



July 1, 1990

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DER-BAQM

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

RE: AC06-179848, FPL Lauderdale Plant Modification

Dear Mr. Fancy:

It has come to our attention that there was a minor error in Table 1 contained in my letter of June 20, 1990, regarding the above-referenced permit application. The error was in the calculation of VOC emissions for the unleaded gasoline tank at Lauderdale. An incorrect vapor pressure was used in the table and associated calculation of VOC emissions. This caused an underestimation of VOC emissions from this tank.

A corrected Table 1 is attached, which shows the revised VOC emissions. Since the unleaded gasoline tank is located underground, the average diurnal temperature change experienced by the tank was assumed to be zero. This eliminates breathing losses from the tank. The revised working loss, and total VOC emissions, from the tank is 0.106 tons per year (TPY). This revises the total VOC emissions due to all the miscellaneous tanks shown in Table 1 to 0.121 TPY.

All other VOC emission calculations presented in the June 20 letter remain unchanged. However, the above change again necessitates a slight revision in the proposed VOC permit limitation equation for the Lauderdale facility. The revised permit limitation for existing Units 4 and 5 and GTs 1 to 24 becomes 89.1 TPY (99.9 - 9.8 - 0.121 - 0.893).

The permit limitation in equation form thus becomes:

$$(HI_{U4&5NG} \times EF_{U4&5NG}) + (HI_{U4&5OIL} \times EF_{U4&5OIL}) + (HI_{GTNG} \times EF_{GTNG}) + (HI_{GTOIL} \times EF_{GTOIL}) \leq 89.1 \text{ TPY}$$

- where:
- HI_{U4&5NG} - Heat Input to Units 4 and 5 due to natural gas firing,
 - HI_{U4&5OIL} - Heat Input to Units 4 and 5 due to No. 6 oil firing,
 - HI_{GTNG} - Heat Input to GT's 1-24 due to natural gas firing,
 - HI_{GTOIL} - Heat Input to GT's 1-24 due to No. 2 oil firing,
 - EF_{U4&5NG} - VOC emission factor for Units 4 & 5 for natural gas firing,
 - EF_{U4&5OIL} - VOC emission factor for Units 4 & 5 for No. 6 oil firing,
 - EF_{GTNG} - VOC emission factor for GT's 1-24 for natural gas firing,
 - EF_{GTOIL} - VOC emission factor for GT's 1-24 for No. 2 oil firing.

82813A1/7 KBN ENGINEERING AND APPLIED SCIENCES, INC.

1034 Northwest 57th Street Gainesville, Florida 32605 904/331-9000 FAX: 904/332-4189

Mr. C. H. Fancy
July 1, 1990
Page 2



I apologize for any inconvenience this may have caused you. Please call if you have any questions.

Sincerely,

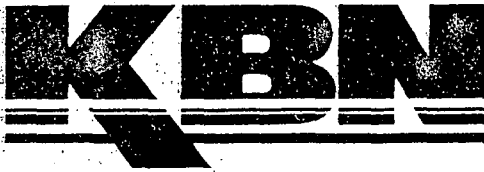
David A. Buff

David A. Buff, M.E., P.E.
Principal Engineer

DAB/mah

cc: M.A. Smith
C.D. Henderson
P.C. Cunningham

A. Hanks
J. Goldmas, SE Dist,
A. Jencow, BCEQCB
CHF/BA



June 20, 1990

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

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JUN 22 1990
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RE: AC06-179848, FPL Lauderdale Plant Modification

Dear Mr. Fancy:

FPL has received the Department's completeness letter dated May 15, 1990, concerning the above-referenced permit application. FPL's responses to these questions are contained herein. Before responding to the Department's specific questions, a few points of clarification are first offered.

The first point of clarification is that FPL is not requesting an increase of 99.9 tons per year (TPY), as stated by the Department in the letter. The application only requests a 5.41 TPY increase in VOC emissions (page 2 of Attachment A). This increase is the result of comparing present actual to future potential emissions for only the tanks which are being "modified" (Tank No. 3 and Tank No. 4). "Modified" in this sense refers to the definition of modification in F.A.C. 17-2.100: a physical change or change in the method of operation which increases emissions. Increases in the hours of operation or in the production rate of a source are excluded from the term modification. This is why Tank No. 2 and Tank No. 5 were not included in the calculation of the increase in emissions; these tanks are not undergoing a physical change or change in the method of operation, they are only potentially changing production rate. Currently, the tanks have no federally enforceable restrictions on operating hours or production rate.

It is further noted that the approach of comparing present actual to future potential emissions is currently mandated by EPA, and therefore this approach was used. However, the courts have recently ruled that this approach may not be appropriate (WEPCO decision).

The 5.41 TPY increase in VOC emissions is well below the nonattainment new source review thresholds of 40 TPY if the modification is to an existing major source or 100 TPY if the modification is to an existing minor source.

The second point of clarification is that the primary reason for submitting the permit application is to impose a federally enforceable permit limit of 99.9 TPY VOC on the facility. This will render the existing facility as a "minor" source. The Lauderdale facility has always been a minor VOC source, as documented in the application; however, there are no federally enforceable

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permit limitations to limit emissions to this level. The 99.9 TPY rate stated in the application does not represent an "increase" but merely limits future emissions to this level.

Responses to FDER's specific questions are provided below:

1. A listing of auxiliary storage tanks at Lauderdale is presented in Table 1. The additional tanks consist of the existing gas turbine dump tanks, the fuel oil metering tanks for Units 4 and 5, and two underground storage tanks for vehicle fuel. None of these tanks is being modified (i.e., no physical change or change in the method of operation) at this time; therefore, there is no increase in VOC emissions from these tanks. (Note: the two underground tanks will be removed and replaced with similar tanks at another on-site location). However, VOC emissions from the auxiliary tanks would be included in determining if the existing facility is a minor source (i.e., less than 100 TPY). To this end, maximum potential VOC emissions from these tanks are quantified in Table 1. As shown, the potential VOC emission rate from these sources is 0.018 TPY.
2. As described in the comments above, Tank No. 5 at Lauderdale is not being modified; therefore, this tank is not considered in determining the net emissions increase. This is also explained on Page 2 of Attachment A in the application.
3. FPL uses mineral spirits and Penetone 58 at several locations within the Lauderdale facility. All uses are for parts cleaning. A list of these areas and maximum solvent usage for each is provided below:

a. GT machine shop (mineral spirits)	10 gal	65 lb	0.033 TPY
b. Filter cleaning station (mineral spirits)	20 gal	129 lb	0.065 TPY
c. Burner cleaning area (Penetone 58)	50 gal	495 lb	0.248 TPY
d. R/R track area (mineral spirits)	90 gal	581 lb	0.290 TPY
e. Fuel Blowback plant (mineral sprts)	15 gal	97 lb	0.048 TPY
f. Fuel blowback site 2 (mineral sprts)	65 gal	419 lb	0.210 TPY
TOTALS	250 gal	1786 lb	0.893 TPY

It can be conservatively assumed that all solvent used escapes to the atmosphere. As a result, the maximum VOC emission rate from the solvent cleaning operations is 0.893 TPY.

The solvent cleaning operations are not being modified and, therefore, do not enter into the calculations of net VOC emission increase.

4. All known VOC sources at the Lauderdale site are described above and in the application. There are no other known VOC sources at the site.
5. Based upon the above discussion, the VOC emission increase of 5.41 TPY documented in the permit application remains correct. However, the permit



limitation for the Lauderdale facility does change based on the additional VOC emissions from the miscellaneous operations. Since future potential VOC emissions from the fuel storage tanks (Nos. 2, 3, and 5) have been calculated to be 9.8 TPY (see permit application Table 1) and potential VOC emissions from the miscellaneous tanks and solvent cleaning operations have been calculated to be 0.018 TPY and 0.893 TPY, respectively, the permit limitation requested by FPL for existing Units 4 and 5 and GTs 1-24 is 89.2 TPY (99.9 - 9.8 - 0.018 - 0.893). The permit limitation thus becomes:

$$(HI_{U4&5NG} \times EF_{U4&5NG}) + (HI_{U4&5OIL} \times EF_{U4&5OIL}) + (HI_{GTNG} \times EF_{GTNG}) + (HI_{GTOIL} \times EF_{GTOIL}) \leq 89.2 \text{ TPY}$$

- where:
- HI_{4&5NG} - Heat Input to Units 4 and 5 due to natural gas firing,
 - HI_{4&5OIL} - Heat Input to Units 4 and 5 due to No. 6 oil firing,
 - HI_{GTNG} - Heat Input to GT's 1-24 due to natural gas firing,
 - HI_{GTOIL} - Heat Input to GT's 1-24 due to No. 2 oil firing,
 - EF_{U4&5NG} - VOC emission factor for Units 4 & 5 for natural gas firing,
 - EF_{U4&5OIL} - VOC emission factor for Units 4 & 5 for No. 6 oil firing,
 - EF_{GTNG} - VOC emission factor for GT's 1-24 for natural gas firing,
 - EF_{GTOIL} - VOC emission factor for GT's 1-24 for No. 2 oil firing.

Please call if you have any questions concerning this additional information.

Sincerely,

David A. Buff, P.E.
Principal Engineer

DAB/tyf

cc: M.A. Smith, Ph.D. (FPL)
C.D. Henderson, P.E. (FPL)
P. Cunningham, Esq. (HBC&S)

X. Thoms
J. Kaldman, SE Dist
A. Zinno, BCEQEB
CHF/BA

Table 1. Maximum Potential Emissions of VOCs from Miscellaneous Storage Tanks,
FPL Lauderdale

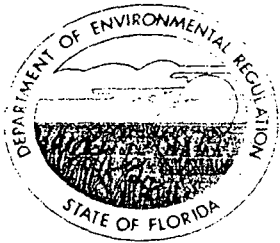
Parameter	Gas Turbine Dump Tanks ^a (2)	Fuel Oil Metering Tanks (3)	Unleaded Gasoline ^a (1)	Diesel Fuel ^a (1)
Type of Liquid Stored	No. 2 Fuel Oil	No. 6 Fuel Oil	No. 2 Oil	No. 2 Oil
Tank Volume (gallons)	1,500	252,000	4,000	1,000
Total Annual Throughput (gallons)	300,000	192,642,943	10,000	5,000
Turnovers Per Year	200.0	764.5	2.5	5.0
Molecular Weight of Vapor	130	190	130	130
Storage Temperature (°F)	75	75	75	75
Vapor Pressure at Storage Temperature (psia)	0.0105	0.000075	0.0105	0.0105
Tank Diameter (ft)	5.3	30.0	8.0	4.0
Average Vapor Space Hgt. (ft)	2.0	6.0	2.0	1.5
Average Diurnal Temperature Change (°F)	20	20	20	20
Paint Factor	1.30	1.40	1.33	1.33
Product Factor	1.0	1.0	1.0	1.0
Turnover Factor	0.30	0.23	1.0	1.0
Breathing Losses (lb/yr) (TPY)	3.2 0.002	6.1 0.003	6.6 0.003	1.7 0.001
Working Losses (lb/yr) (TPY)	2.9 0.001	15.2 0.008	0.3 0.000	0.2 0.000
Total Emissions (TPY)	0.003	0.011	0.003	0.001

^aUnderground tanks.

Table 1. Maximum Potential Emissions of VOCs from Miscellaneous Storage Tanks,
FPL Lauderdale

Parameter	Gas Turbine Dump Tanks* (2)	Fuel Oil Metering Tanks (3)	Unleaded Gasoline* (1)	Diesel Fuel* (1)
Type of Liquid Stored	No. 2 Fuel Oil	No. 6 Fuel Oil	Unleaded Gas	No. 2 Oil
Tank Volume (gallons)	1,500	252,000	4,000	1,000
Total Annual Throughput (gallons)	300,000	192,642,943	10,000	5,000
Turnovers Per Year	200.0	764.5	2.5	5.0
Molecular Weight of Vapor	130	190	130	130
Storage Temperature (°F)	75	75	75	75
Vapor Pressure at Storage Temperature (psia)	0.0105	0.000075	6.8	0.0105
Tank Diameter (ft)	5.3	30.0	8.0	4.0
Average Vapor Space Hgt. (ft)	2.0	6.0	2.0	1.5
Average Diurnal Temperature Change (°F)	20	20	20	20
Paint Factor	1.30	1.40	1.33	1.33
Product Factor	1.0	1.0	1.0	1.0
Turnover Factor	0.30	0.23	1.0	1.0
Breathing Losses (lb/yr) (TPY)	3.2 0.002	6.1 0.003	0.0 0.000	1.7 0.001
Working Losses (lb/yr) (TPY)	2.9 0.001	15.2 0.008	212.2 0.106	0.2 0.000
Total Emissions (TPY)	0.003	0.011	0.106	0.001

*Underground tanks.



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary

0110037

May 15, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Martin A. Smith
Environmental Manager
Florida Power & Light Company
P. O. Box 078768
West Palm Beach, Florida 33407-0768

Dear Mr. Smith:

Re: File No. AC 06-179848, FP&L Ft. Lauderdale Plant
Modification

The Department has made a preliminary review of your application for permits to construct fossil-fuel-fired steam units Nos. 4 and 5, 24 gas turbines, and 3 fuel storage tanks at FP&L Ft. Lauderdale Plant. Although we agree in principal with your request to obtain construction permits for a minor modification to a minor facility, the Department does not have reasonable assurance the the increase in facility emissions will be less than 100 TPY VOC. As presently proposed, an additional 0.1 TPY VOC emission increase would make the project a major modification and subject it to additional regulations. Therefore, we request you address the VOC emissions from the following sources.


1. Please provide a list of the auxiliary tanks at this facility and estimate the maximum VOC emissions from the tanks before and after the proposed project by the procedures described in the AP-42 manual, Section 4.3.
2. The VOC emissions for the 75,000 bbl. No. 5 storage tank listed in the application are based on 109.1 turnovers per year. Based on the fuel usage listed in Table 3, the actual number of turnovers were less. Please calculate what the actual emissions have been for the No. 5 storage tank and the increase in VOC emissions from this tank for this project.
3. Are there any VOC emissions from the maintenance building? If solvents are used in the repair of the equipment, we would expect some VOC emissions.
4. Are there any other sources of VOC emissions at this facility? If so, please quantify their emissions.

Mr. Martin A. Smith
Page 2
May 15, 1990

5. Based on the answers to the questions above, please recalculate the VOC emissions increase for the project.

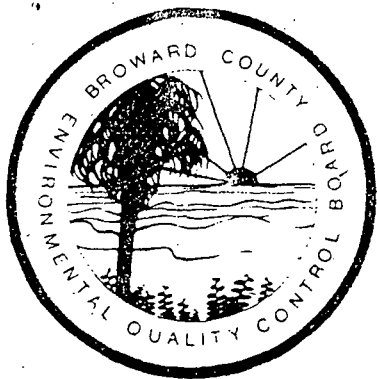
We will resume processing the application after we receive the requested information. If you have any questions on this matter, please write to me or call Willard Hanks at (904)488-1344.

Sincerely,


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

CHF/plm

c: Isidore Goldman, SE District
Daniela Banu, Broward Co.
David Buff, P.E.



RECEIVED
BROWARD COUNTY ENVIRONMENTAL QUALITY CONTROL BOARD

MAY 14 1990

500 S.W. 14th Court
Fort Lauderdale, FL 33315
(305) 765-4900

DER-BAQM

May 10, 1990

Clair Fancy, P.E.
Chief, Bureau of Air Regulation
Division of Air Resources Management
Florida Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Application to Construct at
S.W. 42nd Street, Ft. Lauderdale

Dear Sir:

We have reviewed the subject application which you sent us and have the following comments:

- 1) The application is to Construct. There is a dismantling of existing Tank #3 which should not require a permit.
- 2) Tank #4 will in the future store Fuel Oil #2 instead of Fuel Oil #6. We see nothing however, indicating any modifications (e.g. drawings, vapor recovery, etc.) indicative of a construction project.
- 3) Neither Tanks 3 nor 4 have any permits anyway, perhaps due to their storage of relatively heavy fuel. Perhaps they and all such storage tanks should be permitted.
- 4) The fuel burned by all the power generating units will apparently remain the same and within the terms of their existing permits.
- 5) This construction permit does not appear to us to be the proper place to limit (at FPL's request) their VOC emissions to 99.9 TPY resulting in a "Synthetic Minor Source."

Letter to Clair Fancy, P.E.

Page Two

- 6) Our opinions regarding the limiting of their VOC emissions were previously provided under our comments on the SCA. A copy of the relevant comments is attached.

If you have any questions regarding this matter, please call me at (305) 765-4436.

Sincerely,

A.A. Linero 5/10/90

A. A. Linero, P.E.
Chief, Air Section

AAL/mgs

cc: I. Goldman, DER, W. Palm Beach
S. Smallwood, DER, Tallahassee
H. Oven, DER, Tallahassee
D. Banu, Air Section

3/10/90
3/10/90