% oxygen) when firing natural gas or No. 2 fuel oil, respectively.

20. Under the draft permit proposed by DER, the NO_x emission limitations for simple cycle operation of the combustion turbine are in agreement with that requested by the City. When the unit operates in the simple cycle mode, SCR may be bypassed and the NO_x emission limits become 42 ppmvd and 65 ppmvd for natural gas and No. 2 fuel oil, respectively. Since no additional fuel is burned when the

HRSG is operated in conjunction with the combustion turbine, total NO_x emissions from the combined cycle mode would not exceed emissions produced under simple cycle operation. Nevertheless, DER preliminarily established more stringent NO_x emission limits (9 ppmvd and 25 ppmvd for natural gas and oil, respectively) for combined cycle operation. Consequently, the City would be forced to install an expensive SCR system for the combined cycle unit, or to restrict operation of the combustion turbine to the less efficient simple cycle mode.

21. In setting the NO_x emission limitations for the combined cycle unit, DER has failed to consider adequately energy, environmental, and economic concerns related to the installation and use of SCR at the Vero Beach facility. DER failed to consider emission reductions resulting from the use of the new HRSG to provide steam to the existing 20 MW turbine generator during combined cycle operation. DER cannot point to any qualitative or quantitative environmental benefits that would justify the adverse energy, environmental, and economic impacts associated with the installation and use of SCR at the Vero Beach Municipal Power Plant. Moreover, DER improperly deviated from the Department's rules relating to BACT determinations, by failing to apply a case-by-case analysis of energy, environmental, and economic impacts.

FACTS REQUIRING MODIFICATION OR REVERSAL OF THE DEPARTMENT'S ACTION

22. Facts requiring modification or reversal of the Department's BACT determination are as follows:

a. DER has improperly and insufficiently accounted for energy, economic, and environmental impacts;

b. DER has not acted in a manner that is uniform and consistent with its previous actions on similar or analogous applications;

c. DER has not articulated and cannot articulate facts and circumstances that justify any incipient policy embodied in the Intent to Issue Permit and related documents;

d. DER has improperly deviated from its validly promulgated rules relating to BACT determinations;

e. DER has applied the new "top down" approach to BACT determinations on an industry-wide basis in a manner that is inconsistent with Rule 17-2.100(28), F.A.C., and without promulgating the policy through applicable rulemaking procedures; and

f. The City of Vero Beach's proposal is reasonable and comports with applicable regulations.

LAWS ENTITLING PETITIONER TO RELIEF

23. The laws entitling City of Vero Beach to relief in this action include the Clean Air Act (42 U.S.C. §§7401, et seq.); 40 CFR §§51.166 and 52.21; Chapters 120 and 403, Florida Statutes; Titles 17, 22I and 28, Florida Administrative Code; and the United States and State of Florida Constitutions.

RELIEF SOUGHT

24. The City of Vero Beach hereby requests the Florida Department of Environmental Regulation to issue a Permit to Construct the combustion turbine project at the City of Vero Beach Municipal Power Plant in accordance with the City's proposal. The City requests that the NO_x emission limits (in Table 1, Specific Condition 1 of the proposed permit) in the final permit be revised from 9 ppmvd to 42 ppmvd at 15% oxygen on a dry basis during natural gas firing, and from 25 ppmvd to 65 ppmvd at 15% oxygen on a dry basis during No. 2 fuel oil firing.

Respectfully submitted this 14th day of February, 1991.

HOPPING BOYD GREEN & SAMS

By: _____

Peter C. Cunningham
Richard D. Melson
Gary V. Perko
Post Office Box 6526
Tallahassee, FL 32314
(904) 222-7500

Attorneys for City of Vero Beach, Florida

CERTIFICATE OF SERVICE

I DO HEREBY CERTIFY that the original and one copy of the foregoing petition was filed by hand delivery with the Department of Environmental Regulation, Office of General Counsel, and that a copy thereof was served by hand delivery this 14th day of February, 1991, on the following:

Douglas MacLaughlin
Office of General Counsel
Department of Environmental Regulation
2600 Blair Stone Road, Room 654
Tallahassee, FL 32399-2400

Richard O. Mays
Attorney

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB

JAN 28 1991

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: Vero Beach Municipal Power Plant (PSD-FL-152)

Dear Mr. Fancy:

This is to acknowledge receipt of the preliminary determination and draft permit for the above referenced facility dated December 21, 1990. As discussed between Mr. Barry Andrews of your staff and Mr. Gregg Worley of my staff on January 17, 1991, we have reviewed the package and have the following comment.

We concur with FDER's determination that the application of selective catalytic reduction is appropriate as best available control technology for the 60 MW combined cycle turbine of this project. The draft permit allows the SCR system to be bypassed when the turbine is operating in the simple cycle mode. In order to be consistent with recent determinations in Region IV concerning simple cycle turbines, we feel that the hours of operation in the simple cycle mode should be limited even though common sense would dictate that for energy efficiency and economic reasons, the source would want to operate in the combined cycle mode as much as possible.

Thank you for the opportunity to review and comment on this package and for addressing our earlier concerns. If you have any questions or comments, 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: Mr. Shuler W. Massey
Vero Beach Municipal Power Plant
P.O. Box 1389
Vero Beach, Florida 32961-1389

D. Veron
B. Andrews
C. Halladay
C. Collins, EC Dist.
CHF

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
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RICHARD D. MELSON
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
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ROBERT P. SMITH, JR.

KATHLEEN BLIZZARD
RICHARD W. MOORE
ANGELA R. MORRISON
MARIBEL N. NICHOLSON
DIANA M. PARKER
LAURA BOYD PEARCE
GARY V. PERKO
MICHAEL P. PETROVICH
DAVID L. POWELL
DOUGLAS S. ROBERTS
CECELIA C. SMITH
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

January 10, 1991

BY HAND DELIVERY

Carol M. Browner, Secretary
c/o Office of General Counsel
Florida Department of Environmental
Regulation
2600 Blair Stone Road, Room 654
Tallahassee, Florida 32399-2400

Re: City of Vero Beach Municipal Power Plant
Combined Cycle Gas Turbine System
Permit No. AC 31-184928
PSD-FL-152

Dear Secretary Browner:

On December 27, 1990, the City of Vero Beach received notice of the Department's Intent to Issue permit No. AC 31-184928 (PSD-FL-152) for a proposed sixty megawatt combined cycle gas turbine system to be constructed at the existing Municipal Power Plant in Vero Beach, Indian River County, Florida. The Notice of Intent, and the accompanying Technical Evaluation and Preliminary Determination, were issued by the Bureau of Air Regulation in the Department's Division of Air Resources Management. Pursuant to Florida Administrative Code Rule 17-103.155, the City of Vero Beach has until January 10, 1991 to file a petition for administrative proceedings regarding the Department's proposed action on this permit.

I am writing on behalf of the City of Vero beach to request an extension of thirty-five (35) days, to and including February 14, 1991, in which to file a petition for administrative proceedings regarding the permit. This

request is made pursuant to Florida Administrative Code Rule 17-103.070, which provides that a timely request for extension of time shall toll the running of the period in which to file an appropriate petition. As good cause for granting the requested extension of time for filing, the City of Vero Beach would show the following:

1. The proposed permit contains twenty-four (24) specific conditions, including prescribed emission limits for a number of air pollutants based upon the Department's preliminary determination of "Best Available Control Technology".

2. The emission limits for nitrogen oxides proposed in the permit are significantly more stringent than those which the City of Vero Beach believes reflect Best Available Control Technology in this case.

3. The Best Available Control Technology determination for nitrogen oxides involves consideration of technical, economic, energy and environmental factors.

4. Undersigned counsel has very recently been retained to represent the City of Vero Beach in this matter, and additional time is needed to allow review of pertinent documents.

5. Representatives of the City of Vero beach intend to initiate discussions with Department staff regarding the proposed permit in the near future.

6. This request is filed as a protective measure to avoid waiver of the City of Vero Beach's right to challenge the Department's proposed action as set forth in the Notice of Intent and the Technical Evaluation and Preliminary Determination. Grant of the request will allow the parties an opportunity to discuss the matters in dispute with the potential for achieving a mutually acceptable resolution without the initiation of formal administrative proceedings.

I hereby certify that I have spoken with Carol Forthman, Deputy General Counsel for the Department, and that she is in agreement with the grant of this request.

Accordingly, I respectfully request that you issue an order formally extending the time for filing of a petition

for administrative proceedings regarding the Department's proposed air permit No. AC 31-184928 (PSD-FL-152) to and including February 14, 1991.

Respectfully submitted,

Hopping Boyd Green & Sams

Peter C. Cunningham

Counsel for the
City of Vero Beach

VBExtReq:gbb

cc: Carol Forthman, Esquire
Douglas MacLaughlin, Esquire
Clair Fancy
J. Heron
B. Andrews
C. Holladay
C. Collins

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

January 2, 1991

Mr. C. 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

Dear Mr. Fancy:

Please find enclosed the proof of publication as set forth in the INTENT TO ISSUE received with your letter of December 21, 1990.

If you have any questions or comments, I am available at your convenience.

Very truly yours,

Shuler W. Massey
Director of Power Resources

SWM/js

attachments

mail certified P 254 195 041

xc: Mr. Barry Andres, DER
Lloyd Wade Sherrill, P.E.
J. Heron
C. Holladay
G. Harper, EPA
C. Collins, C Dist

RECEIVED
JAN 4 1991
DER-BAQM

VERO BEACH PRESS-JOURNAL

Published Daily

Vero Beach, Indian River County, Florida

COUNTY OF INDIAN RIVER: STATE OF FLORIDA

Before the undersigned authority personally appeared J. J. Schumann, Jr. who on oath says that he is Business Manager of the Vero Beach Press-Journal, a daily newspaper published at Vero Beach in Indian River County, Florida; that the attached copy of advertisement, being

a Notice

in the matter of Intent to Issue

in the Court, was published in said newspaper in the issues of January 2, 1991

Affiant further says that the said Vero Beach Press-Journal is a newspaper published at Vero Beach, in said Indian River County, Florida, and that the said newspaper has heretofore been continuously published in said Indian River County, Florida, each daily and has been entered as second class mail matter at the post office in Vero Beach, in said Indian River County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this 2nd day of January 19 91

John J. Schumann, Jr.

(Business Manager)

(Clerk of the Circuit Court, Indian River County, Florida)

(SEAL)

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 Vero Beach Municipal Power Plant, 100 - 17th Street, Vero Beach, Indian River County, Florida 32961-1389, to construct and operate a 60 MW combined cycle gas turbine system. A determination of Best Available Control Technology (BACT) was required. The maximum degree of increment consumed for nitrogen dioxide is 2.0% of the Class II proposed annual mean. For sulfur dioxide, the maximum consumption is also 2.0%. 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 modfication 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 Reggulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Department of Environmental Regulation
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. Furthermore, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Jan. 2, 1991 755647

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

December 21, 1990

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Shuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961-1389

Dear Mr. Massey:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct and operate a 60 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/TH/plm

Attachments

c: Chuck Collins, Central Dist.
Lloyd Wade Sherrill, P.E.
Jewell Harper, EPA

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961-1389

DER File No. AC 31-184928
PSD-FL-152

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, Vero Beach Municipal Power Plant, applied on August 13, 1990, to the Department of Environmental Regulation for a permit to construct and operate a 60 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:

Chuck Collins, Central Dist.
Lloyd Wade Sherrill, P.E.

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 12-24-90.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[signature] 12-24-90
Clerk Date

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mr. Whuler W. Massey
Director of Power Resources
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, FL 32961-1389

4. Article Number
P 407 852 936

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
12/27/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

P 407 852 936

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. Shuler W. Massey, Vero	
Street and No. Beach Power Plnt P. O. Box 1389	
P.O., State and ZIP Code Vero Beach, FL 32961-1389	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 12-24-90 Permit: AC 31-184928 PSD-FL-152	

PS Form 3800, June 1985 U.S.G.P.O. 1989-234-555

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 Vero Beach Municipal Power Plant, 100 - 17th Street, Vero Beach, Indian River County, Florida 32961-1389, to construct and operate a 60 MW combined cycle gas turbine system. A determination of Best Available Control Technology (BACT) was required. The maximum degree of increment consumed for nitrogen dioxide is 2.0% of the Class II proposed annual mean. For sulfur dioxide, the maximum consumption is also 2.0%. 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
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. Furthermore, 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

Vero Beach Municipal Power Plant
Indian River, Florida

60 MW Combined Cycle Gas Turbine System

Permit Number: AC 31-184928
PSD-FL-152

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

December 21, 1990

SYNOPSIS OF APPLICATION

I. NAME AND ADDRESS OF APPLICANT

Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961-1389

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: August 13, 1990.

Completeness Review: Department letter dated September 11, 1990.

Response to Incompleteness Letter: Company letter received on October 1, 1990.

Application Completeness Date: October 1, 1990.

III. FACILITY INFORMATION

III.1 Facility Location

This facility is located at 100 - 17th Street in Vero Beach, Indian River County, Florida. The UTM coordinates are 561.385 km East and 3056.538 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 Vero Beach's Municipal Power Plant is classified as a major emitting facility. The proposed project will emit approximately 328 (gas) and 530 (oil) tons per year (TPY) of nitrogen oxides (NO_x), 0.6 (gas) and 523.4 (oil) TPY of sulfur dioxide (SO_2), 11.0 (gas) and 43.8 (oil) TPY of particulate matter (PM), and 21.9 TPY of volatile organic compounds (VOC), 0.005 (oil) TPY of beryllium, 0.05 (oil) TPY of lead, 0.006 (oil) TPY of mercury, and 15.7 (oil) TPY of sulfuric acid mist.

IV. PROJECT DESCRIPTION

The Vero Beach Municipal Power Plant proposes to construct and operate a 60 MW combined cycle gas turbine system. The unit will be located at the existing Vero Beach Municipal Power Plant. The new generator system will consist of a single nominal 40 megawatt (MW) combustion turbine (CT) and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 20 MW steam turbine. The turbine will be fired either with natural gas or No. 2 fuel oil, having a maximum sulfur content of 0.8 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, SO_2, CO, HC, sulfuric acid mist, PM, 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 60 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: NO_x, SO_2, PM, PM_{10}, Be, and H_2SO_4 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 SO_2, PM, PM_{10}, 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:

	SO_2	TSP & PM_{10}	NO_x	Be
PSD de minimus Concentration (ug/m^3)	13	10	14	.001
Averaging Time	24-hr	24-hr	Annual	24-hr
Maximum Predicted Impact (ug/m^3)	3.7	0.3	.5	.000035

There are no monitoring de minumus concentrations for H_2SO_4 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 West Palm Beach, 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 125 feet) and bypass stacks (height of 80 feet) were performed.

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 SO_2, NO_x, PM and PM_{10}. 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 SO_2, NO_x, PM and PM_{10}.

	SO_2			NO_2	PM and PM_{10}	
Averaging Time	Annual	3-hr	24-hr	Annual	Annual	24-hr
PSD Significance Level (ug/m^3)	1.0	25.0	5.0	1.0	1.0	5.0
Ambient Concentration Increase (ug/m^3)	0.4	21.8	3.7	0.5	0.04	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 H_2SO_4 for which no ambient air quality standards have been defined under PSD rules. However, based on modeling results provided by the applicant for SO_2 and pertinent information supplied by the applicant for Be and H_2SO_4 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 .000004 ug/m^3, annual average, which is less than the de minimus level of .0004 ug/m^3, annual average, while the calculated value for H_2SO_4 mist is .11 ug/m^3, 24-hr average, which is less than the de minimus level of 2.4 ug/m^3, 24-hr average.

e. Additional Impacts Analysis

The increased emissions at the Vero Beach Power Plant are not expected to affect the visibility in the Everglades National Park or the Big Cypress National Preserve since the nearest sensitive area is approximately 190 km from the plant. 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 Vero Beach Municipal Power Plant, the Department has reasonable assurance that the proposed installation of the 60 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.

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG[b] Tons Per Year		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Gas	Oil	
NO_x[a]	9 ppm at 15% oxygen on a dry basis	25 ppmv at 15 percent oxygen on a dry basis	65.7	186	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	120	523	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	10	43.8	BACT
VOC	-	-	4	21.9	BACT
CO	-	-	10	43.8	BACT
Mercury (Hg)	-	-	3.0×10^{-6} lbs/MMBtu	0.006	Est. by Appl.
Lead (Pb)	-	-	2.8×10^{-6} lbs/MMBtu	0.05	" "
Beryllium (be)	-	-	2.5×10^{-6} lbs/MMBtu	0.005	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	8.1×10^{-3} lbs/MMBtu	15.7	BACT

(a) For simple cycle operation, NOx emission limitation becomes 42 ppmvd @ 15% O_2 for natural gas firing and 65 ppmvd @ 15% O_2 for No. 2 fuel oil firing.
(b) Emission rates based on 100 percent capacity factor.

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:
Vero Beach Municipal Power Plant
P. O. Box 1389
Vero Beach, Florida 32961

Permit Number: AC 31-184928
Expiration Date: March 30, 1992
County: Indian River
Latitude/Longitude: 27°37'59"N
80°22'41"W
Project: 60 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 60 MW combined cycle gas turbine to be located at the Vero Beach Municipal Power Plant in Vero Beach, Florida. The UTM coordinates are 561.385 km East and 3056.538 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. Vero Beach Municipal Power Plant's application dated August 13, 1990.
2. Department's letter dated September 11, 1990.
3. Vero Beach Municipal Power Plant's letter received on October 1, 1990.

PERMITTEE:
Vero Beach Municipal Power Plant

Permit Number: AC 31-184928
Expiration Date: March 30, 1992

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.

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.

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.

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:

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
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 either natural gas or No. 2 fuel oil.

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 3,390 gals/hr.
- Maximum sulfur (S) content in the oil shall not exceed 0.25 percent by weight.
- Maximum heat input shall not exceed 446 MMBtu/hr (gas) or 443 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 Central 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.

Compliance Determination

9. Compliance with the NO_x, SO_2, CO, PM, and VOC standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1988) and adopted by reference in F.A.C. Rule 17-2.700.

SPECIFIC CONDITIONS:

- 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 SO_2 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:

$$NO_x = (NO_{x\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\,(H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

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.

SPECIFIC CONDITIONS:

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 Central District 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 Central District office no later than 45 days after completion.

15. A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, for the combined cycle unit to monitor nitrogen oxides emissions.

a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.

b. CEMS data shall be recorded and reported in accordance with Chapter 17-2, F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 22 herein, which exceeds the applicable emission limits in Condition No. 1.

SPECIFIC CONDITIONS:

16. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a two-year period; available for regulatory agency's inspection.

17. 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

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

19. 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.

20. 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)).

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

22. 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 Central District office.

23. 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).

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Cental 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, _____ day
of _____, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____

STEVE SMALLWOOD, P.E., Director
Division of Air Resources
Management

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG[b] Tons Per Year		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Gas	Oil	
NO_x[a]	9 ppm at 15% oxygen on a dry basis	25 ppmv at 15 percent oxygen on a dry basis	65.7	186	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	120	523	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	10	43.8	BACT
VOC	-	-	4	21.9	BACT
CO	-	-	10	43.8	BACT
Mercury (Hg)	-	-	3.0×10^{-6} lbs/MMBtu	0.006	Est. by Appl.
Lead (Pb)	-	-	2.8×10^{-6} lbs/MMBtu	0.05	" "
Beryllium (be)	-	-	2.5×10^{-6} lbs/MMBtu	0.005	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	8.1×10^{-3} lbs/MMBtu	15.7	BACT

(a) For simple cycle operation, NOx emission limitation becomes 42 ppmvd @ 15% O_2 for natural gas firing and 65 ppmvd @ 15% O_2 for No. 2 fuel oil firing.
(b) Emission rates based on 100 percent capacity factor.

Best Available Control Technology (BACT) Determination
City of Vero Beach
Indian River County

The applicant proposes to install a combustion turbine generator at their facility in Vero Beach. The generator system will consist of a single nominal 40 megawatt (MW) combustion turbine, and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 20 MW steam turbine.

The combustion turbine will be capable of both combined cycle and simple cycle operation. It is anticipated that the combustion turbine will use natural gas as the primary fuel and distillate oil as the backup fuel. 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	328.5	530.0	40
SO_2	0.6	523.4	40
PM	11.0	43.8	25
PM_{10}	11.0	43.8	15
CO	43.8	43.8	100
VOC	21.9	21.9	40
H_2SO_4	0.019	15.7	7
Be	0.0	0.005	0.0004
Hg	0.0	0.006	0.1
Pb	0.0	0.05	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

October 1, 1990

BACT Determination Requested by the Applicant

Pollutant	Determination
NOx	42 ppmvd @ 15% O_2 (natural gas burning) 65 ppmvd @ 15% O_2 (diesel oil firing)
SO_2	Firing of natural gas or No. 2 fuel oil with a maximum sulfur content of 0.25%
PM and PM_{10}	Combustion control
H_2SO_4	Firing of No. 2 fuel oil with a maximum sulfur content of 0.25%.
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:

- Combustion Products (Particulates and Heavy Metals). Controlled generally by good combustion of clean fuels.
- Products of Incomplete Combustion (CO, VOC, Toxic Organic Compounds). Control is largely achieved by proper combustion techniques.
- Acid Gases (SOx, NOx, HCl, Fl). 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 Vero Beach's projected emissions of particulate matter, PM_{10}, 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 review of the BACT/LAER Clearinghouse indicates that the applicants proposed emission rate (equivalent to 0.023 lb/MMBtu) is representative of BACT for turbines of similar size.

As this is the case, a PM/PM_{10} emissions limitation of 0.025 lb/MMBtu for No. 2 fuel oil firing is reasonable as BACT for the Vero Beach 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 0.025 lb/MMbtu for particulate matter PM_{10} 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 0.25% 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 0.25% 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 65 ppmvd or 42 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 $790,000. 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 Vero Beach facility will be 328.5 tons/year. Assuming that SCR would reduce the NOx emissions by an additional 80%, the SCR would control 263 tons of NOx annually for natural gas firing. When this reduction is taken into consideration with the total levelized annual cost of $790,000, the cost per ton of controlling NOx is $3,004. This cost ($3,004/ton) is representative of costs that have been previously justified as BACT and explains why SCR for combined cycle cogeneration facilities is becoming common as a BACT not LAER requirement for facilities being permitted today.

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 is 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 345 tons of NOx annually for oil firing. When this reduction is taken into consideration with the total annual cost of $790,000, the cost per ton of controlling NOx is $2,290. This cost is less than that determined for natural gas firing and therefore is also judged to be reasonable as BACT for the facility.

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 limitaitons:

1. Equipment plugging, corrosion and increased particulate emissions will result from fuel oil firing.

2. The SCR will need to be bypassed when operating in simple cycle mode.

BACT Determination by DER

Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is justifiable as BACT. 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). Although the concerns expressed by the applicant were valid at one time, the most recent experiences indicate that these problems have been resolved through advances in catalysts and experiences gained through operation. However, the request to bypass the SCR in the simple cycle mode is valid and justified as BACT.

The information presented by the applicant indicates that the incremental cost of controlling NOx ($3,004/ton for natural gas firing) is reasonable based on recent BACT determinations. For sulfur dioxide BACT is represented by firing natural gas or No. 2 fuel oil with an average sulfur content not to exceed 0.25 percent. The emission limitations for PM and PM_{10}, 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 Vero Beach project are thereby established as follows:

	Emission Limit	
Pollutant	Natural Gas Firing	No. 2 Fuel Oil Firing
NOx *	9 ppmvd @ 15% O_2	25 ppmvd @ 15% O_2
SO_2	Natural gas as fuel	Sulfur content not to exceed 0.25%

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	

*For simple cycle operation, SCR may be bypassed and the NOx emission limitation becomes 42 ppmvd @ 15% O_2 for natural gas firing and 65 ppmvd @ 15% O_2 for No.2 fuel oil firing.

Details of the Analysis May be Obtained by Contacting:

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

Recommended by:

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

Date 1990

Approved by:

Dale Twachtmann, Secretary
Dept. of Environmental Regulation

Date 1990

Mail to: RACT/BACT/LAER Clearinghouse
ESD, OAQPS, MD-13
RTP, N.C. 27711

RACT/BACT/LAER DETERMINATION INPUT SUMMARY

~~3~~ 3.1
Source Code

May 15 1992
Date of this Report

Source Type/Size: Internal Combustion Turbine, Oil or Gas Fired / 60 MW

Company Name/Site Location: City of Vero Beach / Indian River County, Florida

Determination is RACT/BACT/LAER for a ~~NEW~~/MODIFIED source:
(Circle the appropriate choices)

Date of Permit Issuance: June 28, 1991

Permit No.: PSD-FL-152

Date of Estimated Start-up: April 1, 1992

Determination Made By (agency): Florida DER, BAR

Barry Andrews (904) 488-1344
(Person Directly Knowledgeable About Permit) (Phone)

AIRS Facility Number: _____

Permit Parameters: (list all processes subject to this permit)	Maximum Design Capacity	Pollutant Reg.*	Emission limit(s)	Reg. require. assoc. w/limit **	Control Equipment or Process Modification Description	Effi-ciency %	Top-Down BACT Information: Number of control options examined	Top-Down BACT Information: Rank of control option selected	Top-Down BACT Information: Cost in $/ton of option selected
Turbine, Gas, 1ea	60MW	NOx	9 ppmvd	TDB	SCR		2	1	—
			@ 15% O2						
		SO2	—	B	Natural Gas as Fuel		—	—	—
		PM	0.006 lb/MMBtu	B	Combustion Control		—	—	—
		H2SO4	—	B	Natural Gas as Fuel		—	—	—
		Be	—	B	Natural Gas as Fuel		—	—	—

Notes: _____

*Use the following abbreviations wherever possible: PM = particulate matter, SO_2 = sulfur dioxide, NO_x = nitrogen oxides, CO = carbon monoxide, VOC = volatile organic compounds, VE = visible emission, TRS = total reduced sulfur, F = fluorine, Be = beryllium, H_2S = hydrogen sulfide, Hg = mercury, VC = vinyl chloride.

**Please use the following abbreviations: TDB = TOP-DOWN BACT, B = BACT, ONSR = OTHER NEW SOURCE REVIEW (Other BACT not required by PSD regulations), L = LAER, N = NSPS, H = NESHAP, A = NAAQS or PSD increment constraints, S = SIP, R = RACT, U = Unregulated.

Mail to: RACT/BACT/LAER Clearinghouse
ESD, OAQPS, MD-13
RTP, N.C. 27711

RACT/BACT/LAER DETERMINATION INPUT SUMMARY

3.1
Source Code

May 15, 1992
Date of this Report

Source Type/Size: Internal Combustion Turbine, Oil or Gas Fired / 60 MW

Company Name/Site Location: City of Vero Beach / Indian River County, Florida

Determination is RACT/BACT/LAER for a NEW/MODIFIED source:
(Circle the appropriate choices)

Date of Permit Issuance: June 28, 1991

Permit No.: PSD-FL-152

Date of Estimated Start-up:

Determination Made By (agency): Florida DER, BAR

Barry Andrews (904) 488-1344
(Person Directly Knowledgeable About Permit) (Phone)

AIRS Facility Number:

Permit Parameters: (list all processes subject to this permit)	Maximum Design Capacity	Pollutant Reg.*	Emission limit(s)	Reg. requirc. assoc. w/limit **	Control Equipment or Process Modification Description	Effi-ciency %	Top-Down BACT Information: Number of control options examined	Top-Down BACT Information: Rank of control option selected	Top-Down BACT Information: Cost in $/ton of option selected
Turbine, Oil, lea	60MW	NO_x	25 ppmvd	TDB	SCR		2	1	—
			@ 15% O_2						
		SO_2	—	B	No. 2 Fuel Oil		—	—	—
		PM	0.025 lb/mmBtu	B	Combustion Control		—	—	—
		H_2SO_4	—	B	No. 2 Fuel Oil		—	—	—
		Be	—	B	No. 2 Fuel Oil		—	—	—

Notes: The maximum sulfur content of the No. 2 fuel oil is 0.25%. For simple cycle operation, the SCR may be bypassed and the NO_x emission limitation becomes 42 ppmvd @ 15% O_2 for natural gas firing and 65 ppmvd @ 15% O_2 for No. 2 fuel oil firing.

*Use the following abbreviations wherever possible: PM = particulate matter, SO_2 = sulfur dioxide, NO_x = nitrogen oxides, CO = carbon monoxide, VOC = volatile organic compounds, VE = visible emission, TRS = total reduced sulfur, F = fluorine, Be = beryllium, H_2S = hydrogen sulfide, Hg = mercury, VC = vinyl chloride.

**Please use the following abbreviations: TDB = TOP-DOWN BACT, B = BACT, ONSR = OTHER NEW SOURCE REVIEW (Other BACT not required by PSD regulations), L = LAER, N = NSPS, H = NESHAP, A = NAAQS or PSD increment constraints, S = SIP, R = RACT, U = Unregulated.

CITY OF VERO BEACH, FLORIDA
MUNICIPAL ELECTRIC SYSTEM

PROJECT 16834

APPLICATION TO CONSTRUCT AN AIR POLLUTION SOURCE

FILE 16834.32.0401

JULY 1990

Black & Veatch
Engineers-Architects

APPLICATION TO CONSTRUCT AN AIR POLLUTION SOURCE - FORMS

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

#5000 pd. 8-13-90 Receipt #151135

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

AC31-184928
PSD-FL-152

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Combustion Turbine (CT) [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [XX] Construction [ ] Operation [ ] Modification

COMPANY NAME: The City of Vero Beach, Florida COUNTY: Indian River

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

SOURCE LOCATION: ~~Street~~ Vero Beach Municipal Power Plant City Vero Beach

UTM: East 561.385 km North 3056.538 km

Latitude 27 ° 37 ' 59 "N Longitude 80 ° 22 ' 41 "W

APPLICANT NAME AND TITLE: _____

APPLICANT ADDRESS: _____

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of the City of Vero Beach

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 permitted establishment.

*Attach letter of authorization

Signed: _____

Shuler W. Massey, Director of Power Resources
Name and Title (Please Type)

Date: _____ Telephone No. 407-562-7231

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 Lloyd Wade Sherrill

Lloyd Wade Sherrill
Name (Please Type)

Black & Veatch Engineers-Architects
Company Name (Please Type)

11401 Lamar
Mailing Address (Please Type)

Florida Registration No. 29138 Date: July 24, 1990 Telephone No. 913-339-7244

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 January 1991 Completion of Construction December 1991

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.

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

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 Deterioriation" (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

G. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? NA

   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) 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 th AAQIA.							

[1] See Section V, Item 2.

[2] Reference 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)

[3] Calculated from operating rate and applicable standard.

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

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.				

Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas		0.49 MMCF/h	446.0
or			
No. 2 Fuel Oil		3,390 gal/h	443.3

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

Fuel Analysis:

Percent Sulfur: Gas: 2,000 gr/MMCF; Oil: 0.25% by wgt. Percent Ash: Nil (both fuels)

Density: Gas: 1 lb/23.8 CF; Oil: 7.05 lb/gal lbs/gal Typical Percent Nitrogen: <0.015%

Heat Capacity: Gas: 21,515; Oil: 18,550 BTU/lb Gas: 904 Btu/CF; Oil: 130,800 Btu/gal BTU/gal

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

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

Annual Average None Maximum None

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 3-2 in the AAQIA ft. Stack Diameter: _____ ft.

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

Water Vapor Content: _____ % Velocity: _____ 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.

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.) 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 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 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 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 in the AAQIA.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should b made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Con struction indicating that the source was constructed as shown in the constructio permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 6 applicable to the source?

[X] Yes [ ] No Subpart GG

Contaminant	Rate or Concentration
SO_2	150 ppmvd at 15% O_2
NO_x	75 ppmvd at 15% O_2
SO_2 and NO_x	Periodic fuel sampling for S and N content
NO_x	CEM for fuel consumption and water/fuel ratio

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

[ ] Yes [X] 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.	

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

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

1. See Section 6.0 of the AAQIA.

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 operat 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:

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:

[1] Explain method of determining efficiency.
[2] 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:

Applicant must provide this information when available. Should this information not b 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 _____( ) SO^2 _____ 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.

[1]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

3. 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)_____

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
SO_2	_____	grams/sec

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.

Attach all other information supportive to the PSD review.*

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.*

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.

VENDOR INFORMATION APPLICABLE TO APPLICATION TO CONSTRUCT

GE Industry
Sales & Services

February 26, 1990

Most Current

SUBJECT: CITY OF VERO BEACH, FLORIDA
ESTIMATING DATA

Black & Veatch
Engineers-Architects
P. O. Box 8405
Kansas City, MO 64114

Attn: Mr. L. W. Sherrill

Gentlemen:

Thank you for recent discussions with you and your Mr. Dave Frieze concerning the repowering project at Vero Beach. Your contract with Vero Beach has progressed quite nicely and your schedule for the repowering project is somewhat aggressive.

During our most recent meeting, you inquired about NOx emissions from the GE PG-6541B, "Frame 6" gas turbine. The current Frame 6 arrangements and respective NOx emissions have been compiled onto a single page which is attached for your review. You may recall discussion about NOx levels as low as 25 ppm while burning natural gas fuel. However, the two units which have been sold with 25 ppm NOx emissions on natural gas have utilized massive steam injection, whereas you have indicated that the Vero Beach unit will utilize water injection.

As shown on the attached page, if required, massive water injection can be utilized in the GE Frame 6 to achieve NOx levels of 42 ppm while burning either methane or distillate oil fuel. However, it should be recognized that massive diluent injection may have detrimental effects on the unit maintenance and will greatly reduce the recommended interval between combustion inspections.

The Dry Low NOx combustion arrangement for the Frame 6 is currently being offered for shipments occurring in the fourth quarter of 1991. In the event that the Dry Low NOx combustion alternative is attractive to Vero Beach, early discussions would be encouraged to determine the project delivery requirements and the possibility of expediting the introduction of this new combustion system.

Enclosed are eight (8) pages of estimated performance for the GE PG-6541B gas turbine. The first two pages contain data requested by Mr. Dave Frieze during our recent meeting. These first two pages represent the GE recommendation for best available control technology in your repowering project. The ambient conditions and inlet and exhaust pressure losses indicated on the first two pages are as you requested.

Previous performance estimates were calculated and dated 1/18/90, but had not been formally submitted to you. The previous estimates are enclosed and represent ISO conditions and the effects of operation with an 85% effectiveness evaporative cooler. When reviewing the data pages dated 1/18/90, please note that the site elevation and exhaust pressure loss are slightly different from the most recent request for performance estimates.

As you review the enclosed information, and as you finalize your gas turbine specifications, please let me know what additional questions you may have about GE turbine equipment. Your project requirements of electric output, steam production, and timing seem ideal for an application of the GE Frame 6 gas turbine.

Best regards,

M. D. Morris
Account Manager
Power Generation Equipment

cc: Mr. D. L. Frieze, B&V

MDM2261
encls.

PG-6541B ESTIMATED ISO PERFORMANCE
CURRENT LOWEST AVAILABLE NOx EMISSIONS

	Fuel	Output	Heat Rate Btu/kWh	Water Injection	NOx
NSPS	Methane	38,830 kW	10,940 LHV	4,700#/hr	95 ppm
	Distillate	38,690	11,180	11,510	94
BACT	Methane	40,010	11,140	16,020	42
	Distillate	39,290	11,280	17,410	65
Massive Inject.	Methane	40,010	11,140	16,020	42
	Distillate	40,360	11,460	28,070	42
Dry Low NO_x	Methane	38,180	10,890	0	25
	Distillate	37,360	11,000	0	165
	Distillate	38,370	11,180	10,010	65

Massive Injection will greatly reduce the recommended intervals between Combustion Inspections.

NOx stated is ppmvd at 15% O_2 and is without any correction for heat rate.

Distillate fuel contains less than 0.015% Fuel Bound Nitrogen.

M. D. Morris
February 23, 1990

Vero Beach Combustion Turbine - Combustion Parameters
GE Model PG6541(B) Frame 6

Site Conditions	Natural Gas	No. 2 Fuel Oil
Ambient Temperature (F)	59	59
Relative Humidity (%)	60	60
Site Pressure (in H2O)	14.7	14.7
Elevation (ft)	0	0
Performance Conditions		
Gross Output - CT (MW)	39.5	38.9
Gross Output - ST (MW)*	18.5	18.4
Total Gross Output (MW)	58.0	57.3
Fuel Burn Rate, LHV (MBtu/h)	446.0	443.3
Exhaust Flow (lb/h)	1,121,000	1,125,000
Exhaust Temp. (F) - Combined Cycle	290	290
Exhaust Temp. (F) - Simple Cycle	1,003	1,003
Exhaust Molecular Weight (lb/lb-mole)	28.187	28.515
Site Pressure (psia)	14.7	14.7
Fuel LHV (Btu/lb)	21,515	18,550
Gas Constant (ft-lb/lb-mole R)	1,545	1,545
Combined Cycle		
Exhaust Flow (acfm)	362,840	359,946
Exhaust Velocity (fpm)	5,456	5,413
Stack Cross sectional area (sq-ft)	66.5	66.5
Stack Diameter (ft)	9.2	9.2
Simple Cycle		
Exhaust Flow (acfm)	707,780	702,135
Exhaust Velocity (fpm)	5,499	5,456
Stack Cross sectional area (sq-ft)	128.7	128.7
Stack Diameter (ft)	12.8	12.8
Exhaust Analysis % Volume		
Argon	0.88	0.88
Nitrogen	73.61	73.05
Oxygen	13.16	13.10
Carbon Dioxide	4.30	3.28
Water	8.05	9.70
Emissions		
SO2 (lb/h)	0.1	119.5
NO2 (@ 15% O2) (lb/h)	75.0	121.0
CO (lb/h)	10.0	10.0
UHC (lb/h)	4.0	4.0
Particulate (lb/h)	2.5	10.0

AMBIENT AIR QUALITY IMPACT ANALYSIS

CITY OF VERO BEACH, FLORIDA
MUNICIPAL ELECTRIC SYSTEM

AMBIENT AIR QUALITY IMPACT ANALYSIS IN SUPPORT OF A PERMIT TO CONSTRUCT APPLICATION

FILE 16834.32.0401

JULY 1990

Black & Veatch
Engineers-Architects

CONTENTS

CONTENTS (cont.)

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LIST OF APPENDICES

1.0 INTRODUCTION

The City of Vero Beach, Florida Municipal Electric System proposes to construct and operate a new combustion turbine generator. The unit will be located at the existing Vero Beach Municipal Power Plant in the city of Vero Beach, Indian River County, Florida. The new generator system will consist of a single nominal 40 megawatt (MW) combustion turbine (CT) and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 20 MW steam turbine.

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 for the Plant. The purpose of the AAQIA is to demonstrate that the CT 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. The Workplan submittal and FDER approval letters are included in an attached correspondence section of the PSD application.

2.0 PROJECT DESCRIPTION

The Vero Beach Municipal Power Plant is located in the southeast section of the City of Vero Beach, Florida. The site is bounded on the east by the Indian River, on the north by residential housing, on the south by a municipal wastewater treatment plant, and on the west by undeveloped land. Figure 1 shows the location of the existing plant in relation to the surrounding area.

The Vero Beach Municipal Power Plant currently operates four natural gas and fuel oil fired steam turbine units, totaling 117 MW of electric power. In addition, three diesel powered turbines are available at another location approximately one mile from the power plant, and are capable of generating an additional 10.7 MW of electrical power.

The proposed CT addition and existing power plant site arrangement are depicted in Figure 2. Facilities at the plant site currently include the building housing the four existing steam turbine units, three fuel oil storage tanks, an electrical substation, and ancilliary facilities. The addition will include a CT and a HRSG. Figure 3 displays a flow diagram showing the material and gas flows for the CT addition.

When operating in the combined cycle mode, the CT will exhaust combustion gases to a dedicated HRSG and eventually to the 125-foot high HRSG stack. Steam from the HRSG will be used to repower the existing Unit 2 steam turbine generator. During periods of HRSG maintenance, the CT will operate in a simple cycle mode and exhaust to an 80 foot-high bypass stack.

The air permit application will be based on a conceptual design which includes a single GE Model PG6541(B) (Frame 6) CT. Natural gas will be the primary fuel for the project. No. 2 fuel oil will be the backup fuel.

3.0 SOURCE CHARACTERIZATION

This section discusses the applicability of federal, state and local air quality regulations, good engineering practice (GEP) stack height determination, stack parameters and building downwash, source emission rates, and the current air quality status at the Vero Beach site. Current best engineering estimates and the projections of the final design were used to establish the modeling parameters.

3.1 APPLICABILITY OF REGULATIONS

The proposed Vero Beach CT project is subject to PSD regulations because the installation of the CT constitutes a major modification to an existing major stationary source and the plant is located in an area designated as "attainment" for all applicable pollutants. In addition, the requirements of the Florida Air Pollution and Permit Rules and Regulations and New Source Performance Standards (NSPS) Subpart GG are applicable.

3.2 GEP STACK HEIGHT DETERMINATION

A GEP stack height analysis was conducted for the existing and proposed buildings and structures at the Municipal Power Plant. Pollutant dispersion from stacks built to the maximum GEP height will not be influenced by surrounding building turbulence. If stacks are built lower than GEP, special air quality modeling techniques such as downwash and cavity analysis 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 CT stack is the existing Units 1-4 turbine generator building. The maximum height of the generation building is 60 feet above grade. The minimum and maximum width of the generation building is 140 feet and 235 feet, respectively. Because the maximum projected width is greater than the maximum building height, the formula for calculating the GEP stack height is simplified to two and one-half times the maximum building height (2.5 x height). Therefore, the maximum GEP height is calculated to be 150 feet. A computer program named

"BRZWAKE" was used to calculate the direction specific downwash parameters. The program evaluates building and stack dimensions and calculates a maximum projected width, a GEP stack height, and designates which downwash algorithm is applicable, for each 10 degree radial direction. Table 3-1 summarizes the results of calculations for each of the 36 directional radials used in the modeling analysis.

3.3 STACK PARAMETERS AND SOURCE EMISSIONS

Stack parameters and source emissions for both natural gas and fuel oil firing are given in Table 3-2 and 3-3, respectively. All calculations are based on preliminary engineering design and manufacturer performance data. Stack parameters and emission rates were calculated for International Standards Organization (ISO) conditions. ISO conditions are defined as 59 F ambient dry bulb temperature, sea level (14.7 psia) pressure, and 60 percent relative humidity.

The estimated maximum hourly emissions for the combustion turbine fired on natural gas and fuel oil are based on the design fuel burn rate and the lower heating value (LHV) of the fuels. Duct burning is not proposed for the project.

The nitrogen oxides (NO_x) emission rate for natural gas firing is based on operations with low NO_x burner technology and water injection. These controls result in an outlet concentration of 42 ppmvd referenced to 15 percent oxygen. The NO_x emission rate for fuel oil firing is also based on operations with low NO_x burner technology and water injection. These controls result in an outlet concentration of 65 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 21,515 Btu/lb (904 Btu/ft^3). The SO_2 emission rate for fuel oil combustion is based on a 0.25 percent by weight fuel sulfur content and a heat content of 18,550 Btu/lb (130,800 Btu/gal).

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 PG6541(B) Frame 6 combustion turbine.

TABLE 3-1. GEP STACK HEIGHT CALCULATIONS FOR EACH BUILDING OR STRUCTURE

The dominant building within 5L is the Unit 1-4 generation building.

Max. Building Height = 60 ft Max. Projected Width = 302.4 ft

Degree	Building Height ft	Maximum Projected Width ft	GEP Height* ft	Downwash Algorithm
10	60	202	150	Huber/Snyder
20	60	212	150	Huber/Snyder
30	60	239	150	Huber/Snyder
40	60	258	150	Huber/Snyder
50	60	270	150	Huber/Snyder
60	60	274	150	Huber/Snyder
70	60	268	150	Huber/Snyder
80	60	256	150	Huber/Snyder
90	60	235	150	Huber/Snyder
100	60	265	150	Huber/Snyder
110	60	286	150	Huber/Snyder
120	60	299	150	Huber/Snyder
130	60	302	150	Huber/Snyder
140	60	297	150	Huber/Snyder
150	60	282	150	Huber/Snyder
160	60	259	150	Huber/Snyder
170	60	228	150	Huber/Snyder
180	60	190	150	Huber/Snyder
190	60	202	150	Huber/Snyder
200	60	212	150	Huber/Snyder
210	60	239	150	Huber/Snyder
220	60	258	150	Huber/Snyder
230	60	270	150	Huber/Snyder
240	60	274	150	Huber/Snyder
250	60	268	150	Huber/Snyder
260	60	256	150	Huber/Snyder
270	60	235	150	Huber/Snyder
280	60	265	150	Huber/Snyder
290	60	286	150	Huber/Snyder
300	60	299	150	Huber/Snyder
310	60	302	150	Huber/Snyder
320	60	297	150	Huber/Snyder
330	60	282	150	Huber/Snyder
340	60	259	150	Huber/Snyder
350	60	228	150	Huber/Snyder
360	60	190	150	Huber/Snyder

*GEP = Building Height + [1.5 x (Lesser or Building Height or Projected Width)]

TABLE 3-2. COMBUSTION TURBINE STACK PARAMETERS

STACK PARAMETERS

Parameter	HRSG		Bypass	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
Fuel LHV (Btu/lb)	21,515	18,550	21,515	18,550
Output (MW)	58.0*	57.3*	39.6	38.9
Heat Constant (MBtu/h)	446.0	443.2	446.0	443.2
Exhaust Temperature (F)	290	290	1,003	1,003
Exhaust Flow (klb/h)	1,121	1,125	1,121	1,125
Exhaust Gas Molecular Weight (lb/lb-mole)	28.187	28.515	28.187	28.515
Exhaust Volumetric Flow (acfm)	362,840	359,946	707,780	702,135
Exhaust Flow Velocity (fpm)	5,456	5,413	5,499	5,456
Exhaust Flow Water Vapor Content (%)	9.7	8.1	9.7	8.1

* HRSG output represents the combined gas and steam turbine capacity.

Notes
1. The HRSG exhaust stack is 125 feet in height and has a cross sectional area of 66.5 square feet and a diameter of 9.2 feet.
2. The bypass stack is 80 feet in height and has a cross sectional area of 128.7 square feet and a diameter of 12.8 feet.

TABLE 3-3. COMBUSTION TURBINE SOURCE EMISSIONS

Pollutant	HRSG		Bypass	
	Natural Gas	No. 2 Fuel Oil	Natural Gas	No. 2 Fuel Oil
NO_x (ppmvd @ 15% O_2)*	42	65	42	65
NO_x as NO_2 (lb/h)*	75	121	75	121
SO_2 (lb/h)**	0.1	120	0.1	120
CO (ppmvd)*	10	10	10	10
CO (lb/h)*	10	10	10	10
UHC (ppmvw)*	7	7	7	7
UHC (lb/h)*	4	4	4	4
Particulate (lb/h)*	2.5	10	2.5	10

*Manufacturer guaranteed emission rates.
**Natural gas emissions are based on 2,000 gr/MMCF sulfur content. No. 2 fuel oil emissions are based on 0.25 percent sulfur by weight.

Emission rates for other regulated and hazardous air pollutant emissions were 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). 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 (C_2H_3Cl) are not found in No. 2 fuel oil or natural gas.

Be, Pb, and Hg is 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 8.1×10^{-3} pounds per million Btu for fuel oil firing, and 9.5×10^{-6} pounds per million Btu for natural gas.

Table 3-4 presents the maximum potential annual emissions from the combustion turbine addition. The results indicate that the new unit will require additional PSD review for SO_2, NO_x, PM, Be, and H_2SO_4 mist. CO, VOC, Pb, As, Hg, C_2H_3Cl, 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.

TABLE 3-4. POTENTIAL ANNUAL EMISSIONS FROM THE COMBUSTION TURBINE

Pollutant	Potential Annual Emission		PSD Significance Levels	PSD Significant
	Natural Gas (tpy)	Fuel Oil (tpy)	(tpy)	(yes/no)
CO	43.8	43.8	100	no
NO_x	328.5	530.0	40	yes
SO_2	0.6	523.4	40	yes
TSP	11.0	43.8	25	yes
PM_{10}*	11.0	43.8	15	yes
VOC	21.9	21.9	40	no
Lead	0.0	0.05	0.6	no
Asbestos	0.0	0.0	0.007	no
Beryllium	0.0	0.005	0.0004	yes
Mercury	0.0	0.006	0.1	no
Vinyl Chloride	0.0	0.0	1.0	no
Fluorides	0.0	0.0	3.0	no
H_2SO_4 mist	0.019	15.7	7.0	yes
Total Reduced S	<<10	<<10	10	no
Reduced S	<<10	<<10	10	no
H_2S	<<10	<<10	10	no

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

NOTE: Emissions are based on the combustion turbine operating at ISO ambient conditions on natural gas or fuel oil for 8,760 hours per year. PSD significance for a pollutant is triggered if emissions from either fuel type exceed the significance levels.

4.0 MODELING METHODOLOGY

This section discusses the modeling methodology used for determining ambient air quality impacts for SO_2, NO_x, and PM resulting from the proposed combustion turbine addition. The methodology was proposed, 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

For most air quality modeling assessments, it is desirable to use both screening and refined level dispersion modeling techniques. Screening-level dispersion modeling assumes worst-case meteorological conditions to predict the highest 1-hour ground-level pollutant concentrations for different fuels and operational scenarios. Based on this modeling, a worst-case operating scenario can be determined.

The refined-level dispersion modeling uses actual hourly meteorological data and the predicted worst-case operating scenario to predict the maximum and highest, second-highest ambient pollutant impact concentrations, the location of these impacts, and the area(s) which will be significantly impacted by the source.

The combustion turbine will burn either natural gas or low sulfur No. 2 fuel oil. Tables 3-2 and 3-3 show that the SO_2, 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 plant 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 and cavity impacts.

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

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. Because of the downwash conditions, the 3-hour pollutant impacts were expected to occur within 1,000 meters of the plant. The 24-hour and annual average impacts were also influenced by downwash conditions, but were expected to occur at a greater distance from the source.

Dispersion modeling for the HRSG and bypass stacks was performed with receptors placed along the 36 standard radial directions surrounding the proposed source at the following downwind distances: 100 meter intervals from 100 to 1,000 meters, 250 meter intervals from 1,250 to 3,000 meters, and 1,000 meter intervals from 4,000 to 10,000 meters.

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 depths. The surface and mixing depths 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 depth data from the West Palm Beach, Florida NWS reporting station were obtained from FDER (see letter dated 2/14/90 in the attached correspondence section). The data were selected as the most representative of meteorological conditions at the Vero Beach Municipal Power Plant. The data were 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 a 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. Appendix A contains a listing of the modeling runs which show the extent of the ambient impacts. One hard copy set of modeling runs and a computer diskette will also be submitted.

The maximum impact location for the annual averaging period is 2,250 meters from the plant. The highest, second-highest 3- and 24-hour average impact locations are 100 and 2,600 meters from the plant, respectively. The location of the 3-hour impact is a result of building downwash effects.

The highest, second-highest 24-hour and maximum annual average impacts for PM (TSP/PM_{10}) are 0.3 and 0.04 ug/m^3, respectively. These values are well below the significant ambient air quality impact levels of 5.0 and 1.0 ug/m^3, respectively. Consequently, no further air quality impact analysis is required for particulates.

The maximum annual average impact for NO_x is 0.5 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 is necessary for NO_x.

The highest, second-highest 3-, and 24-hour, and maximum annual average impacts of SO_2 are 21.8, 3.7, and 0.4 ug/m^3, respectively. These values are below the significant ambient air quality impact levels of 25.0, 5.0, and 1.0 ug/m^3, respectively. Therefore, no further air quality impact analysis is required for SO_2.

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

Operating Condition	Modeled SO_2 Concentrations 3-Hour Impact*	24-Hour Impact*	Annual Impact**
Simple Cycle - Bypass			
Concentration (ug/m^3)	21.8	1.8	0.09
Receptor Dist. (m)	100	100	6,000
Receptor Dir. (deg)	260	260	310
Year	1983	1983	1982
Day/Period	20/4	58/1	----
Combined Cycle - HRSG			
Concentration (ug/m^3)	13.8	3.7	0.44
Receptor Dist. (m)	200	2,600	2,250
Receptor Dir. (deg)	260	260	310
Year	1983	1984	1982
Day/Period	20/3	266/1	----

Note: Simple cycle exhausts to the bypass stack at a height of 80 ft.
Combined cycle exhausts to the HRSG stack at a height of 125 feet.

*Concentrations are highest, second-highest values.
**Concentrations are maximum values.

TABLE 5-2. MODELED POLLUTANT IMPACT DETERMINATION

Averaging Time	SO_2			NO_2	PM	
	Annual	3-Hour	24-Hour	Annual	Annual	24-Hour
PSD Significance Level (ug/m^3)	1.0	25.0	5.0	1.0	1.0	5.0
Pollutant Impacts (ug/m^3)*	0.4	21.8	3.7	0.5	0.04	0.3
Year	1982	1983	1984	1982	1982	1984
Distance (m)	2,250	100	2,600	2,250	2,250	2,600
Direction (deg)	310	260	260	310	310	260
Period (day/hour)	---	20/4	266/1	---	---	266/1

*Annual pollutant impacts are based on maximum modeled concentrations. The 3-hour and 24-hour pollutant impacts are based on highest, second-highest modeled concentrations.

5.2 PRECONSTRUCTION MONITORING REQUIREMENTS

Based on the results of the ISCST modeling, 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 de minimis 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 de minimis 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 primary fuel for the Vero Beach Combustion Turbine Project will be natural gas. However, distillate fuel oil will be used as a backup combustion turbine fuel. Pollutant emissions are generally higher when burning distillate fuel oil. Section 3.0 concluded that when fuel oil is used for the maximum project operation (8,760 hours per year), the project's emissions of the following regulated pollutants are subject to PSD review.

- o Nitrogen Oxides (NO_x)
- o Sulfur Dioxide (SO_2)
- o Sulfuric acid mist (H_2SO_4)
- o Particulate (Total and PM10)
- o Beryllium (Be)

Consequently, this BACT analysis will address the control of emissions of these PSD applicable pollutants when burning either natural gas, or distillate oil firing. 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 any applicable New Source Performance Standards (NSPS).

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 similarly evaluated when LAER is determined to be unreasonable considering the above factors.

The Florida coordinating group will allow up to 75 percent of the operating reserve requirements for a utility to be supplied by a quick start combustion turbines provided the turbines can supply power within 10 minutes. It is the intent of the Vero Beach combustion turbine project to be able to meet this requirement for peak power demand, as well as utilize a heat recovery steam generator during base load operation. Therefore, only combustion turbines that have the capability to provide power within 10 minutes will be considered for use on this project.

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 NOx 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 (ppmdv) at 15 percent oxygen (O_2), corrected 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 (1985 edition) and its 1986, 1987, 1988, and 1989 supplements indicated that the lowest NO_x emission limit established to date for a combustion turbine is 4.5 ppmdv (at 15 percent O_2) for a combustion turbine with a heat recovery steam generator located in California. That permit value was based on the use of water injection into the combustion turbine and a selective catalytic reduction (SCR) system contained within the heat recovery steam generator (combined cycle operation). Therefore, the LAER NO_x emission control alternative for use with combustion turbines is established as water injection followed by an SCR system.

Two other NO_x emission control systems have been identified for evaluation as BACT. Injection of water into the turbine's combustion chamber(s) is capable of limiting NO_x emissions to 42 ppmdv (at 15 percent O_2) when burning natural gas and 65 ppmdv when burning fuel oil. In addition, some combustion turbine manufacturers have recently developed a combustion chamber design which uses massive steam injection to limit NO_x emissions to 25 ppmdv (at 15 percent O_2) when firing natural gas. It is the intent of the Vero Beach Project to use water injection.

In addition to these three alternatives, NO_x emissions from other types of combustion sources have also been controlled through the installation of selective non-catalytic reduction (SNCR) systems such as

Thermal DeNO$_x$. A Thermal DeNO$_x$ 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 86 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 1,100 F. Therefore, an SCR would be installed in an intermediate point of the heat recovery steam generator boiler where a temperature of approximately 700 F occurs.

6.2.1.2 Improved Dry Low NOx Combustion Chamber. A combustion turbine manufacturer has begun to market an improved dry low NO$_x$ burner design. These burners provide improved air/fuel mixing and reduced flame temperatures. The result is lower concentrations of NO$_x$ when firing natural gas in comparison to standard combustion chamber design (25 versus 42 ppmdv) and no improvement is achieved when firing fuel oil. However, this combustion technology is not currently available in the combustion turbine size range considered for this project in time to meet the project schedule (see letter dated 2/26/90 from General Electric to Mr. L. W. Sherrill). Larger sized combustion turbines do not qualify for use on this project due to start up times in excess of the 10 minute quick start requirement of the Florida Coordinating group.

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. Manufacturers'

data indicate that water injection may provide better NO_x reduction than steam injection. The degree of reduction in NO_x formation is somewhat proportional to the amount of water injected into the turbine.

Since the combustion turbine NSPS was last revised in 1982, combustion turbines have improved their tolerance to the water necessary to control NO_x emissions below the current NSPS level. However, there is still a point at which the amount of water 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 ppmdv (at 15 percent O_2) when firing natural gas and 65 ppmdv 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. The incremental annual NO_x emissions are based on natural gas firing for a maximum of 8,760 hours per year 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 3.9×10^6 MBtu/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, 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 and the energy requirements of the associated equipment.

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

	Standard Combustor Design Plus SCR ($1,000)	Standard Combustor Design Plus Water Injection ($1,000)
Differential combustion turbine costs	BASE	BASE
SCR reactors	1,100	NA
Ammonia storage and injection equipment	110	NA
Balance of plant	30	BASE
Direct capital cost (1990)	1,240	BASE
Contingency	120	BASE
Escalation	90	BASE
Direct capital cost	1,450	BASE
Sales Tax	90	BASE
Indirects	220	BASE
Interest during construction	90	Base
Total Capital Costs (1992)	1,850	Base

*Based on one combustion turbine and 8,760 hours/year of natural gas fired operation.

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

	Standard Combustor Design Plus SCR ($1,000)	Standard Combustor Design Plus Water Injection ($1,000)
Operation and maintenance costs	400	Base
Ammonia	50	NA
Energy	50	Base
Generating Cost Adjustment	20	BASE
Fixed charges	270	Base
Total Annual Costs	790	Base
Incremental Annual Cost	790	Base
Annual NO_x Emissions (tpy)	70	329
Incremental Annual NO_x Emissions Reduction (tpy)	259	Base
Incremental Levelized Cost per Ton of NO_x Removed ($/ton)	3,050	Base

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

An incremental levelized annual cost for SCR of $790 thousand/year results in an incremental removal cost of approximately $3,050 per ton of NO_x reduction (259 tons per year).

6.2.3 Other Considerations

Compared to the standard combustion turbine with water 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 hazardous air pollutants. This represents a potential adverse human health effect. 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 should average 7 to 10 ppm, and could create objectionable odor and health hazards. Ammonia is also a hazardous material. Accordingly, this material must be handled and stored with extreme care.

The use of fuel oil in combination with an SCR would also have the potential to increase particulate emissions in the form of ammonia sulfate compounds. Due to the inherently higher sulfur content in fuel oil an SCR would oxidize more of the SO_2 to SO_3 and in the presence of unreacted ammonia, sulfate compounds would be formed. Once the flue gas cooled the sulfate compounds would precipitate out in the form of particulate and cause plugging and corrosion of downstream equipment. This is due to the NO_x reduction reaction inefficiencies of the SCR system resulting in incomplete use of the ammonia additive. In addition, the catalytic elements are toxic, and because they have to be replaced periodically, hazardous waste disposal procedures must be followed.

In order for the facility to meet the requirements for spinning reserves and be able to provide power within 10 minutes, the unit will have to be operated for a period of time in a simple cycle mode. Operating 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. Additionally ambient

air modeling did not show any significant impacts for NO_x emissions of 42/65 ppmdv (at 15 percent O_2) when burning natural gas or fuel oil, respectivley.

6.2.4 Conclusions

Installation of an SCR system designed to remove 80 percent of the NO_x exiting the combustion turbine would add approximately $1.9 million to the capital cost of the project for installation downstream of the combustion turbine. Addition of an SCR system increases total levelized annual costs for the project by $790 thousand resulting in an incremental removal cost of $3,050 per ton of NO_x removed while burning natural gas (8760 hrs/yr). Incremental NO_x removal costs would be $2,290 per ton NO_x removed while burning fuel oil (8760 hrs/yr). However, 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 and 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 water injection to achieve NO_x emissions of 42/65 ppmdv (at 15 percent O_2) when burning natural gas or No. 2 fuel oil, respectively.

6.3 SULFUR DIOXIDE AND SULFURIC ACID MIST EMISSIONS

The NSPSs established by EPA for emissions from combustion turbines sets a maximum SO_2 level in the flue gas of 150 ppmdv (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). However, 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 can combine with water to form H_2SO_4. Therefore, limiting the sulfur content of the fuel will have a beneficial effect on SO_2 and H_2SO_4.

Typically, natural gas has only a trace of sulfur (2,000 grains per million standard cubic feet or less) and no supplemental SO_2 or acid gas mist emission controls have been imposed on natural gas fired combustion

turbines. 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 or H_2SO_4 emission requirements. Addition of an FGD system would be a superfluous method of emission control. The significant capital and operating cost associated with a FGD system would result in termination of the project.

The primary fuel for the Vero Beach Combustion Turbine Project will be natural gas. Fuel oil will only be fired in the event of disruptions in natural gas supplies to the project.

The use of low sulfur fuel oil (maximum of 0.25 percent sulfur) would impose no differential capital costs on the project. Additionally modeling showed that no significant impacts for SO_2 emissions resulted when burning 0.25 percent sulfur fuel oil.

Based on economic, energy, and environmental considerations, the limitation of the fuel sulfur content to 0.25 percent by weight is proposed as BACT for the SO_2 and H_2SO_4 emissions during oil firing from the Vero Beach 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 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 natural gas and distillate oil fuels to be used in the proposed combustion turbines will only contain trace quantities of noncombustible material. The manufacturers' standard combustion turbine operating procedures will ensure as complete combustion of the fuel as possible. Therefore, 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 nil 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 (lbs/MBtu). As shown in Table 3-4, the annual Be emissions when firing fuel oil for 8,760 hours/year are predicted to be only 4.9×10^{-3} tons per year (9.7 lbs/yr). While this is above the EPA's significant emission rate of 4.0×10^{-4} tons per year (0.8 lbs/yr), 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.

6.6 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.

6.6.1 Carbon Monoxide and Volatile Organic Compounds

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 carbon monoxide (CO) and volatile organic compounds (VOC). Typically, measures taken to minimize the formation of NO_x during combustion inhibit complete combustion which increases the emissions of CO and VOC.

Carbon monoxide and VOC formation are 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 and VOC emissions. 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 and VOC emissions.

However, due to advances in combustion turbine design made in the last few years, the increases in CO and VOC emissions are not significant at the levels of water injection necessary to achieve NO_x emissions at the proposed BACT level. Therefore, combustion turbines designed to meet the proposed BACT NO_x emissions of 42/65 ppmdv (gas/oil) will be capable of maintaining CO and VOC emission rates of 10 ppmdv and 7 ppmwv, respectively. At these emission rates, the annual emission rates will not exceed the PSD significance level for these pollutants. The use of a low NO_x combustor or an SCR system would not result in appreciably lower emissions of CO or VOC.

6.6.2 Other Regulated and Hazardous Pollutants

Table 6-3 presents uncontrolled emission estimates for other regulated 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).

Of the BACT systems considered in the previous sections of this analysis, only an FGD system for SO_2 control would have significant effects on the emissions of any of the pollutants listed in Table 6-3. However, it was determined in Section 6.3 that an FGD system does not represent BACT for control of SO_2 emissions from the Vero Beach Combustion Turbine Project. When fuel oil is used, no adverse environmental impacts would occur at the tabulated, uncontrolled emission rates.

Other than flue gas desulfurization, 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.

TABLE 6-3. OTHER REGULATED AND HAZARDOUS POLLUTANT EMISSIONS

Pollutant	Emission Rate lbs/MBtu	Annual Emission* tpy
Arsenic	4.2 E-6	0.008
Beryllium	2.5 E-6	0.005
Cadmium	1.1 E-5	0.02
Chromium	4.8 E-5	0.09
Copper	2.8 E-4	0.54
Formaldehyde**	4.1 E-4	0.79
Lead	2.8 E-5	0.05
Manganese	2.6 E-5	0.05
Mercury	3.0 E-6	0.006
Nickel	1.7 E-4	0.33

*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 443.2 MBtu/h.

**Formaldehyde is also found in natural gas combustion. The emission rates are 8.8 E-5 lb/MBtu or 0.17 tpy.

7.0 ADDITIONAL AMBIENT AIR QUALITY IMPACT ANALYSIS

7.1 VISIBILITY

The nearest PSD Class I area is the Everglades National Park located in southern Florida. In addition, the Big Cyprus National Preserve has been identified as a sensitive area for visibility impacts by the FDER. Because the nearest sensitive area is approximately 190 kilometers from the plant, a Level-1 visibility screening analysis is not required.

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 Vero Beach Municipal Power Plant is not expected to induce any secondary growth in the surrounding area.

APPENDIX A

LISTING OF MODELING RUNS

TABLE A-1. LISTING OF MODELING RUNS SUPPORTING THE CITY OF VERO BEACH, FLORIDA AMBIENT AIR QUALITY IMPACT ANALYSIS

Model Output File (.LST)	Model Input File (.DAT)	Model Stack File (.PNT)	Description
ISCST RUNS - COMBINED CYCLE (1982-1986)			
VB125C82	VB125C82	VERO125C	125-ft HRSG Stack, F.O. Combustion, Std. Receptors - 1982
VB125C83	VB125C83	VERO125C	125-ft HRSG Stack, F.O. Combustion, Std. Receptors - 1983
VB125C84	VB125C84	VERO125C	125-ft HRSG Stack, F.O. Combustion, Std. Receptors - 1984
VB125C85	VB125C85	VERO125C	125-ft HRSG Stack, F.O. Combustion, Std. Receptors - 1985
VB125C86	VB125C86	VERO125C	125-ft HRSG Stack, F.O. Combustion, Std. Receptors - 1986
VB24HR84	VB24HR84	VERO125C	125-ft HRSG Stack, F.O. Combustion - 1984 Fine Grid Receptors*, Day 266 only
VBANN82	VBANN82	VERO125C	125-ft HRSG Stack, F.O. Combustion - 1982 Fine Grid Receptors** Only
ISCST RUNS - SIMPLE CYCLE (1982-1986)			
VB80S82	VB80S82	VERO80S	80-ft Bypass Stack, F.O. Combustion, Std. Receptors - 1982
VB80S83	VB80S83	VERO80S	80-ft Bypass Stack, F.O. Combustion, Std. Receptors - 1983
VB80S84	VB80S84	VERO80S	80-ft Bypass Stack, F.O. Combustion, Std. Receptors - 1984
VB80S85	VB80S85	VERO80S	80-ft Bypass Stack, F.O. Combustion, Std. Receptors - 1985
VB80S86	VB80S86	VERO80S	80-ft Bypass Stack, F.O. Combustion, Std. Receptors - 1986

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 km.

*Fine Grid Receptors: 2.6, 2.7, 2.8, 2.9, 3.1, 3.2, 3.3, 3.4 km.
**Fine Grid Receptors: 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7 km.

DRAWINGS AND FIGURES APPLICABLE TO THE

APPLICATION TO CONSTRUCT

FIGURE 1. PLANT SITE LOCATION MAP

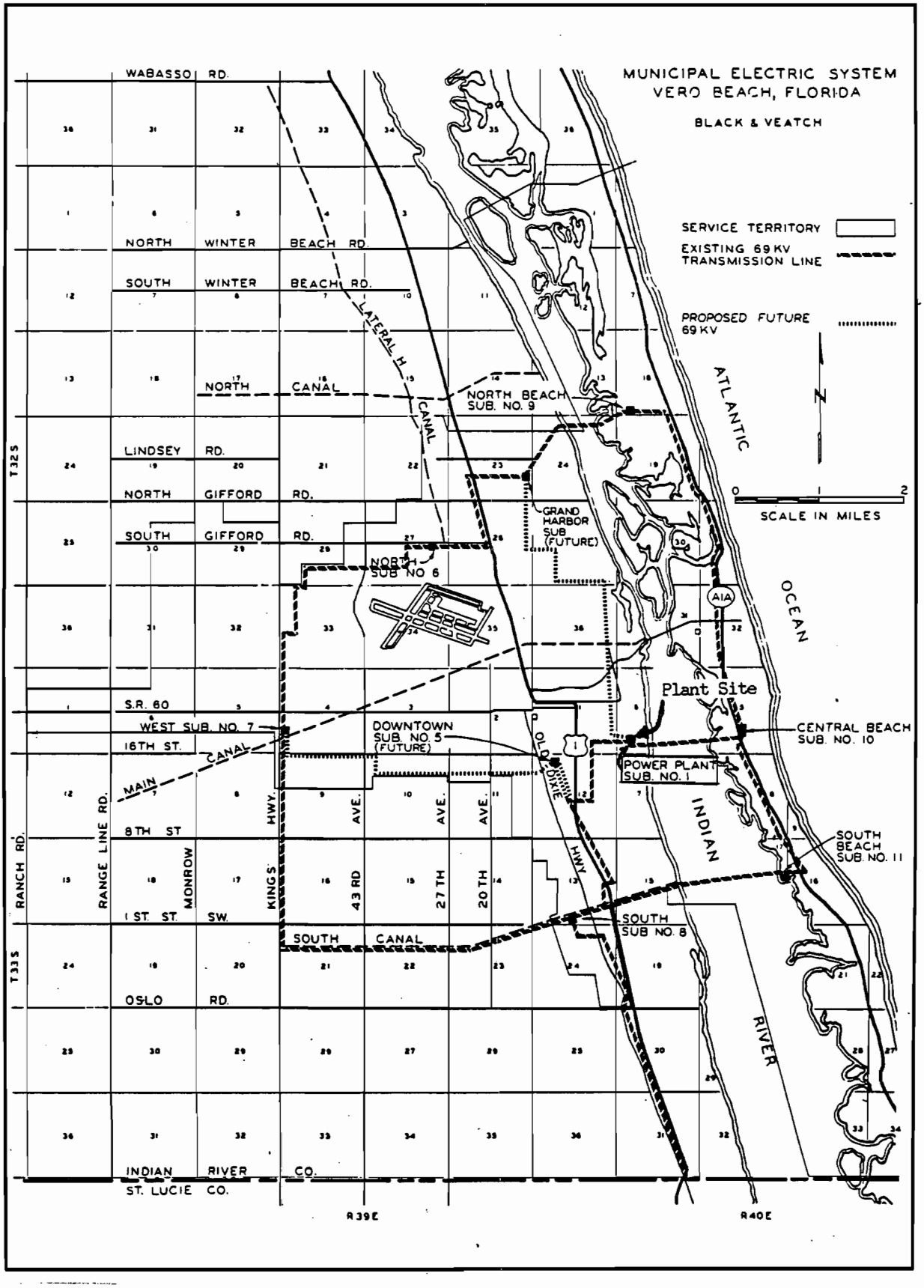


FIGURE 2. PLANT SITE ARRANGEMENT

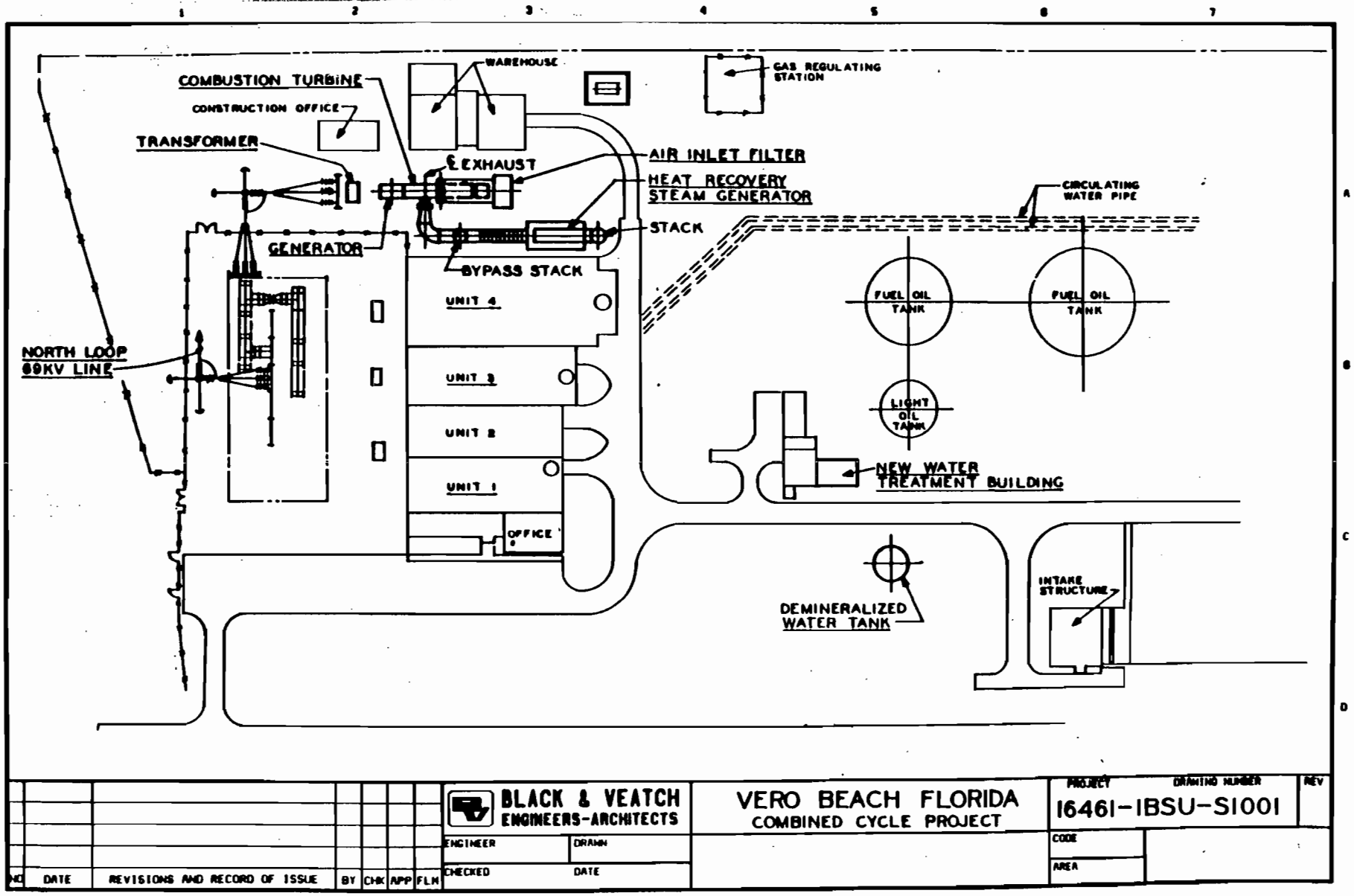
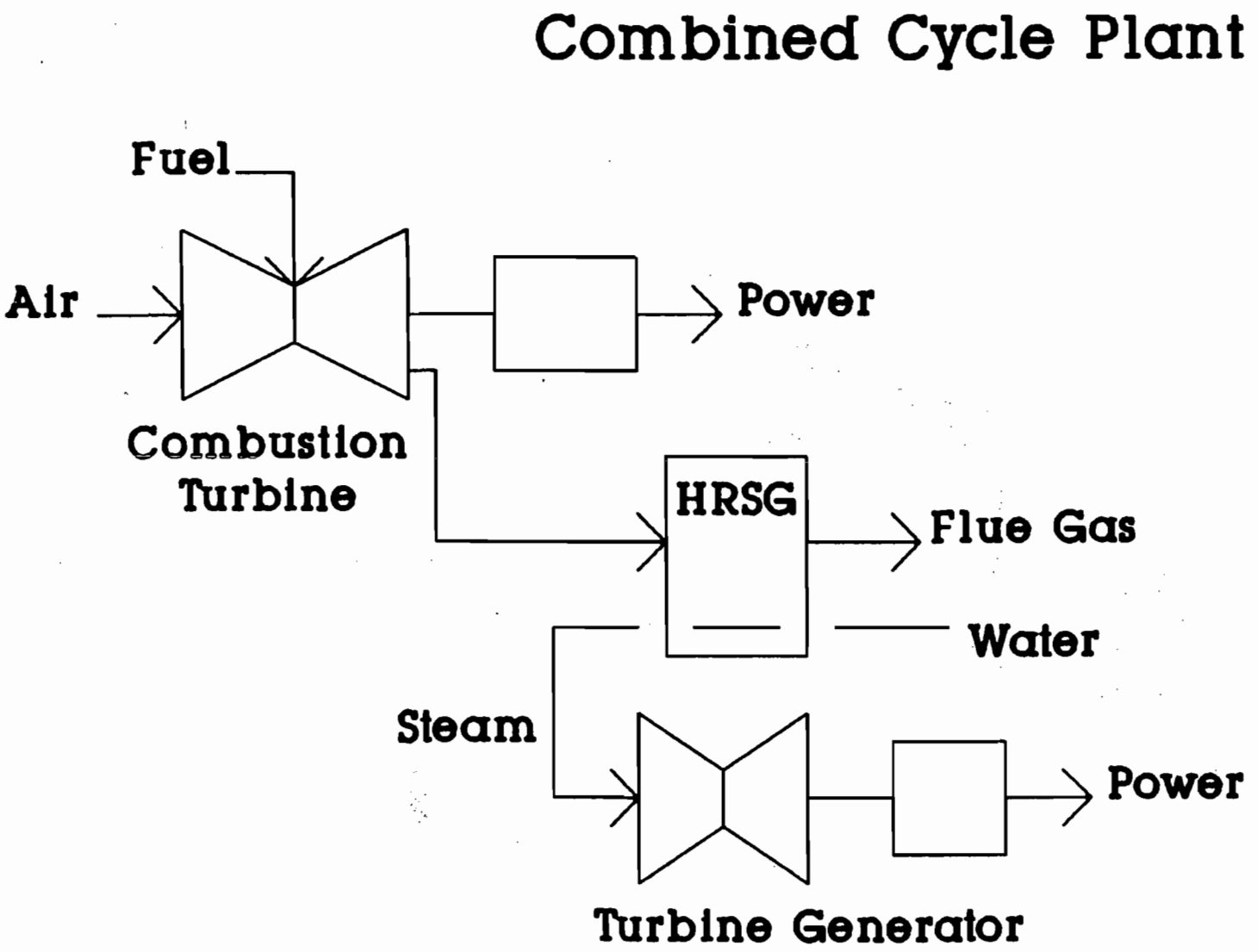


FIGURE 3. PROCESS FLOW DIAGRAM



CORRESPONDENCE AND MEMORANDUM BETWEEN

FDER, BLACK & VEATCH, AND THE CITY OF VERO BEACH

BLACK & VEATCH
ENGINEERS-ARCHITECTS
TEL. (913) 339-2000

1500 MEADOW LAKE PARKWAY
MAILING ADDRESS P.O. BOX NO. 8405
KANSAS CITY, MISSOURI 64114

City of Vero Beach
Municipal Power Plant Expansion
Meteorological Data for Dispersion Modeling

B&V Project 16834
February 14, 1990

Florida Department of Environmental Regulation
Bureau of Air Quality
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Max Linn

Gentlemen:

As you requested, enclosed is a nine-track magnetic tape for transference of meteorological data appropriate for dispersion modeling in Vero Beach and Arcadia, Florida. As we discussed, the appropriate upper air and surface data set for the Vero Beach area is West Palm Beach for the period 1982 through 1986. The appropriate data sets for the Arcadia area is Tampa upper air and Ft. Meyers surface for the years 1982 through 1986.

Please return the tape after copying the requested meteorological data. It would be very helpful if each year of data was in a separate file and in the preprocessed format suitable for use as input to the ISCST dispersion model. Additionally, the following tape characteristics would be appreciated.

Format	ASCII
Density	1,600 bpi
Record Length	80 Characters
Block Size	10 Records
UNLABELED	

Please return the tape to me at the above address.

Very truly yours,

BLACK & VEATCH

Michael L. Pelan

Enclosure

cc: D. W. Nelson

Black & Veatch

TELEPHONE MEMORANDUM

City of Vero Beach
Combustion Turbine Project
Modeling Protocol - Significant Impact
Determination Policy Clarification

B&V Project 16834
B&V File 15.1200
March 14, 1990
12:30 p.m. (MST)

To: Max Linn
Company: FDER
Phone No.: 904 488-1344

Recorded by: Mike Pelan M.L.P.

I contacted Max Linn at Florida DER to ask for a policy clarification regarding significant pollutant impact determinations. PSD guidelines are not clear on whether maximum or highest, second-highest impacts should be used to determine if a pollutant has short-term significant ambient air quality impacts. Some states have required that maximum impacts be used for significant impact and significant impact area determinations. Generally, if five years of meteorology data is used in the analysis, NAAQS and PSD increment analyses are based on highest, second-highest concentrations for short-term averaging periods (1-, 3-, 8-, and 24-hour).

Max stated that it was FDER's policy that if five years of meteorology data is used in the analysis, the highest, second-highest modeled pollutant impact should be used to determine if pollutant impacts are greater than PSD ambient significance levels.

I told Max that based on this interpretation, an analysis of the City of Vero Beach CT project results in ambient impacts below the PSD significance levels for all criteria pollutants. I indicated that an air quality workplan was currently being developed that included the modeling results of this analysis.

If FDER accepts the modeling methodology and conclusions described in the workplan, the PSD permit application process will be greatly simplified. A PSD permit application package will need to include the appropriate state application forms, a BACT analysis for SO_2, NO_x, and particulate matter, and the appropriate application fees. Review time should be greatly reduced as well.

cc: A. Harris
J. May
D. Nelson
W. Sherrill
E. Windisch

BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

City of Vero Beach, Florida
Combustion Turbine Unit 5 Addition
Air Quality Impact Workplan

B&V Project 16834
B&V File 32.0200
April 12, 1990

Florida Department of Environmental Regulation
Bureau of Air Quality
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Max Linn

Gentlemen:

Enclosed please find two (2) copies of the Ambient Air Quality Impact Analysis Workplan for the proposed combustion turbine addition to the existing Municipal Power Plant in Vero Beach, Florida. The source will be considered a major modification to an existing major stationary source because the proposed pollutant emissions exceed significant emission levels for SO_2, NO_x, and particulate matter. Therefore a Prevention of Significant Deterioration (PSD) review of the source is required.

The workplan presents an overview of the proposed plant, a discussion of the source characteristics and emission rates, a description of the proposed modeling methodology, preliminary modeling results used to evaluate the significance of the ambient air quality impacts, and an overview of BACT considerations and additional air quality impacts.

The preliminary modeling results indicate that the all pollutants emitted from the source will have ambient impacts below PSD ambient air quality significance levels. Therefore, according to PSD guidance, no further air quality analyses are required. Also, because the predicted ambient impacts of the proposed addition are below PSD de minimis monitoring levels, one year of preconstruction monitoring data will not be required. A 5-1/4" computer diskette which contains all modeling data is also enclosed.

A completed permit application, including revised dispersion modeling results and a BACT analysis will be submitted to the DER shortly after review and approval of this workplan. In keeping with our schedule, we would appreciate a response on the adequacy of the workplan by May 15, 1990.

If you have any questions, please direct them to Mr. Michael Pelan at (913) 339-2699.

Very truly yours,

BLACK & VEATCH

L. W. Sherrill

mlp
Enclosure

cc: Mr. Shuler Massey, w/2 copies

BEST AVAILABLE COPY

Florida Department ... mental Regulation

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

Bob Martinez, Governor   Dale T ...   John Shearer, Assistant Secretary

June 5, 1990

JUN 8 REC'D

16834.32.0402

CC: Shaler Macauley
Anne Harrod
Jim May
Mike Pelan

L. W. Sherrill
Black & Veatch
8400 Ward Parkway
P. O. Box No. 8405
Kansas City, MO 64114

Dear Mr. Sherrill:

I have reviewed the Ambient Air Quality Impact Analysis Workplan for the proposed combustion turbine addition to the Vero Beach Municipal Power Plant you submitted to the Department. This workplan is acceptable. I have the following comments, though.

I discussed two minor errors with Mike Pelan in Tables 5-2 and 5-3 and asked him to submit revised tables with the PSD application. Also, I asked him to provide the dimensions of the dominant structure influencing the combustion turbine stack and to show how the wind direction specific building dimensions used for the building downwash inputs to the ISCSCT model were calculated.

If you have any questions, please call me at (904)488-1344.

Sincerely,

Cleve Holladay

Cleve Holladay
Meteorologist
Bureau of Air Regulation

CH/plm

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

July 31, 1990

State of Florida
Department of Environmental Regulation
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-2400@

Attention: Mr. Clair Fancy - Bureau Chief

Gentlemen:

Enclosed please find six (6) copies of the Application to Construct Air Pollution Sources for the City of Vero Beach Combustion Turbine Project. Included with the applications are supporting documentation including the Ambient Air Quality Impact (AAQIA) and the Best Available Control Technology (BACT) analyses. Also enclosed is a check in the amount of $5,000 payable to the Department of Environmental Regulation as specified in regulation 17-4.050 (4)(a).

The AAQIA methodology is in accordance with that presented in a Workplan submitted to and approved by the Bureau. The letter of approval has been included along with other correspondence on the permit application preparation. A hard copy and a computer diskette copy of the modeling results to support the AAQIA are included.

It is our understanding of the Florida permit rules that the FDER will make a completeness determination within 30 days of receipt of the application and processing fee. Subsequently, the application will be declared approved or disapproved within 90 days of determination of a completed application.

If you have any questions or need additional information, please contact me at (407) 562-7231 or Mr. Michael Pelan at (913) 339-2699.

Very truly yours,

CITY OF VERO BEACH

Shuler W. Massey
Director of Power Resources

SWM/dg

Enclosure

cc: D. Heron
C. Halladay
B. Andrews
C. Collins, C Dist,
M. Armentrout, EPA

REMITTANCE ADVICE

CITY OF VERO BEACH VERO BEACH, FLORIDA

131608

	INVOICE NUMBER	INVOICE DATE	P. O. NUMBER	ENTRY DATE	TYPE	GROSS AMOUNT	DESCRIPTION	DISCOUNT	NET AMOUNT
32.0402		072790	10716-K	080990	1	500000	16834/AIR PER APPL		500000
				TOTALS		500000			500000

TYPE CODES 01 INVOICE
02 CREDIT

DETACH AND RETAIN THIS STATEMENT WITH YOUR RECORDS

FIRST UNION NATIONAL BANK
OF FLORIDA
VERO BEACH, FL 32960

CITY OF VERO BEACH
VERO BEACH, FLORIDA

60-1012
632

VENDOR NUMBER
08070

WORKING FUND ACCOUNT

DATE	NET AMOUNT	CHECK NO
080990	$****5000.00	131608

NOT VALID AFTER 90 DAYS

DEPT OF ENVIRONMENTAL REG
3319 MAGUIRE AVE
SUITE 232
ORLANDO FL 32801

DIRECTOR OF FINANCE

CITY MANAGER

[redacted]

Check Sheet

Company Name: Vero Beach Municipal Power Plant
Permit Number: AC31-184928
PSD Number: PSD FL- 152
Permit Engineer: _____

Application:

- ☑ Initial Application
  - ☐ Incompleteness Letters
  - ☐ Responses
  - ☐ Waiver of Department Action
  - ☐ Department Response
  - ☑ Other

Cross References:
- ☐
- ☐
- ☐

Intent:

- ☑ Intent to Issue
- ☑ Notice of Intent to Issue
- ☑ Technical Evaluation
- ☑ BACT or LAER Determination
- ☐ Unsigned Permit

  Correspondence with:
  - ☐ EPA
  - ☐ Park Services
  - ☐ Other
- ☑ Proof of Publication
  - ☐ Petitions - (Related to extensions, hearings, etc.)
  - ☐ Waiver of Department Action
  - ☑ Other

Final Determination:

- ☑ Final Determination
- ☑ Signed Permit
- ☑ BACT or LAER Determination
  - ☐ Other

Post Permit Correspondence:

- ☑ Extensions/Amendments/Modifications
- ☑ Other

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1. ☐ Addressee's Address
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Consult postmaster for fee.

3. Article Addressed to:
Mike Siefert
City of Vero Bch
100-17th Street
PO Box 1389
Vero Beach, Fl 32961-1389

4a. Article Number
Z 127 632 523

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
10-2-95

5. Signature (Addressee)

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

6. Signature (Agent)
[redacted]

PS Form **3811**, December 1991 *U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

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UNITED STATES POSTAL SERVICE

Sent to
Mike Siefert
Street and No.
City of Vero Bch
P.O., State and ZIP Code
Vero Bch, Fl

Postage	$
Certified Fee	
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
9-27-95
AC31-253502
PSD-Fl-152B

PS Form **3800**, March 1993

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3. Article Addressed to:
Mike Siefert
Vero Bch Municipal Power Plant
PO Box 1389
Vero Beach, Fl 32961

4a. Article Number
Z 392 979 017

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
8-7-95

5. Signature (Addressee)

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

6. Signature (Agent)
8-7-95 re

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UNITED STATES POSTAL SERVICE

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Sent to: Mike Siefert	
Street and No.: Vero Bch Mun PP	
P.O., State and ZIP Code: Vero Bch Fl	
Postage	$
Certified Fee	
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 8-4-95	

AC31-253502
PSD-Fl-152B

SENDER:
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- 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.
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2. ☐ Restricted Delivery

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3. Article Addressed to:
Mike Siefert
Vero Bch Municipal P. Plant
P O Box 1389
Vero Bch, Fl 32961

4a. Article Number
Z 311 902 944

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
4-3-95

5. Signature (Addressee)
George Young

6. Signature (Agent)

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

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UNITED STATES POSTAL SERVICE

Sent to: Mike Siefert	
Street and No. Vero Bch MPP	
P.O., State and ZIP Code Vero Bch, Fl	
Postage	$
Certified Fee	
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 3-30-95	

AC 31-184928A
PSD-FI-152A
Unit 5

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1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
P. O. Box 1389
Vero Beach, FL 32961

4a. Article Number
P 872 563 673

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2-2-95

5. Signature (Addressee)
George Young

6. Signature (Agent)

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

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P 872 563 673

Receipt for Certified Mail
No Insurance Coverage Provided
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UNITED STATES POSTAL SERVICE

Sent to: Mr. Mike Siefert	
Street and No.: P. O. Box 1389	
P.O., State and ZIP Code: Vero Beach, FL 32961	
Postage	$
Certified Fee	
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: Mailed: 1-31-95 Permit: AC 31-184928 PSD-FL-152A	

PS Form **3800**, JUNE 1991

Z 751 859 971

Receipt for Certified Mail

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Do not use for International Mail
(See Reverse)

Sent to Mike Siefert	
Street and No. City of Vero Beach	
P.O., State and ZIP Code Municipal Power Plant	
Postage P.O. Box 1389	$
Certified Fee Vero Beach, FL 32961	
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 received 10/20/94 AC51-184928 amends req. PSD-FL-152 Unit #5, Vero Beach Power Plant	

PS Form **3800**, March 1993

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

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
P.O. Box 1389
Vero Beach, FL 32961

4a. Article Number
Z 751 859 971

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
10-24-94

5. Signature (Addressee)

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

6. Signature (Agent)
George Young

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[redacted]

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- Complete items 3, and 4a & b.
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I also wish to receive the following services (for an extra fee):
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3. Article Addressed to:

Mr. Mike Siefert
City of Vero Beach
Municipal Power Plant
Post Office Box 1389
Vero Beach, Florida 32961

4a. Article Number
P Z 751 859 986

4b. Service Type
☐ Registered ☐ Insured
XX ☐ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
10-14-94

5. Signature (Addressee)

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

6. Signature (Agent)
George Young

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 751 859 986

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

UNITED STATES POSTAL SERVICE

Sent to Mr. Mike Siefert	
Street and No. Post Office Box 1389	
P.O., State and ZIP Code Vero Beach, FL 32961	
Postage	$
Certified Fee	
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 Mailed: 10/07/94 AC 31-184928, PSD-FL-152	

PS Form **3800**, March 1993

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- 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.

3. Article Addressed to:
Mr. Mike Siefert
City of Vero Beach
Minicipal Power Plant
P. O. Box 1389
Vero Beach, FL 32961

4a. Article Number
P 872 563 649

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

5. Signature (Addressee)
George Young

6. Signature (Agent)

7. Date of Delivery
8-1-94

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

P 872 563 649

UNITED STATES POSTAL SERVICE

Receipt for Certified Mail

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

Sent to Mr. Mike Siefert, City of	
Street and No. P. O. Box 1389 Vero Beach	
P.O., State and ZIP Code Vero Beach, FL 32961	
Postage	$
Certified Fee	
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 Mailed: 7-27-94 Permit: AC31-184928 PSD-FL-152	

PS Form **3800**, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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 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.

3. Article Addressed to:
Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, FL 32314

4a. Article Number
P 872 563 643

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form **3811**, December 1991 ☆U.S.GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 872 563 643

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

UNITED STATES POSTAL SERVICE

Sent to: Mr. Peter Cunningham	
Street and No.: P. O. Box 6526	
P.O., State and ZIP Code: Tallahassee, FL 32314	
Postage	$
Certified Fee	
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: Mailed: 7-12-94 Permit: AC31-184928 PSD-FL-152	

PS Form **3800**, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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 will show to whom the article was delivered and the date delivered.

RECEIVED
APR 12 1994
Bureau of Air Regulation

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery
Consult postmaster for fee.

3. Article Addressed to:
Mr. Peter Cunningham
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

4a. Article Number
P 872 563 612

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

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

6. Signature (Agent)

USPS APR 11 1994 TALLAHASSEE, FL

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 872 563 612

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

UNITED STATES POSTAL SERVICE

Sent to: Mr. Peter Cunningham	
Street and No.: P. O. Box 6526	
P.O., State and ZIP Code: Tallahassee, FL 32314	
Postage	$
Certified Fee	
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: Mailed: 4/6/94 AC 31-184928, PSD-FL-152	

PS Form **3800**, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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 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.

3. Article Addressed to:
Mr. Gary V. Perko
Hopping Boyd Green & Sams
P. O. Box 6526
Tallahassee, Florida 32314

4a. Article Number
P 872 562 584

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
1-24-94

5. Signature (Addressee)
Wendy Wilson

6. Signature (Agent)

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

P 872 562 584

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

UNITED STATES POSTAL SERVICE

Sent to: Mr. Gary V. Perko	
Street and No.: P. O. Box 6526	
P.O., State and ZIP Code: Tallahassee, FL 32314	
Postage	$
Certified Fee	
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: Mailed: 1/20/94 AC 31-184928 and PSD-FL-152	

PS Form **3800**, JUNE 1991

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

October 29, 1993

Mr. Clair H. Fancy
Bureau of Air Quality Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Notification of Compliance Tests for Unit 5 Combustion Turbine following retrofit of Dry Low NOx Burners.

Dear Mr. Fancy:

In accordance with the requirements of Construction Permit No. AC31-184928 Specific Condition No. 15, this letter hereby notifies you of the Compliance Tests which will be conducted on the Combustion Turbine following the Dry Low NOx Burner retrofit. Environmental Science and Engineering (ESE) headquartered in Gainesville, Florida, will conduct the compliance tests. The tests will be conducted the week of December 6, 1993. Once a schedule has been developed for the week, a copy will be forwarded to you.

If you have any questions concerning this package, please contact Mike Siefert at (407) 562-7231.

Sincerely yours,

for Shuler W. Massey
Director of Power Resources

SWM/ms
cc: Anne Harris B&V
Wade Sherrill B&V
Peter Cunningham HBG&S
Gary Perko HBG&S
Mike Siefert CVB
Tom Nason CVB

Federal Express #7877108304

\ws\air\dep\unit5\cf102993

J. Morgan
C. Collins, C. Quist
G. Harper, EPA

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 7877108304

188F 7877108304

RECIPIENT'S COPY

1 Date 10/29/93

From (Your Name) Please Print	Your Phone Number (Very Important)	2 To (Recipient's Name) Please Print	Recipient's Phone Number (Very Important)
Mike Siefert	(407) 562-7231	Mr. Clair H. Fancy	(904) 488-1284
Company / Department/Floor No.		**Company** / Department/Floor No.	
CITY OF VERO BEACH POWER PLANT		Bureau of Air Quality Management FL Dept. of Environmental Protection	
Street Address		**Exact Street Address** (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)	
200 17TH ST		Twin Towers Office Building 2600 Blair Stone Road	
City / State / ZIP Required		**City** / State / ZIP Required	
VERO BEACH FL 3 2 9 6 0		Tallahassee, FL 32399-2400	

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here
Street Address
City / State / ZIP Required

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
11 [ ] OTHER PACKAGING	51 [ ] OTHER PACKAGING
16 [ ] FEDEX LETTER*	56 [X] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day (Delivery by second business day †)	**Government Overnight** (Restricted for authorized users only)
30 [ ] ECONOMY*	46 [ ] GOVT LETTER
	41 [ ] GOVT PACKAGE

* Economy Letter Rate not available. Minimum charge: One pound Economy rate.

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**
† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
1 [ ] HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
2 [X] DELIVER WEEKDAY

Saturday Service
31 [ ] HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
9 [ ] SATURDAY PICK-UP (Extra charge)

Special Handling
4 [ ] DANGEROUS GOODS (Extra charge)
6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845, ____ X ____ kg, 904 III
[ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6	PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
	1		
	Total 1	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] ____ lbs.
L x W x H

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
2 [X] On-Call Stop 4 [ ] B.S.C. 5 [ ] Station

7 Release Signature:

Emp. No. / Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City / State / Zip
Received By: X
Date/Time Received / FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 12/92
PART #137204 FXEM 6/93
FORMAT #158
158

City of Vero Beach

100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231
Fax: (407) 569-5981

MUNICIPAL POWER PLANT

October 23, 1992

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

Subject: Notification of Certification of the new Continuous Emissions Monitoring System (CEMS) and the new Continuous Opacity Monitoring System (COMS) for Unit 4.

Attention: Mr. Clair H. Fancy

Gentlemen,

In accordance with the requirements of 40 CFR 60.7 paragraphs (5) and (6), this letter is to notify you of the impending certification of the City of Vero Beach's new CEMS and COMS that are currently being installed on Unit 4 Stack. These new systems are replacements for the existing CEMS and COMS. The Certification Test is scheduled to begin the week of November 30, 1992.

Mr. Garry Kuberski, Florida Department of Environmental Regulation (FDER) Central District and the Director of the EPA office in Atlanta, have been notified of this impending Certification Test.

If you have any questions, please contact Mike Siefert at (407) 562-7231.

Very truly yours,

Richard M. Siefert
for Shuler W. Massey
Director of Power Resources

SWM/js

BEST AVAILABLE COPY

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 4509722291

4509722291

RECIPIENT'S COPY

1 Date: 10-26-92

From (Your Name) Please Print: ke Siefert
Your Phone Number (Very Important): (407) 562-7231

Company: ty of Vero Beach Power Plant
Department/Floor No.:

Street Address: 0 17th Street

City: ero Beach
State: FL
ZIP Required: 32960

2 To (Recipient's Name) Please Print: Bureau of Air Quality Mgmt.
Recipient's Phone Number (Very Important): ( )

Company: Florida Dept. of Environmental Regul.
Department/Floor No.: Twin Towers Office Building

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 2600 Blair Stone Road

City: Tallahassee
State: FL
ZIP Required: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City:
State:
ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
11 [ ] YOUR PACKAGING	51 [ ] YOUR PACKAGING
16 [ ] FEDEX LETTER*	56 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day (Delivery by second business day †)	**Government Overnight** (Restricted for authorized users only)
30 [ ] ECONOMY	46 [ ] GOV'T LETTER
	41 [ ] GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**

†Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations) [ ]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE _____ Lbs.
7 [ ] OTHER SPECIAL SERVICE _____
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE
Total	Total	Total
1		

DIM SHIPMENT (Chargeable Weight)
[ ] _____ lbs.
L x W x H

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B.S.C. 5 [ ] Station

7 Release Signature:

Emp. No. | Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold

Street Address
City | State | Zip

Received By: X

Date/Time Received | FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137205 GBFE
FORMAT #126
126

City of Vero Beach
100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389
Telephone: (407) 562-7231

MUNICIPAL POWER PLANT

September 24, 1991

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

Subject: Notification of Commencement of Construction

Attention: Mr. Clair H. Fancy
Chief

Gentlemen:

As required under the Standards of Performance for New Stationary Sources, 40 CFR 60.7 (a) (1), this letter serves as notification to you and the U. S. Environmental Protection Agency that construction has commenced on Unit 5 of the City of Vero Beach's Municipal Power Plant.

The building permit for Unit 5 was issued on September 11, 1991. The General Contractor, The Hardaway Company, has mobilized and excavation for the foundation has begun. The piling construction has been completed, and the actual construction of Unit 5 is now underway.

Under the definitions of "commenced" and "construction," as provided in 40 CFR 60.2, the City of Vero Beach believes that these activities qualify as commencement of construction.

The City will be happy to provide any additional information that you may require regarding this matter.

Very truly yours,

Shuler W. Massey
Director of Power Resources

SWM/dg

cc: Mr. J. A. Harper (EPA)
Mr. P. C. Cunningham (HBG&S)
Mr. M. E. Fagan (B&V)
Ms. A. F. Harris (B&V)
Mr. M. L. Pelan (B&V)
Mr. G. V. Perko (HBG&S)
Mr. L. W. Sherrill(B&V)

Certified Mail P 905 682 617

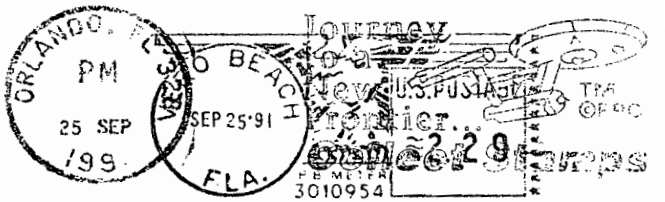
City of Vero Beach
MUNICIPAL POWER PLANT
100 - 17th STREET - P. O. BOX 1389
VERO BEACH, FLORIDA - 32961-1389

Fold at line over top of envelope to the right of the return address

CERTIFIED

P 905 682 617

MAIL



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

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Vero Beach Municipal Power Plant
P.O. Box 1389
Vero Beach, Fl
32961-1389

4. Article Number
P 832 539 797

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Addressee's Address *(ONLY if requested and fee paid)*

Signature — Agent
X

7. Date of Delivery
7/

VERO BEACH FL JUN 3 1991 USPS

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

P 832 539 797

Certified Mail Receipt

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

UNITED STATES POSTAL SERVICE

Sent to Vero Bch MPP	
Street & No. PO Box 1389	
P.O., State & ZIP Code Vero Bch, Fl	
Postage	$
Certified Fee	
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 7-1-91 AC 31-184928 PSD-FL-152	

PS Form **3800**, June 1990

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CITY OF VERO BEACH,

Petitioner,

vs.

OGC FILE NO. 91-0376
DOAH CASE NO. 91-1400

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION,

Respondent.

_____/

FINAL ORDER

On February 14, 1991, the State of Florida Department of Environmental Regulation ("Department") received a request for administrative hearing from Petitioner, the City of Vero Beach. The Petitioner challenged certain permit conditions in the Department's decision to issue Permit No. AC31-184928 to construct a 60 MW combined cycle gas turbine at the Vero Beach Municipal Power Plant in Vero Beach, Florida.

On May 23, 1991, after receiving a Stipulation for Dismissal the assigned Hearing Officer issued an Order which closed the Division of Administrative Hearings file and relinquished jurisdiction back to the Department. (Exhibit 1) There being no further matters to consider,

IT IS ORDERED:

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Air Resources Mgmt.
2.
3.
4.

Remarks:

RECEIVED

JUN 0 6 1991

Division of Air
Resources Management

From: Karen Kast - OGC

Date 6-5-91

Phone 488-9730

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:	4. Article Number
Mr. Shuler W. Massey Director of Power Resources Vero Beach Municipal Power Plant P. O. Box 1389 Vero Beach, Florida 32961-1389	P 256 396 189 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Address X	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery 9/13/90	

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 256 396 189

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. Shuler W. Massey, City of Vero Beach	
Street and No. P. O. Box 1389	
P.O., State and ZIP Code Vero Beach, FL 32961-1389	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 9-11-90 Permit; AC 31-184928 PSD-FL-152	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CITY OF VERO BEACH, FLORIDA Petitioner, vs. STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION, Respondent.	)	CASE NO. _____

PETITION FOR FORMAL ADMINISTRATIVE PROCEEDINGS

Petitioner, City of Vero Beach, Florida, ("City" or "Petitioner"), by and through its undersigned counsel, hereby files this petition for formal administrative proceedings pursuant to Section 120.57(1) and Chapter 403, Florida Statutes, and Titles 17 and 28, Florida Administrative Code, in order to challenge certain construction permit conditions set forth in the Department of Environmental Regulation's ("DER" or "Respondent") December 21, 1990 Notice of Intent to Issue Permit. In support of this Petition, the City states:

IDENTIFICATION OF PARTIES

1. The name, address, and telephone number of the Petitioner is City of Vero Beach, Florida, Vero Beach Municipal Power Plant, Post Office Box 1389, Vero Beach, Florida, 32961-1389, 407/567-5151.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Steve Smallwood
2. Clair
3.
4.

RECEIVED
FEB 22 1991
DER - BAQM

Remarks:

FYI - Please have whoever on your staff is handling this to give me a call. Thanks.

Doug MacLaughlin

From	Date
Doug MacLaughlin	2-21-91
	Phone

BEST AVAILABLE COPY

VERO BEACH PRESS-JOURNAL

Published Daily

Vero Beach, Indian River County, Florida

COUNTY OF INDIAN RIVER: STATE OF FLORIDA

Before the undersigned authority personally appeared J. J. Schumann, Jr. who on oath says that he is Business Manager of the Vero Beach Press-Journal, a daily newspaper published at Vero Beach in Indian River County, Florida; that the attached copy of advertisement, being

a Notice

in the matter of Intent to Issue

in the Court, was published in said newspaper in the issues of January 2, 1991

Affiant further says that the said Vero Beach Press-Journal is a newspaper published at Vero Beach, in said Indian River County, Florida, and that the said newspaper has heretofore been continuously published in said Indian River County, Florida, each daily and has been entered as second class mail matter at the post office in Vero Beach, in said Indian River County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this 2nd day of January, 19 91

John J. Schumann Jr.
(Business Manager)

Barbara Sprouse
(Clerk of the Circuit Court, Indian River County, Florida)

(SEAL)

Notary Public, State of Florida
My Commission Expires June 24, 1992

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 Vero Beach Municipal Power Plant, 100 - 17th Street, Vero Beach, Indian River County, Florida 32961-1389, to construct and operate a 60 MW combined cycle gas turbine system. A determination of Best Available Control Technology (BACT) was required. The maximum degree of increment consumed for nitrogen dioxide is 2.0% of the Class II proposed annual mean. For sulfur dioxide, the maximum consumption is also 2.0%. 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 modfication 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 Reggulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Department of Environmental Regulation
Central District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Barry Andrews at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination. Furthermore, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Jan. 2, 1991 755647

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:	4. Article Number
Mr. Whuler W. Massey Director of Power Resources Vero Beach Municipal Power Plant P. O. Box 1389 Vero Beach, FL 32961-1389	P 407 852 936
	Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise
	Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Addressee X	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery 12/27/90.	

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

P 407 852 936

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. Shuler W. Massey, Vero	
Street and No. Beach Power Plnt P. O. Box 1389	
P.O., State and ZIP Code Vero Beach, FL 32961-1389	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 12-24-90 Permit: AC 31-184928 PSD-FL-152	

PS Form 3800, June 1985 ☆U.S.G.P.O. 1989-234-555

Florida Department of Environmental Protection
Meeting Sign-In Sheet

Re: Vero Beach Unit #5 **Date:** 5/2/95

Name	Representing	Telephone
Clair Fancy	FDEP/DARM/BAR	904-488-1344
Bruce Mitchell	" / Title V	"
Charles Logan	"	"
Gary Perko	HGSS / City of Vero Beach	904-222-7500
MIKE SIEFERT	CITY of Vero Beach	407 562-7231
Shuler W. Massey	CITY OF VERO Beach	" " "
PETER CUNNINGHAM	HGSS / CITY OF VERO BEACH	904/222-7500
Syed Arif	FDEP / DARM / BAR	904-488-1344

Suggested Language for Letter Amendment to DEP Permit No. AC 31-184928A/PSD-FL-152

(Underlining indicates addition to Letter Amendment of March 27, 1995. ~~Strike-Through~~ indicates deletion.)

SPECIFIC CONDITION NO. 2:

The Department acknowledges that the permittee installed low NOx comubustors. Based on compliance test results, the maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in the new Table A 5, which replaces Tables 1 through 4. ~~In the event and SCR system is required to be installed, the emission limitations shall be established at the time of installation by stack test results and through a revised BACT determination. If an SCR system is installed, it may be bypassed during simple cycle operation.~~

SPECIFIC CONDITION NO. 7:

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 3,482 ~~3,390~~ gals/hr.
- Maximum No. 2 fuel oil consumption shall not exceed 10,000,000 ~~7,500,000~~ gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 33% ~~25%~~ of the annual capacity factor.
- Maximum sulfur (S) content in the fuel oil shall not exceed 0.25 percent, by weight.
- Maximum heat input shall not exceed 414 MMBtu/hr (gas) or 455 ~~438~~ MMBtu/hr (oil), based on 101.3 kilopasacals presure, 288° Kelvin and 60% relative humidity (ISO standard day conditions), and lower heating value of the fuel fired.

SPECIFIC CONDITION NO. 10:

Initial (I) compliance tests shall be performed on each CT using both fuels. In accordance with Specific Condition No. 14, 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 the EPA referenced methods in accordance with the November 2, 1989 version of 40 CFR 60 Appendix A, and 40 CFR 61, Appendix B; and, solid waste regulations SW 846:

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 NOx (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 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).

g. 25A for VOC (I, no VOC stack test is required provided that the CO stack test demonstrates compliance with the allowable CO limit).

Other DEP methods may be used for compliance testing after prior Department approval is received in writing.

SPECIFIC CONDITION NO. 13:

During performance tests, to determine compliance with the NSPS NOx standard, measured NOx emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following equation: [No change to formula]

SPECIFIC CONDITION NO. 14:

Test results will be the average of 3 valid runs. The Central District will be notified at least 15 days in writing in advance of any subsequent compliance test. Testing of emissions shall be conducted with the CT operating at permitted capacity. Permitted capacity is defined as 95-100 percent of the maximum heat input rate allowed by the permit, corrected for the average ambient temperature during the test, with 100 percent capacity represented by a curve depicting heat input v. ambient temperature. If it is impracticable ~~impractable~~ to test at permitted capacity, the source/emissions unit may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the heat input v. ambient temperature curve downward by an increment equal to the difference between the maximum permitted heat input rate (corrected for ambient temperature) and 105 percent of the value reached during the last compliance test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of conducting an additional compliance test to regain the permitted capacity. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

SPECIFIC CONDITION NO. 16:

A continuous monitoring system shall be installed to monitor and record the fuel consumption. Continuous monitoring shall also be installed, operated, and maintained in accordance with 40 CFR 60, Appendix F, or 40 CFR 75, if adopted and applicable, for the combined cycle unit to monitor nitrogen oxides emissions.

a. The continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B, or 40 CFR 75, if adopted and applicable.

b. CEMS data shall be recorded and reported in accordance with ~~Chapter 17-2 (~~Chapter 62-297), F.A.C., and 40 CFR 60. The record shall include periods of startup, shutdown and malfunction.

c. A malfunction means any sudden and unavoidable faulure of air pollution control equipment or process equipment to operate in a normal or unusual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or preventable equipment breakdown shall not be considered malfunctions.

d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.

e. For purposes of reports required under this permit, excess emissions are defined as any one (1) hour period during which the average emissions of all readings collected during a continuous 60 minute period exceed the applicable emission limits in Table 5 referenced in Specific Condition No. 2. Quarterly excess emission reports, in accordance with the July 1, 1992, edition of 40 CFR 60.7 and 40 CFR 60.13, shall be submitted to DEP's Central District offices. The continuous emission monitor system (CEMS) shall comply with 40 CFR 60 Appendix F - Quality Assurance Procedure and 40 CFR 60 Appendix D - Performance Specification 2 or the applicable provisions of 40 CFR 75, if adopted. Method 7E or equivalent (requires Department approval in writing) shall be used as the Reference Method for the Determination of Nitrogen Oxide Emissions.

SPECIFIC CONDITION NO. 17:

Sulfur, ~~nitrogen~~ content and lower heating value of the fuel oil being fired in the gas turbine shall be recorded daily. The records of fuel oil usage will be kept by the company for a five-year period and available for any regulatory agency's inspection.

SPECIFIC CONDITION NO. 19:

This source/emissions unit shall comply with all requirements of 40 CFR 60, subpart GG and F.A.C. Rule 62-296.800, standards of performance for Stationary Gas Turbines. Excess emissions shall be reported as measured by the continuous emission monitoring system pursuant to 40 CFR 60.334(c).

SPECIFIC CONDITION NO. 22:

Pursuant to F.A.C. Rule 62-210.370(3), F.A.C., Air Operating Report (AOR), the permittee is required to submit an AOR on the actual operating rate and emissions from the facility for the previous year's operation. The AOR shall include, but are not limited to, the following: sulfur ~~-and-nitrogen~~ contents, by weight, and lower heating value of the fuel oil being fired, annual fuel consumption (fuel oil and natural gas), hours of operation per fuel usage (singly fired and co-fired), actual air pollutant emissions, etc. The AOR shall be sent to the Department's Central District office by March 1 of each year and shall reflect the previous calendar year's operation.

TABLE A
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year[a][b]	Basis
NOx[c]	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	239	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	178.2	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	23.7	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.0	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	45.0	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.002	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.33	BACT

(a) Tons per year figures based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas): 414 MMBtu/hr
Base Load (oil): 455 MMBtu/hr

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

ATTACHMENT "B"

DRAFT

TO: Charles Collins, Air Program Administrator
Central District Office

John C. Brown, P.E., Administrator
Air Permitting and Standards Sections

FROM: Clair H. Fancy, Chief
Bureau of Air Regulation

DATE: May 16, 1995

SUBJECT: Vero Beach Municipal Power Plant - Unit 5
Permit No. AC 31-184928, PSD-FL-152

In 1991, the Department issued the above-referenced permit authorizing construction of a 60 MW combined cycle combustion turbine (Unit 5) at the Vero Beach Municipal Power Plant in Indian River County. Based on the Department's BACT determination, the permit required installation of low NOx combustors (LNCs) or selective catalytic reduction (SCR) within one year after the commencement of commercial operation. In accordance with the permit, the City of Vero Beach (CVB) has installed LNCs and has demonstrated compliance with applicable emission limits.

The retrofit installation of LNCs in Unit 5 has rendered certain conditions of the construction permit obsolete or otherwise in need of clarification. After conferring with representatives of CVB, the Bureau of Air Regulation (BAR) has determined that certain minor revisions to the construction permit are warranted (See, Amendment to Construction Permit dated _____ __, 1995). BAR also has determined that other provisions of the construction permit should be omitted from or clarified in the currently pending operation permit for Unit 5, as well as future Title V permits for the Vero Beach facility. To avoid confusion in the future, this memorandum explains how various specific conditions of the construction permit are to be addressed in subsequently issued operation permits.

SPECIFIC CONDITION 1: This condition should be clarified as follows to acknowledge that CVB has installed LNCs in accordance with the Department's BACT determination:

> 1. Pursuant to Rule 62-212.410, F.A.C., the permittee shall utilize dry low-NOx combustors for NOx control when firing natural gas. Control of NOx when firing No. 2 fuel shall be accomplished by water injection. In addition, the permittee shall maintain duct modules suitable for later installation of selective catalytic reduction (SCR) system.

SPECIFIC CONDITION 2: This condition should be clarified as follows to incorporate revised emission limitations in accordance with Amendment to Construction Permit dated _____ __, 1995:

> 2. The maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table A.

SPECIFIC CONDITION 3: This condition is not based upon any currently applicable requirements and, therefore, should be omitted in subsequent operation permits unless and until the Department adopts rules establishing acceptable ambient air concentrations (AAC) or ambient reference concentrations (ARC).

SPECIFIC CONDITION 7: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 10: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 14: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 15: This condition has been satisfied and should be omitted from subsequent operation permits.

SPECIFIC CONDITION 16: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 17: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 19: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

SPECIFIC CONDITION 22: This condition should be clarified in accordance with Amendment to Construction Permit dated _____ __, 1995.

May 2, 1995

Amendments to DEP Air Construction Permit No. AC 31-184928 requested by the City of Vero Beach.

SPECIFIC CONDITION 1:

Revise as follows:

1. Pursuant to Rule 62-212.410, F.A.C., the permittee shall utilize dry low-NOx combustors for NOx control when firing natural gas. Control of NOx when firing No. 2 fuel shall be accomplished by water injection. In addition, the permittee shall maintain duct modules suitable for later installation of selective catalytic reduction (SCR) system.

SPECIFIC CONDITION 2:

Revise as follows:

2. The maximum allowable emissions from Unit 5 shall not exceed the emission limitations listed in Table 1.

~~**SPECIFIC CONDITION 3**~~:

~~Delete.~~

~~**SPECIFIC CONDITION 4-6**~~:

~~Renumber as Specific Conditions 3-5.~~

SPECIFIC CONDITION 7:

Renumber as Specific Condition 6 and revise as follows:

~~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 10,000,000 gals/yr.

- Maximum annual firing using No. 2 fuel oil shall not exceed 33% of the annual capacity factor.

- ~~Maximum sulfur(s) content in the oil shall not exceed 0.25 percent by~~ weight.

- Maximum heat input during "Base Load" operation shall not exceed 414 MMBtu/hr (gas) or 455 MMBtu/hr (oil), based on sea level pressure at 59° ambient dry bulb temperatures, 60% relative humidity (ISO conditions) and lower heating value (LHV) of the fuel being fired.

SPECIFIC CONDITIONS 8 & 9:

Renumber as specific conditions 7 & 8.

SPECIFIC CONDITION 10:

Renumber as Specific Condition 9 and revise per DEP letter of March 27, 1995.

SPECIFIC CONDITIONS 11 & 12:

Renumber as Specific Conditions 10 & 11.

SPECIFIC CONDITION 13:

Renumber as Specific Condition 12 and revise as follows:

13. ~~12.~~ The emission unit shall be in compliance with all applicable requirements of 40 CFR 60, Subpart A, Appendix A and Appendix B (1993 version), Subpart GG - Standards of Performance for Stationary Gas Turbines (1993 version), and Rule 62-296.800 (2)(a), F.A.C., except as otherwise specified herein. The Subpart GG requirement to correct test data to ISO conditions applies. However, such correction is not used for compliance determinations with the BACT standard(s). All notifications and reports required by this specific condition shall be submitted to the DEP's Central District office.

SPECIFIC CONDITION 14:

Renumber as Specific Condition 13 and revise as per DEP letter of March 27, 1995.

SPECIFIC CONDITION 15:

Delete.

SPECIFIC CONDITION 16:

Renumber as Specific Condition 14 and revise as follows:

16 ~~14.~~ A continuous monitoring system shall be installed to monitor and record the fuel consumption in accordance with 40 CFR Part 75. The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the nitrogen oxides emissions from this source. One-hour periods when NOx emissions (ppmvd @ 15% oxygen) are above the BACT standards shall be reported as excess emissions following the format of 40 CFR 60.7 (1993 version). The continuous emission monitor must comply with Rule 62-297.520, F.A.C.; 40 CFR 60, Appendix F, Quality Assurance Procedures (1993 version) (or other DEP approved QA plan); 40 CFR 60, Appendix B, Performance Specification 2 (1993 version); or, if applicable, 40 CFR 75, Appendix A and Appendix B. Periods of startup, shutdown, fuel switching, malfunction, and load change shall be monitored and

under Part 75 so that under permit

recorded. The NOx CEMS will be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring, which are required in accordance with 40 CFR 60, Subpart GG (1993 version), and are used as indicators of compliance with the NOx standard specified in the subpart. Since the NOx emission standard from Subpart GG is more than twice the BACT standard, monitoring for emissions in excess of the BACT limits using the NOx CEMS is more stringent. The calibration of the water/fuel monitoring device required in 40 CFR 60.335(c)(2) (1993 version) will be replaced by certification tests of the NOx CEMS.

SPECIFIC CONDITION 17:

Renumber as Specific Condition 15 and revise per DEP letter of March 27, 1995, with clarification regarding monitoring of nitrogen content.

SPECIFIC CONDITION 18:

Renumber as Specific Condition 16.

SPECIFIC CONDITION 20 & 21

Renumber as Specific Conditions 18 & 19.

SPECIFIC CONDITION 22

Renumber as Specific Condition 20 and revise per DEP letter of March 27, 1995, with clarification regarding monitoring of nitrogen content.

SPECIFIC CONDITIONS 23 & 24:

Renumber as Specific Conditions 21 & 22.

TABLES 1, 2, 3, & 4

Replace with new Table 1.

IN GENERAL: Update all Chapter 17-2 citations to reflect renumbering of 17-200 series Rules. Update all references to "Department of Environmental Regulation" to reflect change to "Department of Environmental Protection." Reissue entire permit to avoid potential confusion over applicable conditions.

TABLE 1
ALLOWABLE EMISSION LIMITS

Pollutant	Standards: Gas Firing	Standards: No. 2 Fuel Oil Firing	Gas Turbine and HRSG Tons Per Year[a][b]	Basis
NOx[c]	25 ppmvd at 15% oxygen on a dry basis	42 ppmvd at 15% oxygen on a dry basis	243.7	BACT
SO_2	Natural gas as fuel	0.25 percent S by weight	176.3 178.2	BACT
PM	0.006 lb/MMBtu	0.025 lb/MMBtu	23.7	BACT
VOC	0.0112 lb/MMBtu	0.0113 lb/MMBtu	21.0	BACT
CO	0.0224 lb/MMBtu	0.0226 lb/MMBtu	42.1	BACT
Mercury (Hg)		3.0×10^{-6} lbs/MMBtu	0.0019	Est. by Appl.
Lead (Pb)		2.8×10^{-5} lbs/MMBtu	0.018	Est. by Appl.
Beryllium (be)		2.5×10^{-6} lbs/MMBtu	0.0016	BACT
Sulfuric Acid Mist	Natural gas as fuel	8.1×10^{-3} lbs/MMBtu	5.3	BACT

(a) Tons per year figures based on 67 percent capacity factor for gas-firing; 33 percent capacity factor for oil firing.

(b) Based on following heat input rates:
Based Load (gas): 414 MMBtu/hr
Base Load (oil): 455 MMBtu/hr

(c) The following equation shall be used to determine the emission limit applicable during co-firing of natural gas and No. 2 fuel oil:

$$\text{Emission limit} = \frac{(A1 \times A2) + (B1 \times B2)}{A2 + B2}$$

Where:
A1 = Emission Stand for Natural Gas Firing
A2 = Heat Input of Natural Gas
B1 = Emission Standard for No. 2 Fuel Oil Firing
B2 = Heat Input of No. 2 Fuel Oil

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rex Taylor
City Manager, Utilities Director
City of Vero Beach
100 17th Street
Vero Beach, Florida 32960

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery 4/9

C. Signature
X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7099 3400 0000 1453 2238

PS Form **3811**, July 1999 Domestic Return Receipt 102595-99-M-1789

7099 3400 0000 1453 2238

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. Rex Taylor

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (to be completed by mailer)
Mr. Rex Taylor
Street, Apt. No., or PO Box No.
100 17th Street
City, State, ZIP+4
Vero Beach, Florida 32960

PS Form 3800, July 1999 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rex Taylor, City Manager
Utilities Director
City of Vero Beach
P. O. Box 1389
Vero Beach, FL 32961-1389

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) | B. Date of Delivery 1/22

C. Signature
X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Copy from service label) 7099 3400 0000 1453 2740

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

7099 3400 0000 1453 2740

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
Mr. Rex Taylor, City Manager

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
1/18/01

Name (Please Print Clearly) (to be completed by mailer)
City of Vero Beach
Street, Apt. No.; or PO Box No.
P.O. Box 1389
City, State, ZIP+4
Vero Beach, FL 32961-1389

PS Form 3800, July 1999 See Reverse for Instructions