



ORLANDO UTILITIES COMMISSION

500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 407/423-9100

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MAY 5 1994

May 3, 1994

Bureau of
Air Regulation

Ms. Teresa M. Heron
Division of Air Resources Management
Permitting and Standards Section
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Orlando Utilities Commission Brevard County
AC 05-193720

Dear Ms. Heron:

We are in receipt of your draft letter faxed May 2, 1994 addressing proposed changes to the above referenced construction permit.

The following specific conditions are acceptable as changed:

Numbers 1, 2, 3, 7, 8, 10, 11, 15, 16 and 18

We offer the following comments and request these changes be incorporated for the remainder of the conditions:

Specific Condition No. 9 -

Compliance Determination

9. Compliance with the NO_x, SO₂ (oil), PM/PM₁₀, CO, and visible emission standards shall be determined by the following reference methods as described in 40 CFR 60, appendix A (July 1, 1993) and adopted by reference in F.A.C. Rule 17-2.700.

~~Method 1. Sample and Velocity Traverses *~~

~~Method 2. Volumetric Flow Rate *~~

- Method 3. Gas Analysis



Ms. Teresa M. Heron
May 3, 1994
Page 2

- Method 5. Method 5,* 5B, 5F or 17 (I,~~A~~ for oil only)
- Method 9. Determination of the opacity of the Emissions from
- 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. (see approved alternate testing procedure).

*** Use approved Alternate Method attached to determine volumetric flow.**

Specific Condition No. 14 -

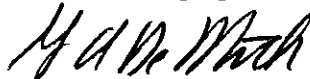
14. This condition will not be changed. The 30 days advance notice is specified in 40 CFR 60.8(d). The District office will incorporate the Division Director's memo regarding compliance for combustion turbines in the operating permit, as soon as it becomes available **including a 15 day notice for annual tests.**

Specific Condition No. 17 -

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded per fuel oil shipment as required in 40 CFR 60 Subpart GG. These records shall also be kept the by company for at least ~~three~~ **two** years and made available for regulatory agency's inspection by authorized representatives of the Department.

Again, thank you for your efforts in assisting us to resolve these items. It is our hope that the timely issuance of an acceptable construction permit will allow sufficient time for the Department to issue an operation permit and therefore obviate the need to go to hearing.

Very truly yours,



G. A. DeMuth, Director
Environmental Division

GAD:rc

xc: F. F. Haddad
V. F. Gallucci
R. F. Hicks
W. J. House
W. B. Taylor

depngenrl\g050394



0003475

ORLANDO UTILITIES COMMISSION

500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 407/423-9100

Certified Mail No. P838-073-065
Return Receipt Requested

April 1, 1994

Mr. Clair H. Fancy, Bureau Chief
Bureau of Air Regulation
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

REC'D APR -1 PM 2:18
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Re: Permit AC05-193720
OUC Brevard County

Dear Mr. Fancy:

Enclosed please find a check in the amount of \$250 for processing an amendment to the above referenced permit.

After discussions with Mr. Preston Lewis and Ms. Theresa Heron of your staff, we are submitting the enclosed Specific Conditions which we believe should be contained in the operating permit for these combustion turbines. Because of the Department's position that the construction permit must be modified before these Conditions can be placed in our operating permit, we are requesting the construction permit be amended as necessary.

If you have any questions, please call either myself at 407/423-9141 or Bob Hicks at 407/423-9133.

Very truly yours,

G. A. DeMuth, Director
Environmental Division

GAD:rc
Enclosures

xc: R. F. Hicks

J. Heron
C. Collins, C. Case
depgenrl\n0401942
G. Harp, EPA

Administration Fax: (407) 236-9616



Purchasing Fax: (407) 423-9199

PERMITTEE:

Permit Number: A005-229084

Expiration Date: August 30, 1998

Orlando Utilities Commission
 Attention: William H. Herrington,
 Vice President, Electric Business Unit

SPECIFIC CONDITIONS

EMISSION LIMITS

1. The maximum allowable emissions from the facility shall not exceed the emission rates listed in the following table.

ALLOWABLE EMISSION LIMITS
 Simple Cycle Combustion Turbine

Pollutant	Standards	
	Gas Firing/20 F	No. 2 Fuel oil Firing/20 F
No _x	25 ppmv at 15 percent oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis
S02	Natural Gas as fuel	0.3 percent S by weight
PM/PM10	0.003 lb/MMBtu	0.08 lb/MMBtu
Voc	5 ppmvd	15 ppmvd
co	25 ppmvd	25 ppmvd
Mercury (Hg)		3.0 x 10⁻⁶ lbs/MMBtu
Lead (Pb)		2.8 x 10⁻⁵ lbs/MMBtu
Beryllium (Be)		2.5 x 10⁻⁶ lbs/MMBtu
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil <u>0.3 percent S by weight</u>

Pollutant	Gas Turbine Tons Per Year*		Basis
	Gas	Oil	
No _x	591.5	506	BACT
So ₂	2.1	953	BACT
PM/PM10	19.5	237	Performance Data
Voc	37	112	
CO	313	159	
Mercury (Hg)		0.01	Est. by Appl.
Lead (Pb)		0.08	
Beryllium (Be)		0.01	
Sulfuric Acid Mist	0.07	28.5	

*Total emissions from the two 129 MW turbines are based on a 50 percent capacity factor with a maximum of 25 percent attributed to oil firing.

PERMITTEE:
Orlando Utilities Commission

Permit Number: A 0 0 5 - 2 2 9 0 8 4
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SECIFIC CONDITIONS
(Continued)

~~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:~~

Pollutant	Acceptable Ambient Concentrations (ug/m ³)		
	8 hr	24 hr	Annual
Beryllium	0.02	0.005	0.004
Lead	1.5	0.36	0.09
Inorganic Mercury Compounds all forms of Vapor, as Hg	NA	NA	0.3

~~2.3. Visible emissions shall not exceed 20 percent opacity at anytime except as provided in Chapt 17-200.700, nor exceed 10% during full load.~~

OPERATING CONDITIONS

~~3.4. Each source is allowed to operate at full load for a maximum of 4,380 hours per year.~~

~~4.5. Each source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 65 below).~~

~~5.6. The permitted materials and utilization rates for each simple cycle gas turbine shall not exceed the values as follows:~~

- ~~-- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 10,282 gals/hr; 22,517,580 gals/yr.~~
- ~~-- Maximum annual firing using No. 2 fuel oil shall not exceed 2,190 hours per year.~~
- ~~-- Maximum sulfur (s) content in the oil shall not exceed 0.30 percent by weight.~~
- ~~-- Maximum heat input shall not exceed 1,354 MMBtu/hr (gas) or 1,346 MMBtu/hr (oil).~~
- ~~-- Maximum annual firing on any fuel combination shall not exceed 4,380 hours per year.~~

~~6.7. Any request to change the method of operation, equipment or operating hours which would result in an increase of emissions shall be submitted to the Department's Bureau of Air Regulation and Central District offices for prior approval.~~

PERMITTEE:
Orlando Utilities Commission

Permit Number: Ao05-229084
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(Continued)

~~8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility are considered part of this operating permit.~~

COMPLIANCE DETERMINATION

~~7.9.~~ Compliance with the NO_x, SO₂ (oil), CO, and visible emission standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1990) and adopted by reference in Rule 17-297, F.A.C.

- a) Method 1 - Sample and Velocity Traverses
- b) Method 2 - Volumetric Flow Rate
- c) Method 3 - Gas Analysis
- d) Method 9 - Determination of the opacity of the Emissions
- e) Method 10 - Determination of the Carbon Monoxide emissions from Stationary Sources
- f) Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent emissions from Stationary Gas Turbines. (SEE APPROVED ALTERNATE TESTING PROCEDURE ATTACHED)

~~10.~~ ^{8.} Annual NO_x compliance tests shall be performed with each the fuels used for more than 400 hours per unit in the preceding 12 month period.

~~11.~~ ^{9.} Compliance with the SO₂ emission limit can also be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid fuels.

~~12.~~ ^{10.} 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.~~ ^{11.} During performance tests, to determine compliance with the No_x standard, measured No_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x \text{ obs}})(P_{\text{ref}}/P_{\text{obs}})^{(0.5)} (e^{(H_{\text{obs}} - 0.00633)}) (288^{\circ}\text{K}/T_{\text{amb}})^{1.53}$$

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.

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(continued)

- 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. The Air Resources Compliance Section of this office shall be notified in writing at least thirty (30) days in advance of the compliance tests.~~
~~12. The owner or operator shall notify the Department in writing at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test and the test contact person who will be responsible for coordinating and having such test conducted for the owner. The Department may waive the 15 day notice requirement on a case-by-case basis. {17-297.340(1)(i)}~~

13.

~~15-~~ A copy of the compliance test results shall be submitted to the Department's Central District Office within 45 days after the last test run is complete. The test report should provide the actual heat input rate and at least all of the information listed in Rule 17-297.570(3), F.A.C. ~~A copy of the continuous opacity monitor strip chart recorded during each compliance test should be submitted with the test reports. Each test report should also include a fuel oil analysis as required in 40 CFR 60.334(b) from a representative sample of the fuel oil burned during the test and a calculation of the sulfur dioxide emission rate in pounds per MMBTU heat input and pounds per hour. Failure to submit any of the above information may invalidate a test [Rules 17-297.570 and 17 4.070(3), F.A.C.].~~

14.

~~16-~~ Testing of emissions should be conducted with the source operating at "base load" ~~** 90 — 100% of rated capacity.~~ The source shall be allowed to operate at any load up to 129 MW so long as the actual water injection rate is at or above the minimum water injection rate established during the initial compliance testing. ~~90% of rated capacity; however subsequent source operation is limited to 110% of the tested load until a new test is conducted and approved by the Department in writing. Once the unit is so limited, operation at higher capacities is allowed for a cumulative total of no more than 15 successive calendar days for purposes of additional compliance testing to regain permitted capacity, with prior notification to the Department (Rule 17-4.070(3), F.A.C.).~~

**"Base Load" is the maximum load the combustion turbine is capable of reaching at the ambient conditions present during the test.

~~17. In order to provide the Department with reasonable assurance that this source can comply with both the particulate and Nox standards simultaneously, the steady state particulate tests and the nitrogen oxides tests should be conducted simultaneously.~~

15.

~~18.~~ The stack sampling facility must comply with Rule 17-297.345, F.A.C., regarding minimum requirements that include but are not limited to: location of sampling ports, work platform area, caged ladder, access and electrical power except as allowed by the attached APPROVED ALTERNATE TESTING PROCEDURE.

16.

~~19.~~ Compliance tests should be conducted on an annual basis on or within 60 days prior to ~~December 10~~ August 30.

PERMITTEE:
Orlando Utilities Commission

Permit Number: A005-229084
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(Continued)

~~17.~~

~~20.~~ A continuous monitoring system shall be utilized to monitor and record the water and fuel consumption on each unit, as well as the ratio of water to fuel being fired in each unit. Water injection shall be utilized for NOx control. ~~The water to fuel ratios at which compliance was achieved, shall be incorporated into this permit and shall be continuously monitored. The one hour average minimum water to fuel weight ratios demonstrated during compliance testing must be maintained until subsequent tests indicate compliance at a different ratio.~~ The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

The permittee shall provide the Central District office with the model number of the continuous monitoring system within 30 days of the date of issue of this operating permit.

~~The following one hour average minimum water to fuel weight ratios must be maintained until subsequent tests indicate compliance at a different ratio:~~

Combustion Turbine C

Natural Gas

30%	0.82	0.68
50%	0.74	0.70
76%	0.97	0.88
100%	1.18	0.92

Combustion Turbine D

<u>Load</u>	<u>Natural Gas</u>	<u>Oil</u>
30%	0.67	0.67
50%	0.70	0.67
75%	0.93	0.94
100%	1.16	1.03

~~18.~~

~~21.~~ To determine compliance with the capacity factor limitations each CT's fuel consumption shall be continuously measured and recorded. The permittee shall maintain daily records of this fuel usage. All records shall be maintained for a minimum of ~~two~~ three years after the date of each record and shall be made available to authorized representatives of the Department upon request.

~~19.~~

~~22.~~ Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded per fuel oil shipment as required in 40CFR 60, Subpart GG. These records shall be kept by the company for at least ~~two~~ three years and made available for regulatory agency's inspection by authorized representatives of the Department.

~~20.~~

~~23.~~ Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions were successfully demonstrated to the Department during initial compliance tests 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 modelling. This compliance determination shall be made available upon request.~~

PERMITTEE:
Orlando Utilities Commission

Permit Number: A 0 0 5 - 2 2 9 0 8 4
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS:
(continued)

21.

~~24.~~ Excess emissions resulting from start-up or shut-down are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized. Excess emissions resulting from malfunction are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized, but in no case exceeds two hours in any 24-hour period unless specifically authorized by the Department for longer duration. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction are prohibited [Rule 17-210.700, F.A.C.].

In the event the permittee is temporarily unable to comply with any of the conditions of the permit, the permittee shall immediately notify the Department's Central District Office. Notification shall be conducted in accordance with General condition (8) of this permit. In case of excess emissions resulting from malfunctions, a full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department [Rules 17-210.700(6) and 17-4.130, F.A.C.].

The permittee shall submit, to the Department, a written report of emissions in the excess of the emission limiting standard as set forth in Rule 17 ~~296.405(1)(a)~~ 296.800(2)(a), F.A.C. for each calendar quarter. The nature and cause of the excess emissions shall be explained. This report does not relieve the permittee of the legal liability for violations. All recorded data shall be maintained on file for a period of at least 2 years. The information supplied in this report shall be consistent with the reporting requirements of 40 CFR ~~60.7 51 Appendix P~~. The report shall be submitted within 30 days following the end of the calendar quarter (Rules 17-297.500(2) and 17-4.070(3), F.A.C.).

RULE REQUIREMENTS

22.

~~25.~~ This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, and Chapter 17-4, Florida Administrative Code.

23.

~~26.~~ This source shall comply with all requirements of 40 CFR 60, Subpart GG and Rule 17-296.800, F.A.C., Standards of Performances for Stationary Gas Turbines.

24.

~~27.~~ This source shall comply with Rule 17-297, F.A.C., Stationary Point Source Emission Test Procedures.

PERMITTEE:
Orlando Utilities Commission

Permit Number: AoOS-229084
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS:
(Continued)

- ~~25.~~
~~28.~~ Pursuant to F.A.C. Rule 17-210.300(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 emission limits, etc. Annual reports shall be sent to the Department's Central District Office. Each calendar year on or before March 1, submit for each source, an Annual Operations Report DER Form 17-210.900(4), for the preceding calendar year.
- ~~26.~~
~~29.~~ The source shall not discharge air pollutants which cause or contribute to an objectionable odor [Rule 17-296.320(2), F.A.C.].
- ~~27.~~
~~30.~~ Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other applicable requirements of Rule 17-296 or 17-297, or any other applicable requirements under federal, state, or local law. Future regulations may impact this facility. The permittee shall comply with any applicable future regulations when they become effective (Rule 17-210.300, F.A.C.).
- ~~28.~~
~~31.~~ The application to renew this operating permit shall be submitted to the Central District Office at least sixty days prior to the expiration date of this permit (Rule 17-4.050(2) and [Rule 17-4.090(1), F.A.C.].

ISSUED 9/21 / 93

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

A. Alexander, P.E.
District Director
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803

DEC 2 1 92

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the matter of:)	Permit No.	AC 05-193720
)		
Orlando Utilities)		ASP-92-O-01
Commission)		
)		
Petitioner.)		
_____)		

ORDER ON REQUEST
FOR
ALTERNATE TEST PROCEDURES AND REQUIREMENTS

Pursuant to Rule 17-297.620, F.A.C., Orlando Utilities Commission petitioned for approval to use a source sampling array consisting of 50 points in lieu of the 49 points required by EPA Method 20 for the measurement of nitrogen oxide emissions from Petitioner's simple cycle combustion turbine Units C and D at the Orlando Utilities Commission Indian River Power Plant, permit number AC 05-193720, located in Brevard County.

Having considered Petitioner's written request and all supporting documentation, the following Findings of Fact, Conclusions of Law, and Order are entered:

FINDINGS OF FACT

1. On July 1, 1992, Petitioner specifically requested approval to use source sampling array consisting of 50 points, arranged in a 5X10 matrix, in lieu of the 49 points, arranged in a 7X7 matrix, required by EPA Method 20 for the measurement of nitrogen oxide emissions from Petitioner's simple cycle combustion turbine Units C and D at the Indian River Power Plant, permit number AC 05-193720. [Exhibit 1]

2. As justification for the waiver of the EPA Method 20 requirement for 49 test points (arranged in a 7X7 matrix), Petitioner stated, "Because of the proximity of residences to the OUC Indian River Power Plant, the combustion turbines were designed with noise reduction baffles. The baffles provide only five air passages through the stack (see Figure 1 attached). The test port locations are directly in the flow paths between the baffles. . . . Test ports associated with a seven port arrangement would not be directly within the flow paths between the baffles." [Exhibit 1]

3. On August 3, 1992, the Region IV Office of the EPA stated, "Based on our review of the OUC submittal, we have determined that

while the proposed alternative sampling grid will be adequate for making NO_x concentration measurements, the proposed sampling site is likely to cause a high bias in gas flow results. However, if the company is aware of the potential high bias at the proposed sampling location and is willing to accept the effect of this bias on their test results, we would not object to the approval of their request to use a 5X10 sampling grid." [Exhibit 2]

4. On September 21, 1992, the Orlando Utilities Commission responded to the EPA concerns about the effect of the sampling point location on emission test results. The Orlando Utilities Commission stated, "Because of this probable bias in exhaust gas flow rate measurement, OUC requests approval of an alternate exhaust gas flow determination method utilizing F-factors identified in EPA Method 19 and the fuel flow rates available in the combustion turbine control system." [Exhibit 3]

CONCLUSIONS OF LAW

1. The Department has jurisdiction to consider Petitioner's request pursuant to Section 403.061, Florida Statutes, and Rule 17-297.620, F.A.C.

2. Pursuant to 17-297.340(2), F.A.C., the Department retains the right to require compliance testing in accordance with all provisions of EPA Method 20 if, after investigation, it is believed that such testing is necessary to determine whether an applicable emission standard or condition of permit number AC 05-193720 is being violated.

3. Petitioner has demonstrated that the proposed alternate compliance verification method would be adequate to verify the compliance of the unit with the emission limiting standard for nitrogen oxides.

ORDER

Having considered Petitioner's written request and supporting documentation, it is hereby ordered that:

1. The relief requested by Petitioner is granted;

2. Petitioner shall be allowed to calculate gas flow rates using fuel consumption data and F-factors from EPA Method 19 provided the fuel consumption measurements are as accurate EPA Method 2 measurements of gas flow rates (i.e., ±5%).

2. Petitioner shall conduct emission tests using the procedures specified in Chapter 297, F.A.C.; and,

is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Order. Persons whose substantial interests will be affected by any decision of the Department with regard to the applicant have the right to petition to become a party to the proceeding. The petition must conform with the requirements specified above and be filed (received) within 21 days of receipt of this notice in the Office of General Counsel at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. 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.

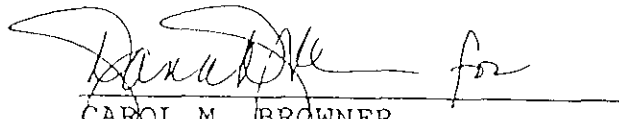
4. This Order constitutes final agency action unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of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

RIGHT TO APPEAL

Any party to this Order has the right to seek judicial review of the Order 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 Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Notice of Agency Action is filed with the Clerk of the Department.

DONE AND ORDERED this 16th day of December, 1992 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

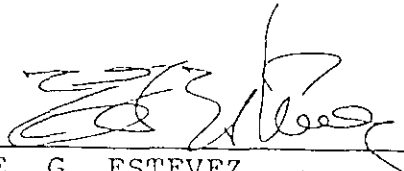
 for

CAROL M. BROWNER
Secretary
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

(904) 488-4805

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the foregoing Order has been mailed, postage prepaid, to Gregory A. DeMuth, Director, Environmental Division, Orlando Utilities Commission, P. O. Box 3193, Orlando, Florida 32802, this 17th day of December, 1992.



E. G. ESTEVEZ
Assistant General Counsel

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Telephone (904) 488-9730



ORLANDO UTILITIES COMMISSION

500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 407/423-9100

Certified Mail No.P 971 587 769
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JUL 06 1992

July 1, 1992

Division of Air
Resources Management

Messrs. Mike Harley and
Jim Pennington
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Alternate Stack Test Procedure

Dear Sirs:

Orlando Utilities Commission (OUC) is currently authorized by Permit Number AC 05-193720 to construct and operate two 129 MW simply cycle combustion turbines (Units C & D) to be located at the OUC Indian River Power Plant, south of the John F. Kennedy Space Center near the city of Titusville, Brevard County, Florida. As mandated by Specific Condition Number 9, OUC must perform emissions compliance testing following reference methods described in 40 CFR 60, Appendix A.

Nitrogen Oxides (NO_x) emissions testing from combustion turbines is to be performed in accordance with USEPA reference Method 20. For the rectangular stack dimensions of Units C & D, Method 20 requires a minimum of 49 sample points in a 7x7 arrangement. However, the Westinghouse stack design includes only five sample ports which could utilize a 5x10 sampling array to meet the minimum of 49 sampling points. Given that NO_x concentrations will be homogeneous in the stack and that the^x five test port locations are directly in the flow paths between the baffles, OUC requests approval of an alternate sampling procedure, under FAC 17-2.700(3), to allow utilization of a 5x10 sampling arrangement.

Exhibit 1



Messrs. Mike Harley and
Jim Pennington
July 1, 1992
page 2

Accordingly, OUC provides the following information requested under FAC 17-2.700(3)(b):

1. Specific source and permit number, if any, for which the exception is requested.

Orlando Utilities Commission
Two 129 simple cycle gas turbines (Units C & D)
Permit Number AC 05-193720

2. The Specific provision of Section 17-2.700 from which an exception is sought.

Exception requested from FAC 17-2.700(6)(b)(20), USEPA Method 20, Determination of Nitrogen Oxides, Sulfur Dioxide and Oxygen Emissions from Stationary Gas Turbines.

3. The basis for the exception, including but not limited to any hardship which would result from compliance with the provisions of Section 17-2.700.

Because of the proximity of residences to the OUC Indian River Power Plant, the combustion turbines were designed with noise reduction baffles. The baffles provide only five air passages through the stack (see Figure 1 attached). The test port locations are directly in the flow paths between the baffles.

Westinghouse's flow analysis of the stack demonstrated that the five test ports are ideally suited for all emissions testing. Test ports associated with a seven port arrangement would not be directly within the flow paths between the baffles.

4. The alternate procedure for which approval is sought and a demonstration that such alternate procedure is adequate to demonstrate compliance with the permit.

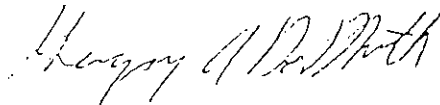
The Westinghouse five port arrangement will allow for 50 sample points for NO_x emissions testing (compared to 49 as specified in Method 20). Given that NO_x concentrations will be homogeneous in the stack, that the five test port

Messrs. Mike Harley and
Jim Pennington
July 1, 1992
page 3

locations are directly in the flow paths between the baffles, and that the USEPA and DER are authorized in their regulations to allow alternate sampling locations to be used, OUC requests DER to approve the use of the five port arrangement (and the 5x10 array) for NO_x emissions testing for Units C & D at the Indian River Facility.

If you have any questions concerning this request for approval of an alternate sampling procedure, please contact me at 407/423-9141.

Very truly yours,

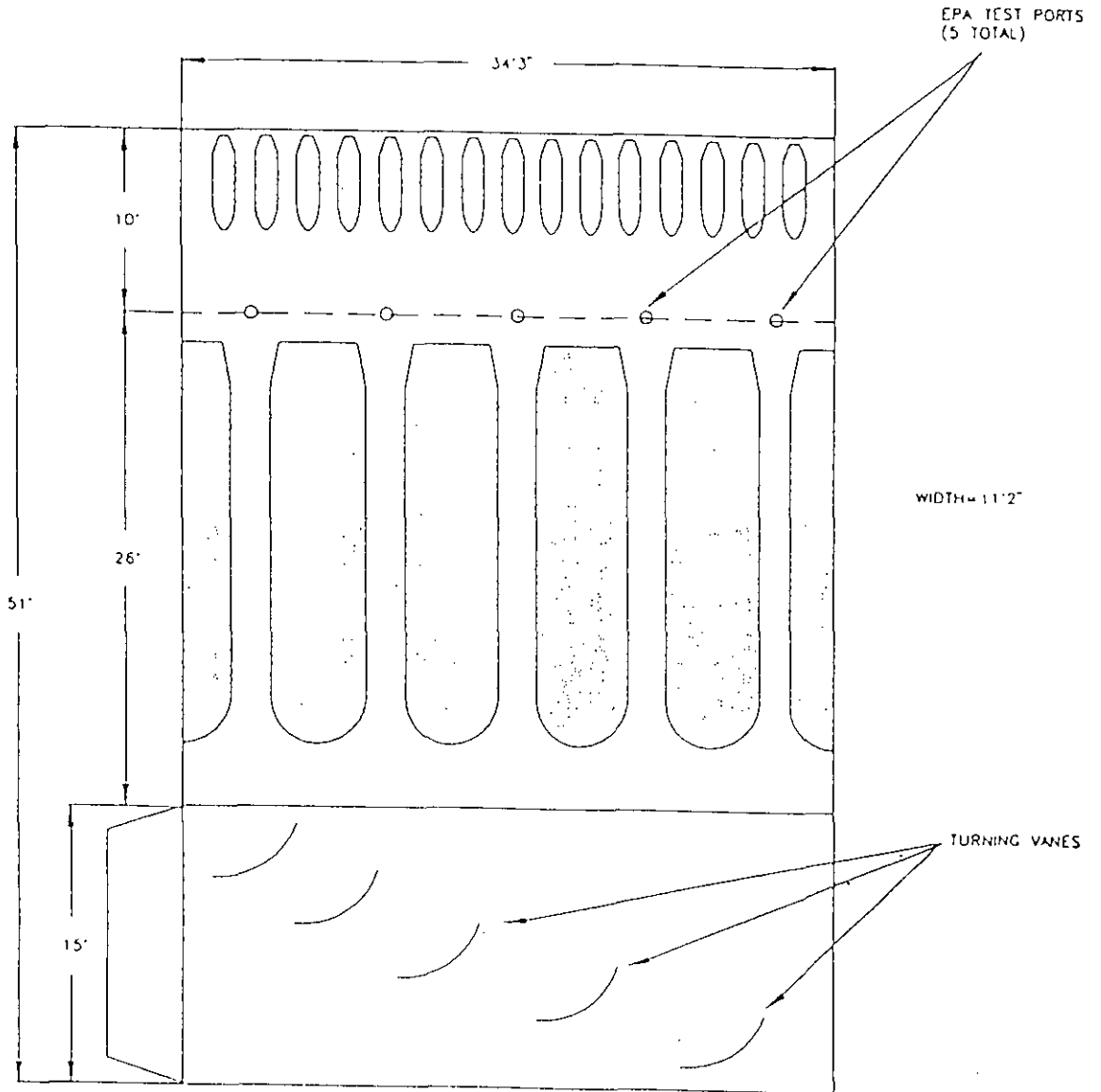


Gregory A. DeMuth
Director
Environmental Division

GAD:rc
Attachments

cc: F. F. Haddad
K. P. Ksionek
T. D. Slepow
R. F. Hicks
S. M. Day

OUC INDIAN RIVER STACK



400 hours.

4. During each federal fiscal year (October 1 — September 30), unless otherwise specified by rule, order, or permit, the owner of each source shall have a formal compliance test conducted for visible emissions, if there is an applicable standard; and for each pollutant for which the source is major, if there is an applicable emission standard for that pollutant; and for each NESHAPS pollutant, if there is an applicable emission standard.

5. An annual compliance test for particulate matter emissions shall not be required for any fuel burning source that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.

6. For fossil fuel steam generators on a semi-annual particulate emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.

7. For sources electing to conduct particulate emission compliance testing quarterly pursuant to Rule 17-2.600(5)(b)1., F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.

8. Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period coinciding with the term of its air operating permit.

9. The owner or operator shall notify the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner. The Department may waive the 15 day notice requirement on a case by case basis.

(b) Special Compliance Tests.

When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in this chapter or in a permit issued pursuant to this chapter is being violated, it may require the owner or operator of the source to conduct compliance tests which identify the nature and quantity of pollutant emissions from the source and to provide a report on the results of said tests to the Department.

(c) Waiver of Compliance Test Requirement.

1. If the owner or operator of a source that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Section 17-2.700(3), that the compliance of the source with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate sources equipped with a bag house, or specifying a fuel analysis for sulfur dioxide

emissions, the Department may waive the compliance test requirements for such sources and order that the alternate means of determining compliance be used.

2. Such waiver may be issued for an indefinite period of time or for a specific time period provided, however, that the Department may require a conventional compliance test for such sources pursuant to Section 17-2.700(2)(b) above.

(3) Exceptions and Approval of Alternate Procedures and Requirements.

(a) The owner or operator of any source subject to the provisions of this section may request in writing a determination by the Secretary or his designee that any requirement of Section 17-2.700 relating to source emissions test procedures, methodology, equipment, or test facilities shall not apply to such source, and shall request approval of alternate procedures or requirements.

(b) The request shall set forth the following information, at a minimum:

1. Specific source and permit number, if any, for which exception is requested.

2. The specific provision(s) of Section 17-2.700 from which an exception is sought.

3. The basis for the exception, including but not limited to any hardship which would result from compliance with the provisions of Section 17-2.700.

4. The alternate procedure(s) or requirement(s) for which approval is sought and a demonstration that such alternate procedure(s) or requirement(s) shall be adequate to demonstrate compliance with applicable emission limiting standards contained in Chapter 17-2 or any permit issued pursuant to that Chapter.

(c) The Secretary or his designee shall specify by order each alternate procedure or requirement approved for an individual source in accordance with this section or shall issue an order denying the request for such approval. The Department's order shall be final agency action, reviewable in accordance with Section 120.57, Florida Statutes.

(d) The Secretary or the District Manager of the District in which a minor particulate source equipped with a baghouse is located may waive the compliance test requirements for such source specified in Rule 17-2.700, Table 1, and specify an alternative standard of 5% opacity. The waiver of compliance test requirements for particulate sources equipped with a baghouse and the substitution of the visible emissions standard shall be specified in the permit issued to the source.

If the Department has reason to believe that the particulate weight emission standard applicable to a source is not being met, it shall require that compliance be demonstrated by the applicable test method specified in Rule 17-2.700, Table 1.

(4) Stack Sampling Facilities Provided by the Owner of an Air Pollution Point Source.

This section describes the minimum requirements for stack sampling facilities that are necessary to sample point sources. Sampling facilities include sampling ports, work platforms, access and electrical power. Sources must provide



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

4APT-AEB

AUG - 3 1992

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AUG 06 1992

Division of Air
Resources Management

Mr. James K. Pennington, P.E., Administrator
Compliance and Enforcement Section
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Alternative Stack Testing Procedure Proposed for the Indian
River Power Plant, Titusville, Florida

Dear Mr. Pennington:

As requested by Mike Harley of your staff, we have reviewed the referenced proposal from the Orlando Utilities Commission (OUC). In their proposal OUC is seeking approval to use a 5 X 10 grid rather than a 7 X 7 grid for EPA Method 20 sampling on two combustion turbines. Based upon our review of the OUC submittal, we have determined that while the proposed alternative sampling grid will be adequate for making NO_x concentration measurements, the proposed sampling site is likely to cause a high bias in gas flow rate results. However, if the company is aware of the potential high bias at the proposed sampling location and is willing to accept the effect of this bias on their test results, we would not object to approval of their request to use a 5 X 10 sampling grid for testing conducted on the turbine.

The company is seeking approval to use an alternative sampling grid because a 5 X 10 grid would place the sampling points in the flow paths between the noise reduction baffles in the turbine exhaust stack. If a 7 X 7 grid is used, the traverse points would not be located in the flow channels between the noise reduction baffles. Since NO_x concentrations should be essentially uniform throughout the stack, the average NO_x concentration measured in the exhaust stack should be the same regardless of whether a 7 X 7 or a 5 X 10 sampling grid is used.

While NO_x concentrations measured in the stack should be independent of the sampling grid utilized, the traverse point arrangement proposed by OUC is likely to cause a high bias in measured gas flow rates because the baffles in the exhaust stack will cause flue gas from the turbine to accelerate as it passes between the baffles. Since the sampling arrangement proposed by OUC would place the traverse points directly between the baffles, it is likely that the measured gas velocity will exceed the average gas velocity for the entire stack cross-sectional area.

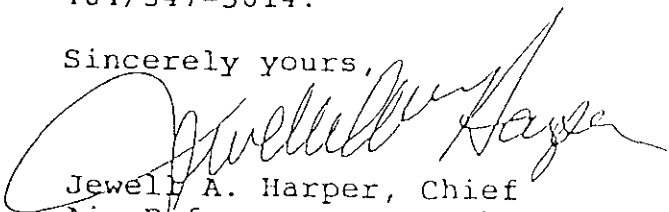
Exhibit 2

Depending upon the proportion of the exhaust stack obstructed by the noise reduction baffles, the traverse point arrangement proposed by OUC could result in a substantial high bias in measured gas flow rates. This high bias in gas flow rates would also cause a proportionally high bias in measured mass emission rates if OUC is subject to a NO_x mass emission limit. However, if the company is fully aware of the potential high bias at the proposed alternative sampling site and is willing to accept the risk associated with the use of the alternative sampling grid, we would have no objections to approval of their proposal.

One option that the company does have with respect to testing their turbines is to install a stack extension that has sampling points located such that they meet at least the minimally acceptable EPA Method 1 criteria for distance from flow disturbances. A stack extension that would allow for installation of adequate sampling points would have to extend at least 42.1 feet above the noise reduction baffles in the turbine exhaust stack. The basis for this conclusion is that the baffles themselves constitute a flow disturbance and the equivalent diameter of the rectangular exhaust duct at OUC is 18.84 feet. Since the minimally acceptable location for traverse points is 2 duct diameter downstream and 1/2 duct diameter upstream of flow disturbances, a total extension of 2.5 duct diameters or 42.1 feet (18.84 feet X 2.5) would have to be added at the facility in order for the sampling site to meet EPA Method 1 criteria.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of my staff at 404/347-5014.

Sincerely yours,



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

cc: Mr. Michael Harley
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400



RECEIVED

SEP 22 1992

Division of Air
Resources Management

ORLANDO UTILITIES COMMISSION

500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 407/423-9100

Certified Mail No. P 071-587-818
Return Receipt Requested

September 21, 1992

Messrs. Mike Harley and
Jim Pennington
Compliance and Enforcement Section
Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Alternate Stack Test Procedure

Dear Messrs. Harley and Pennington:

Orlando Utilities Commission (OUC) is currently authorized by Permit No. AC 05-193720 to construct and operate two 129 MW simple cycle combustion turbines (Units C & D) to be located at the OUC Indian River Power Plant, south of the John F. Kennedy Space Center near the city of Titusville, Brevard County, Florida. As mandated by Specific Condition No. 9, OUC must perform emissions compliance testing following reference methods described in 40 CFR 60, Appendix A.

To allow calculations of the mass flow rate of NO_x and CO emissions, exhaust gas volumetric flow rate is to be measured in accordance with USEPA Reference Method 1 and Method 2. However, as indicated in USEPA letter to Mr. Pennington, dated August 3, 1992, the internal arrangement of the combustion turbine exhaust stacks requires a traverse point arrangement which is likely to cause a high bias in measured gas flow rates.

Because of this probable bias in exhaust gas flow rate measurement, OUC requests approval of an alternate exhaust gas flow determination method utilizing P-factors identified in USEPA Method 19 and the fuel flow rates available in the combustion turbine control system.

Exhibit 3

Messrs. Mike Harley and
Jim Pennington
September 21, 1992
Page 2

Accordingly, OUC provides the following information requested under FAC 17-2.700 (3)(b):

1. Specific source and permit number, if any, for which the exception is requested.

Orlando Utilities Commission
Two 129 simple cycle gas turbines (Units C & D)
Permit No. AC 05-193720

2. The specific provision of Section 17-2.700 from which an exception is sought.

Exception requested from FAC 17-2.700(6)(b)(1).
USEPA Method 1, Sample and Velocity Traverses for Stationary Sources and FAC 17-2.700 (6)(b)(2), USEPA Method 2, Determination of Stack Gas Velocity and Volumetric Flow Rate (Type 5 Pitot Tube).

3. The basis for the exception, including but not limited to any hardship which would result from compliance with the provisions of Section 17-2.700.

Because of the proximity of residences to the OUC Indian River Power Plant, the combustion turbines were designed with noise reduction baffles. The baffles provide only five air passages through the stack (see Figure 1 attached). The test port locations are directly in the flow paths between the baffles.

However, because the flow measurement traverse points will be located directly between the baffles, it is likely that the measured gas velocity will exceed the actual average gas velocity for the entire stack cross sectional area.

4. The alternative procedure for which approval is sought and a demonstration that such alternate procedure is adequate to demonstrate compliance with the permit.

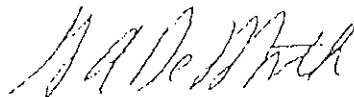
Exhaust gas flow rate will be measured utilizing F-factors identified in USEPA Method 19 and the fuel flow rates available in the combustion turbine control system. The lower heating value of the fuel will be available from a certified fuel analysis. Fuel oil

Messrs. Mike Harley and
Jim Pennington
September 21, 1992
Page 3

flow measurement will be performed utilizing a calibrated turbine-type flow meter. The fuel oil flow meter calibration report is attached for reference. Fuel gas flow measurement will be performed utilizing a precision orifice plate, stamped with the bore diameter, calculated in accordance with American Gas Association standards.

If you have any questions concerning this request for approval of an alternate sampling procedure, please call me at 407/423-9141 or Steve M. Day at 913/339-2880.

Very truly yours,



G. A. DeMuth
Director
Environmental Division

GAD:rc
Attachments

xc: W. H. Herrington
G. M. Standridge
F. F. Haddad
K. P. Ksionek
V. F. Gallucci
H. E. Smith (B&V)
S. M. Day (B&V)

OUC INDIAN RIVER STACK

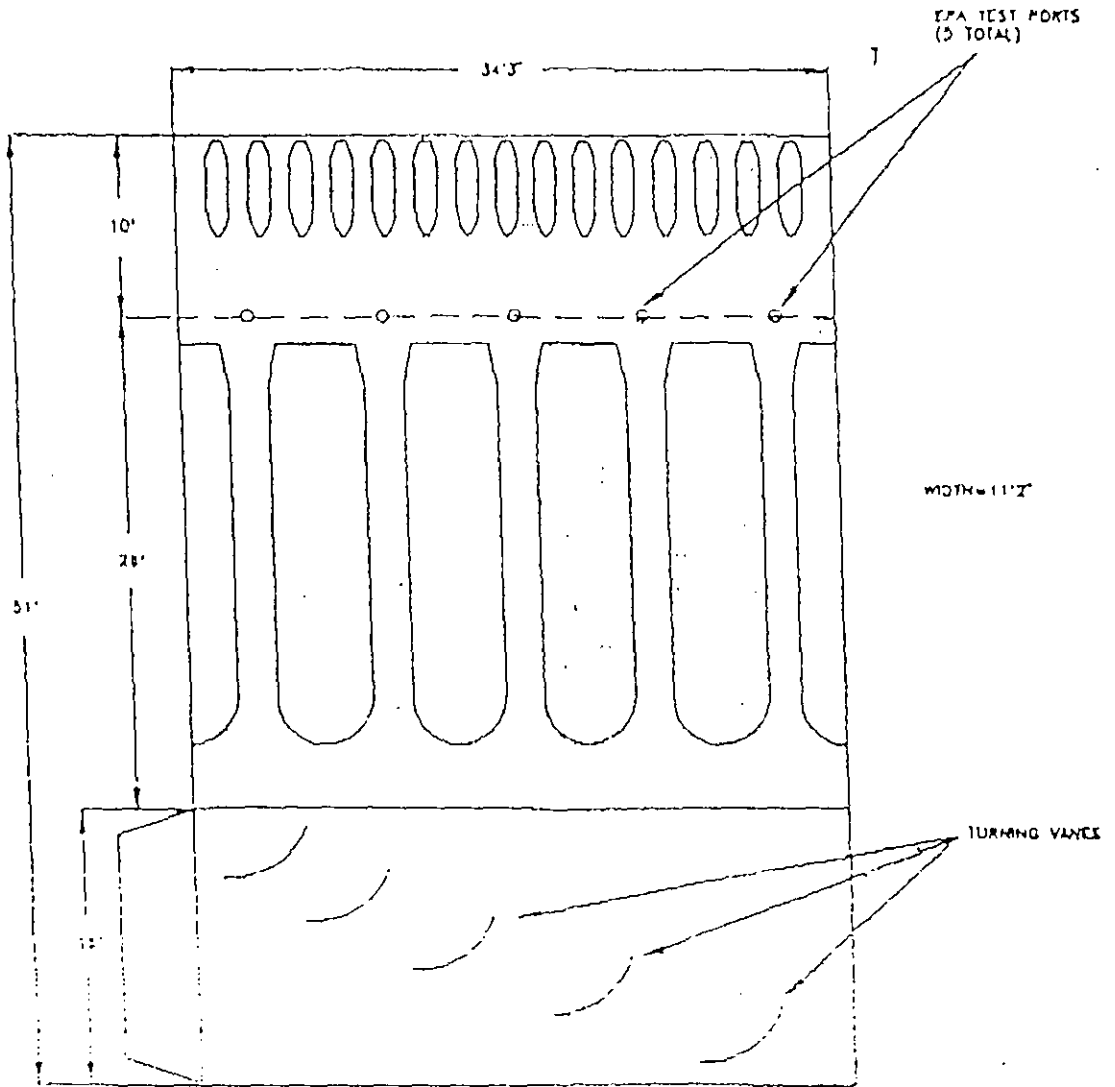



Figure 1

 Environmental Science Corporation Process Development Program Section	
Date: 06/06/92 Drawn by: E.J. BILARD	Date: 13 JUL 92 Checked by:
Scale: 1" = 10'	



Technologies, Inc.

Serial No. 202828

Model No. 3-81AF5C1

Pickup Coil P/N A20105K

Customer *Ames*

Sales Order No. 91V-80615

Process Fluid

Temperature: 80 ° Min. Max.

Pressure: Min. Max.

Tag Information

FLOW CALIBRATION REPORT

This Turbine Meter Has Been Tested And Calibrated.

Test Fluid: Water

Linear Flow Range: 56 To 560 (U.S. Gallons / Minute)

Mean¹: 7031.5

Linearity²: 1.003

K Factor (mean)³: 46.877

Frequency output at full scale or any other flowrate may be calculated by the following formula:

Frequency (Hz) = (K Factor (mean) / 60 Sec/Min.) x Flowrate (U.S. Gal./Min.)

Operator: *XO 13* Date: 11-22-9

Inspector: *XO 5* Date: NOV 26 '9

Voltage Output⁴ At Minimum Flow 3.50 mV p/p.

Table with 8 columns: RUN NO., WEIGHT (Lbs.), TIME (Min.), SENSOR READING (Pulses), VOLUME (U.S. Gal.), FREQUENCY f (cps), FLOW RATE Q (GPM), CAL FACTOR K (Pulses/Gal). Contains 10 rows of calibration data.

Notes: (Record 1, 2, & 3 on designated lines above).

- 1. Mean - Add the largest sensor reading (pulses) to the smallest sensor reading and divide by two.
2. Linearity - Divide the mean by the smallest sensor reading. The result must be between 1.000 and 1.005.
3. K Factor - Divide the Mean by the calibration Volume. For K Factors equal to or greater than 10,000, round off to the nearest whole number.
4. See test procedure 12000CJ for required minimum.

The following conversion factors may be used to express the flowrate or K Factor (Sensitivity) in other units:

- Multiply Flowrate in U.S. Gal./Min. by 1.422 = Barrels (42 gal.)/hr.
Multiply K Factor (Sensitivity) in Pulses/U.S. Gal. by 42.00 = Pulses/Barrel (42 Gal.)
Multiply Flowrate in U.S. Gal./Min. by 0.6327 = Imperial Gal./Min.
Multiply K Factor (Sensitivity) in Pulses/U.S. Gal. by 1.201 = Pulses/Imperial Gal.
Multiply Flowrate in U.S. Gal./Min. by 3.785 = Liters/Min.
Multiply K Factor (Sensitivity) in Pulses/U.S. Gal. by 0.2642 = Pulses/Liter
Multiply Flowrate in U.S. Gal./Min. by 0.2271 = Cubic Meters/Hr.
Multiply K Factor (Sensitivity) in Pulses/U.S. Gal. by 264.2 = Pulses/Cubic Meter



Technologies, Inc.

28020 Avenue Stanford
Valencia, CA. 91355.
Telephone: (805) 257-42
FAX: (805) 257-2499



Technologies, Inc.

Serial No. 205422

Model No. 3-81AF5C1

Pickup Coil PIN A2010SK

Customer Solaris

Sales Order No. 91V-80615

Process Fluid

Temperature: 85 Min. Max.

Pressure: Min. Max.

Tag Information

LOW CALIBRATION REPORT

This Turbine Meter Has Been Tested And Calibrated.

Test Fluid: Water

Linear Flow Range: 56 To 560

Mean: 7213.5

Linearity: 1.002

K Factor (mean): 48.090

Frequency output at full scale or any other flowrate may be calculated by the following formula:

Frequency (Hz) = (K Factor(mean) / 60 Sec/Min) x Flowrate (U.S. Gal./Min.)

Operator: Date: 11/22/91

Inspector: Date: NOV 26 '91

Voltage Output At Minimum Flow 400 mV p/p.

Table with 3 main columns: RECORDED DATA, PERFORMANCE PARAMETERS, and ADDITIONAL DATA. It contains 10 rows of calibration data including flow rate, frequency, and K factor.

- Notes: (Record 1, 2, & 3 on designated lines above). 1. Mean - Add the largest sensor reading (pulses) to the smallest sensor reading and divide by two. 2. Linearity - Divide the Mean by the smallest sensor reading. 3. K Factor - Divide the Mean by the calibration Volume. 4. See test procedure 12000CJ for required minimum.

The following conversion factors may be used to express the flowrate or K Factor Sensitivity in other units:

- Multiply Flowrate in U.S. Gal./Min. by 1.429 = Barrels (42 gal.)/Hr. x 0.6327 = Imperial Gal./Min. x 3.785 = Liters/Min. x 0.2271 = Cubic Meters/Hr. Multiply K Factor (Sensitivity) in Pulses/U.S. Gal. by 42.00 = Pulses/Barrel (42 Gal.) x 1.201 = Pulses/Imperial Gal. x 0.2642 = Pulses/Liter x 264.2 = Pulses/Cubic Meter



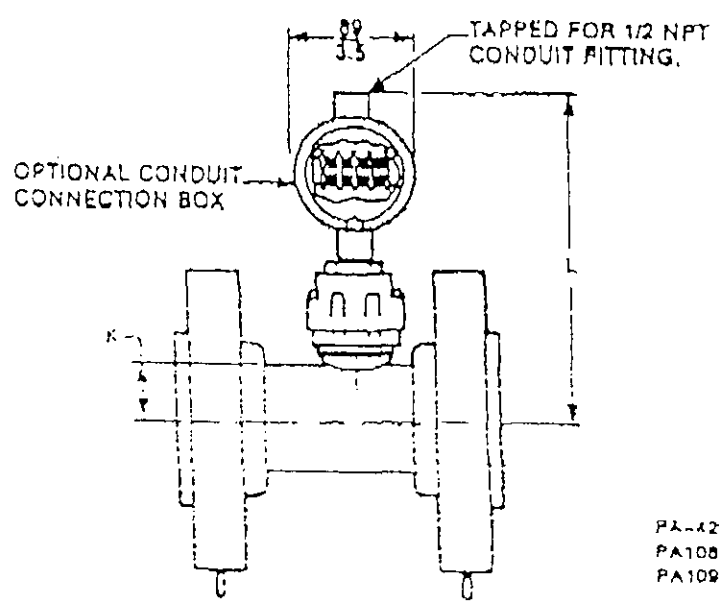
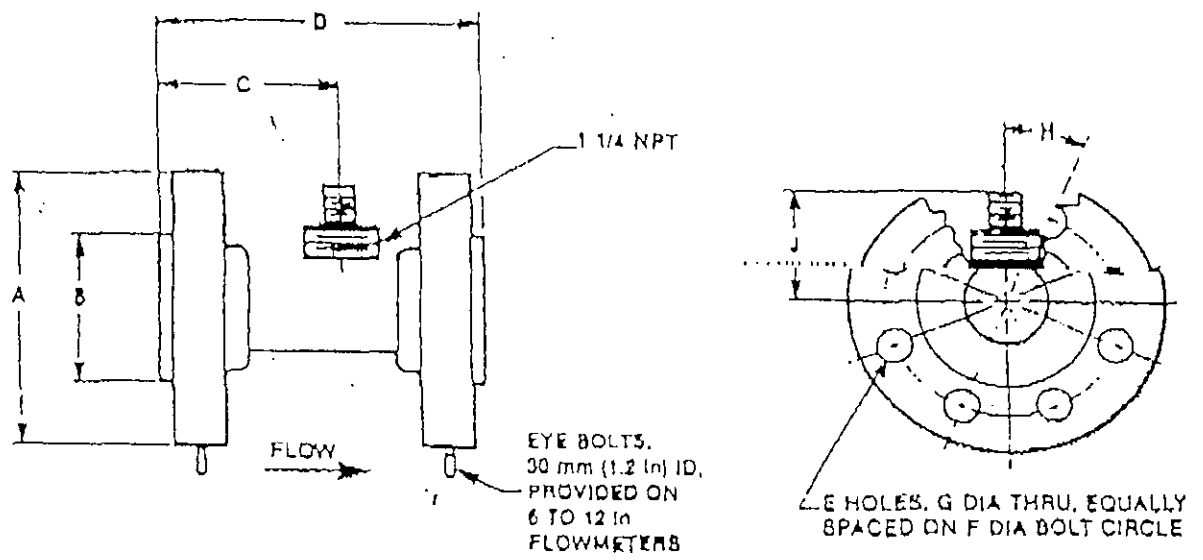
Technologies, Inc

28020 Avenue Stanford Valencia, CA. 91355. Telephone: (805) 257-4200 FAX: (805) 257-2498

Dimensional Print

DP
019-117
NOVEMBER 1989
SHEET 1 of ___

81AF TURBINE FLOWMETER WITH FLANGED END CONNECTIONS



AMPLIFIER AND PREAMPLIFIER DIMENSIONAL PRINT REFERENCES

- | | |
|-----------------------------------|------------|
| PA-420 Analog Amplifier | DP 019-216 |
| PA108 Flange-Mounted Preamplifier | DP 019-215 |
| PA109 Field-Mounted Preamplifier | DP 019-215 |

NOTE: *SEE SHEET 2 FOR DIMENSIONS.

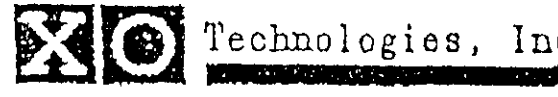
(Not for construction unless certified.)

CUSTOMER _____ I.R. Solares Florida Corp.

CUSTOMER ORDER 115971 XC ORDER 91V-80615

ITEM-TAG FT15440/FT25440

CERTIFIED BY [Signature] DATE 12/3/91



BIAF Turbine Flowmeters

SIZE CODE	ANSI FLANGE RATING CLASS	APPROX. IMATE MASS kg	A	B	C	D	K	F	G	H	J	K	L
1/2-2 1/2-1 1/2	150	2.3 5.0	88.9 3.50					60.33 2.375			80.3 3.12		
	300	7.4 7.5	92.3 3.75	33.1 1.38				66.68 2.625	15.88 0.625		100 7.1		234 9.2
3/4	150	2.3 5.9	98.6 7.12		2.58	103.0		64.85 2.512					
	300	7.3 8.0	4.82 4.87	19.0				72.50 2.850	14.05 0.750		25.9 7.2	7.2	5.1
1	150	2.7 6.0	108.0 4.25					78.58 3.125	15.88 0.625				
	300	3.8 6.0	123.7 4.87	50.8 2.00				82.90 3.250	19.05 0.750		73.9 2.02	18.3 7.2	238 9.3
1 1/2	150	4.5 10.0	127.0 5.00					90.43 3.615	15.88 0.625				
	300	6.4 14.0	153.6 6.12	72.9 2.87	78.2 3.00	152.4 6.00		114.30 4.500	22.23 0.875		81.5 3.21	18.8 7.4	238 9.3
2	150	6.8 15.0	152.4 6.00					120.82 4.750					
	300	9.1 20.0	165.1 6.50	92.0 3.62	90.9 3.58	185.1 6.50		127.00 5.000	19.05 0.750		87.6 3.45	20.3 8.0	257 10.1
3	150	13.6 30.0	190.5 7.50					132.40 6.000					
	300	17.2 38.0	209.6 8.25	127.0 5.00	167.4 6.59	254.0 10.00		168.28 6.625	22.23 0.875		105.4 4.15	20.8 8.2	262 10.3
4	150	30.4 43.0	228.6 9.00					190.50 7.500	19.05 0.750				
	300	29.3 65.0	257.0 10.00	157.2 6.19	214.1 8.43	304.8 12.00		200.03 7.875	22.23 0.875		116.1 4.57	22.1 8.7	274 10.8
6	150	36.3 80.0	276.2 11.00					241.30 9.500					
	300	54.4 120.0	317.5 12.50	215.8 8.50	283.1 10.38	355.8 14.00		269.88 10.625	22.23 0.875		140.7 5.54	24.9 9.8	302 11.9
8	150	63.6 133.0	342.9 13.50					298.45 11.750					
	300	68.9 150.0	381.0 15.00	289.8 11.43	338.3 13.32	457.2 18.00		320.20 12.600	22.23 0.875		163.8 6.45	27.4 10.8	328 12.9
10	150	113.4 229.9	406.4 16.00					381.95 14.250	25.40 1.000				
	300	147.4 328.0	444.5 17.50	323.8 12.75	408.2 16.07	638.0 25.00		387.35 15.250	22.23 0.875		188.7 7.43	30.2 11.9	358 14.0
12	150	131.4 280.0	482.6 19.00					431.60 17.000	25.40 1.000				
	300	228.6 500.0	520.7 20.50	381.0 15.00	610.2 24.10	762.0 30.00		450.65 17.750	22.23 0.875		210.1 8.30	32.8 12.9	381 15.0

*ALSO AVAILABLE AS -A- HIGH PULSE OUTPUT

Orlando Utilities Commission

ORLANDO, FLORIDA

"Where Electricity Powers Progress"

63-215
631

0003475
No. 112882

PAY TO THE
ORDER OF:

FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION
2600 BLAIR STONE RD

NOT VALID
AFTER 180 DAYS

TALLAHASSEE FL

32399-2400

DATE

03/31/94

\$250.00

EXACTLY TWO HUNDRED FIFTY AND NO/100*****

SUN BANK, N.A.
MAIN OFFICE:
ORLANDO, FLORIDA 32801

03458
97674

Troy W Todd
AUTHORIZED SIGNATURE

⑈ 1 1 2 8 8 2 ⑈ ⑆ 0 6 3 1 0 2 1 5 2 ⑆ 0 2 1 5 1 0 0 1 4 0 8 0 5 ⑈

ORLANDO UTILITIES COMMISSION P.O. BOX 3193 ORLANDO, FLORIDA 32802

No. 112882

INVOICE DATE	VENDOR INVOICE NUMBER	VOUCHER NUMBER	AMOUNT
32894	PERMIT MODIF FEE IRP COMBUSTION TURBINE C&D CONSTRUCTION PERMIT MODIFICATION FEE	9403299327	\$250.00
DISB #	VENDOR NO.	CHECK DATE	TOTAL
97674	03458	03/31/94	\$250.00



Lawton Chiles
Governor

Florida Department of Environmental Protection

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

Virginia B. Wetherell
Secretary

February 10, 1994

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Robert F. Hicks
Sr. Environmental Engineer
Orlando Utilities Commission
P. O. Box 3193
Orlando, Florida 32802

Dear Mr. Hicks:

RE: Permit No. A005-229084
OUC, Brevard County

The Bureau of Air Regulation received your February 3, 1994, request for the above referenced project. The changes requested in your letter will necessitate an amendment to your construction permit (AC05-193720, PSD-FL-173). On October 30, 1991, Rule 17-4.050(4)(o), F.A.C., was changed to require a \$250 processing fee for a permit amendment; therefore, we will not be able to take action on your request until the fee is received. If you have any questions, please call Syed Arif or Patty Adams at (904)488-1344.

Sincerely,

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

CHF/pa

cc: Syed Arif

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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Robert F. Hicks
St. Environmental Engineer
Orlando Utilities Commission
P. O. Box 3193
Orlando, FL 32802

4a. Article Number
P 872 562 599

4b. Service Type
 Registered Insured
 Certified
 Express Mail

7. Date of Delivery
FEB 14 1994

5. Signature (Addressee)

6. Signature (Agent)
[Signature]

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**

Is your RETURN ADDRESS completed on the reverse side? Thank you for using Return Receipt Service

P 872 562 599



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Sybil
Please review
this request. I did
the construction permit
prepare for a pre-request
telephone call to
Dammith Shundy 3/10

ORLANDO UTILITIES COMMISSION

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Via Airborne Express
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Preston
2/6/94

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February 3, 1994

FEB 04 1994

Bureau of
Air Regulation

Mr. Preston Lewis
Air Regulation Section
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Indian River 1991

Re: DEP Permit No. A0-05-229084

Dear Mr. Lewis:

In response to the above referenced permit, I have re-written the specific conditions section to better correlate these conditions with the rules of the Department.

Greg DeMuth and I would like to discuss these changes with you early next week.

Sincerely,

Robert F. Hicks
Sr. Environmental Engineer

RFH:rc
h020394
Attachment

xc: G. A. DeMuth



PERMITTEE:

Permit Number: A005-229084

Expiration Date: August 30, 1998

Orlando Utilities Commission
 Attention: William H. Herrington,
 Vice President, Electric Business Unit

SPECIFIC CONDITIONS

EMISSION LIMITS

1. The maximum allowable emissions from the facility shall not exceed the emission rates listed in the following table.

ALLOWABLE EMISSION LIMITS
 Simple Cycle Combustion Turbine

Pollutant	Standards	
	Gas Firing/20 F	No. 2 Fuel oil Firing/20 F
No _x	25 ppmv at 15 percent oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis
SO ₂	Natural Gas as fuel	0.3 percent S by weight
PM/PM10	0.003 lb/MMBtu	0.08 lb/MMBtu
Voc	5 ppmvd	15 ppmvd
CO	25 ppmvd	25 ppmvd
Mercury (Hg)		3.0 x 10⁻⁶ lbs/MMBtu
Lead (Pb)		2.8 x 10⁻⁵ lbs/MMBtu
Beryllium (be)		2.5 x 10⁻⁶ lbs/MMBtu
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil 0.3 percent S by weight

Pollutant	Gas Turbine Tons Per Year*		Basis
	Gas	Oil	
No _x	591.5	506	BACT
SO ₂	2.1	953	BACT
PM/PM10	19.5	237	Performance Data
Voc	37	112	
CO	313	159	
Mercury (Hg)		0.01	Est. by Appl.
Lead (Pb)		0.08	
Beryllium (be)		0.01	
Sulfuric Acid Mist	0.07	28.5	

*Total emissions from the two 129 MW turbines are based on a 50 percent capacity factor with a maximum of 25 percent attributed to oil firing.

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Attention: William H. Herrington,
Vice President, Electric Business Unit

SECIFIC CONDITIONS
(Continued)

~~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:~~

<u>Pollutant</u>	<u>Acceptable Ambient Concentrations (ug/m³)</u>		
	<u>8 hr</u>	<u>24 hr</u>	<u>Annual</u>
Beryllium	0.02	0.005	0.004
Lead	1.5	0.36	0.09
<u>Inorganic Mercury Compounds</u>			
all forms of Vapor, as Hg	NA	NA	0.3

~~2.3. Visible emissions shall not exceed 20 percent opacity at anytime except as provided in Chapt 17-200.700, nor exceed 10% during full load.~~

OPERATING CONDITIONS

~~3.4. Each source is allowed to operate at full load for a maximum of 4,380 hours per year.~~

~~4.5. Each source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 6 below).~~

~~5.6. The permitted materials and utilization rates for each simple cycle gas turbine shall not exceed the values as follows:~~

- ~~-- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 10,282 gals/hr; 22,517,580 gals/yr.~~
- ~~-- Maximum annual firing using No. 2 fuel oil shall not exceed 2,190 hours per year.~~
- ~~-- Maximum sulfur (s) content in the oil shall not exceed 0.30 percent by weight.~~
- ~~-- Maximum heat input shall not exceed 1,354 MMBtu/hr (gas) or 1,346 MMBtu/hr (oil).~~
- ~~-- Maximum annual firing on any fuel combination shall not exceed 4,380 hours per year.~~

~~6.7. Any request to change the method of operation, equipment or operating hours which would result in an increase of emissions shall be submitted to the Department's Bureau of Air Regulation and Central District offices for prior approval.~~

PERMITTEE:
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Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(Continued)

~~8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility are considered part of this operating permit.~~

COMPLIANCE DETERMINATION

7.9. Compliance with the NO_x, ~~SO₂ (oil)~~, CO, and visible emission standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1990) and adopted by reference in Rule 17-297, F.A.C.

- a) Method 1 - Sample and Velocity Traverses
- b) Method 2 - Volumetric Flow Rate
- c) Method 3 - Gas Analysis
- d) Method 9 - Determination of the opacity of the Emissions
- e) Method 10 - Determination of the Carbon Monoxide emissions from Stationary Sources
- f) Method 20 - Determination of Nitrogen Oxides, ~~Sulfur Dioxide,~~ and Diluent emissions from Stationary Gas Turbines. (SEE APPROVED ALTERNATE TESTING PROCEDURE ATTACHED)

8.
~~10.~~ Annual NO_x compliance tests shall be performed with each ~~the~~ fuels used for more than 400 hours per unit in the preceeding 12 month period.

9.
~~11.~~ Compliance with the SO₂ emission limit can ~~also~~ be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid fuels.

10.
~~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.

11.
~~13.~~ During performance tests, to determine compliance with the No_x standard, measured No_x emission at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x\text{ obs}})(P_{\text{ref}}/P_{\text{obs}})^{(0.5)} (e^{(H_{\text{obs}}-0.00633)}) (288^{\circ}K/T_{\text{amb}})^{1.53}$$

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.

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Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(continued)

- 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. The Air Resources Compliance Section of this office shall be notified in writing at least thirty (30) days in advance of the compliance tests.~~
~~12. The owner or operator shall notify the Department in writing at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner. The Department may waive the 15 day notice requirement on a case-by-case basis. {17-297.340(1)(i)}~~

~~13.~~
~~15.~~ A copy of the compliance test results shall be submitted to the Department's Central District Office within 45 days after the last test run is complete. The test report should provide the actual heat input rate and at least all of the information listed in Rule 17-297.570(3), F.A.C. ~~A copy of the continuous opacity monitor strip chart recorded during each compliance test should be submitted with the test reports. Each test report should also include a fuel oil analysis as required in 40 CFR 60.334(b) from a representative sample of the fuel oil burned during the test and a calculation of the sulfur dioxide emission rate in pounds per MMBTU heat input and pounds per hour. Failure to submit any of the above information may invalidate a test [Rules 17-297.570 and 17 4.070(3), F.A.C.].~~

~~14.~~
~~16.~~ Testing of emissions should be conducted with the source operating at "base load" ~~** 90 — 100% of rated capacity.~~ The source shall be allowed to operate at any load up to 129 MW so long as the actual water injection rate is above the minimum water injection rate established during the initial compliance testing, 90% of rated capacity; however subsequent source operation is limited to 110% of the tested load until a new test is conducted and approved by the Department in writing. Once the unit is so limited, operation at higher capacities is allowed for a cumulative total of no more than 15 successive calendar days for purposes of additional compliance testing to regain permitted capacity, with prior notification to the Department (Rule 17 4.070(3), F.A.C.,

**"Base Load" is the maximum load the combustion turbine is capable of reaching at the ambient conditions present during the test.

~~17. In order to provide the Department with reasonable assurance that this source can comply with both the particulate and Nox standards simultaneously, the steady state particulate tests and the nitrogen oxides tests should be conducted simultaneously.~~

~~15.~~

~~18.~~ The stack sampling facility must comply with Rule 17-297.345, F.A.C., regarding minimum requirements that include but are not limited to: location of sampling ports, work platform area, caged ladder, access and electrical power. (SEE APPROVED ALTERNATE TESTING PROCEDURE ATTACHED FOR ACCEPTABLE PORT LOCATIONS)

~~16.~~

~~19.~~ Compliance tests should be conducted on an annual basis on or within 60 days prior to ~~December 10.~~ August 30.

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Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS
(Continued)

~~17.~~
~~20.~~

A continuous monitoring system shall be utilized to monitor and record the water and fuel consumption on each unit, as well as the ratio of water to fuel being fired in each unit. Water injection shall be utilized for NOx control. The water to fuel ratios at which compliance was achieved, shall be incorporated into this permit and shall be continuously monitored. ~~The one hour average minimum water to fuel weight ratios must be maintained until subsequent tests indicate compliance at a different ratio.~~ The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

The permittee shall provide the Central District office with the model number of the continuous monitoring system within 30 days of the date of issue of this operating permit.

~~The following one hour average minimum water to fuel weight ratios must be maintained until subsequent tests indicate compliance at a different ratio:~~

<u>Combustion Turbine C</u>		
<u>Natural Gas</u>		
30%	0.82	0.68
50%	0.74	0.70
76%	0.97	0.88
100%	1.18	0.92
<u>Combustion Turbine D</u>		
<u>Load</u>	<u>Natural Gas</u>	<u>Oil</u>
30%	0.67	0.67
50%	0.70	0.67
75%	0.93	0.94
100%	1.16	1.03

~~18.~~
~~21.~~

To determine compliance with the capacity factor limitations each CT's fuel consumption shall be continuously measured and recorded. The permittee shall maintain daily records of this fuel usage. All records shall be maintained for a minimum of ~~two~~ three years after the date of each record and shall be made available to authorized representatives of the Department upon request.

~~19.~~
~~22.~~

Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded per fuel oil shipment as required in 40CFR 60, Subpart GG. These records shall be kept by the company for at least ~~two~~ three years and made available for regulatory agency's inspection by authorized representatives of the Department.

~~20.~~
~~23.~~

Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions were successfully demonstrated to the Department. ~~during initial compliance tests 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 modelling. This compliance determination shall be made available upon request.~~

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Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS:
(continued)

21.

~~24.~~ Excess emissions resulting from start-up or shut-down are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized. Excess emissions resulting from malfunction are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized, but in no case exceeds two hours in any 24-hour period unless specifically authorized by the Department for longer duration. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction are prohibited [Rule 17-210.700, F.A.C.].

In the event the permittee is temporarily unable to comply with any of the conditions of the permit, the permittee shall immediately notify the Department's Central District Office. Notification shall be conducted in accordance with General condition (8) of this permit. In case of excess emissions resulting from malfunctions, a full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department [Rules 17-210.700(6) and 17-4.130, F.A.C.].

The permittee shall submit, to the Department, a written report of emissions in the excess of the emission limiting standard as set forth in Rule 17-~~296.405(1)(a)~~296.800(2)(a), F.A.C. for each calendar quarter. The nature and cause of the excess emissions shall be explained. This report does not relieve the permittee of the legal liability for violations. All recorded data shall be maintained on file for a period of at least 2 years. The information supplied in this report shall be consistent with the reporting requirements of 40 CFR ~~60.7 51 Appendix P~~. The report shall be submitted within 30 days following the end of the calendar quarter (Rules 17-297.500(2) and 17-4.070(3), F.A.C.).

RULE REQUIREMENTS

22.

~~25.~~ This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, and Chapter 17-4, Florida Administrative Code.

23.

~~26.~~ This source shall comply with all requirements of 40 CFR 60, Subpart GG and Rule 17-296.800, F.A.C., Standards of Performances for Stationary Gas Turbines.

24.

~~27.~~ This source shall comply with Rule 17-297, F.A.C., Stationary Point Source Emission Test Procedures.

PERMITTEE:
Orlando Utilities Commission

Permit Number: AoOS-229084
Expiration Date: August 30, 1998

Attention: William H. Herrington,
Vice President, Electric Business Unit

SPECIFIC CONDITIONS:
(Continued)

~~25.~~

~~28.~~ Pursuant to F.A.C. Rule 17-210.300(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 emission limits, etc. Annual reports shall be sent to the Department's Central District Office. Each calendar year on or before March 1, submit for each source, an Annual Operations Report DER Form 17-210.900(4), for the preceding calendar year.

~~26.~~

~~29.~~ The source shall not discharge air pollutants which cause or contribute to an objectionable odor [Rule 17-296.320(2), F.A.C.].

~~27.~~

~~30.~~ Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other applicable requirements of Rule 17-296 or 17-297, or any other applicable requirements under federal, state, or local law. Future regulations may impact this facility. The permittee shall comply with any applicable future regulations when they become effective (Rule 17-210.300, F.A.C.).

~~28.~~

~~31.~~ The application to renew this operating permit shall be submitted to the Central District Office at least sixty days prior to the expiration date of this permit (Rule 17-4.050(2) and [Rule 17-4.090(1), F.A.C.].

ISSUED 9/21 / 93

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

A. Alexander, P.E.
District Director
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803