FOSTER WHEELER ENVIRONMENTAL CORPORATION

April 1, 1999

Mr. Cleve Holladay
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Holladay:

SUBJECT: JEA NORTHSIDE REPOWERING PROJECT
START-UP/3-HOUR SO_2 IMPACTS

In accordance with your request of March 10, 1999, we have conducted an analysis of the start-up SO_2 impacts for the Northside Repowering Project based on estimated emissions provided by boiler manufacturer, Foster Wheeler USA, and included in Attachment E-4 of the PSD Application. Based on these start-up data, the maximum 3-hour and 24-hour emission rates were determined.

The maximum cold start-up 3-hour SO_2 rate is estimated at 644 g/s and the maximum cold start-up 24-hour SO_2 emission rate is 145 g/s per unit. These emission rates were used in the modelling analysis assuming that one of the repowered units would be on line in normal, full load operation and the other unit would be in the start-up mode. The 24-hour SO_2 emission rate for the unit in normal operation is 69.7 g/s. The other sources included in the modelling were the same as those used in the modelling presented in the PSD application. A copy of the modelling input and output files are include on the enclosed diskette.

The results of this analysis are summarized in the attached tables. As indicated in the tables, the highest second high 3-hour start-up impacts for both the FAAQS and PSD Class II increment are slightly higher than during normal operation but within their respective standard and increment. There is no difference in the start-up and normal operations for the highest second high 24-hour impacts, indicating that the source(s) of the impact is not the Northside repowered units. These results demonstrate that there is no need to set a 3-hour SO_2 emission limit for the project since even during the relatively high emissions of start-up, the ambient standards and PSD increments are protected.

We hope that this information satisfies your request. If you should have any questions regarding the analysis presented please contact me at (770) 825-7143.

Sincerely,

Michael A. Bilello
Senior Environmental Scientist

Attachment

cc: S. Arif (FDEP) (w/o attachments)
S. Pace (RESD) (w/o attachments)
B. Gianazza (w/attachments)
P. T. Nielsen (w/o attachments)
S. Hughes (w/o attachments)

TECHNOLOGY PARK, 302 RESEARCH DRIVE, NORCROSS, GA 30092-2925
TEL: 770-825-7100 FAX: 770-825-7261

SUMMARY OF CLASS II PSD INCREMENT ANALYSIS (NORMAL OPERATION AND START-UP)											
					Receptor Location		Preliminary Maximum[1] Concentration by Year ($\mu g/m^3$)				
Pollutant	Avg Period	Maximum[1] Refined Conc ($\mu g/m^3$)	Class II PSD Increment ($\mu g/m^3$)	Period (yymmddhh)	North (km)	East (km)	1984	1985	1986	1987	1988
Normal Operation											
Sulfur Dioxide (SO_2)	3-hr	382	512	88052115	3,367.777	446.658	375	306	355	361	382
Sulfur Dioxide (SO_2)	24-hr	77	91	87091424	3,366.786	448.394	68	55	65	77	49
Start-up											
Sulfur Dioxide (SO_2)	3-hr	394	512	88052112	3,367.777	446.658	375	370	357	362	394
Sulfur Dioxide (SO_2)	24-hr	77	91	87091424	3,366.786	448.394	69	56	66	77	50

[1] High second high, for short-term analyses.
Source: FWENC, 1998

SUMMARY OF FAAQS ANALYSIS (NORMAL OPERATION AND START-UP)													
							Receptor Location		Preliminary Maximum[1] Concentration by Year ($\mu g/m^3$)				
Pollutant	Avg Period	Max[1] Refined Conc ($\mu g/m^3$)	Background ($\mu g/m^3$)	Max[1] Modelled + Background ($\mu g/m^3$)	FAAQS ($\mu g/m^3$)	Period (yymmddhh)	North (km)	East (km)	1984	1985	1986	1987	1988
Normal Operation													
Sulfur Dioxide (SO_2)	3-hr	508	216	724	1300	88052115	3,367.775	446.561	492	466	416	397	508
Sulfur Dioxide (SO_2)	24-hr	162	82	244	260	84050424	3,365.537	447.226	155	115	129	116	129
Start-up													
Sulfur Dioxide (SO_2)	3-hr	731	216	947	1300	85091112	3,364.133	446.330	585	648	610	574	374
Sulfur Dioxide (SO_2)	24-hr	162	82	244	260	84050424	3,365.538	447.227	155	115	118	116	129

[1] High second high short-term values.
Source: FWENC, 1998

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

March 9, 1999

RECEIVED
MAR 10 1999
BUREAU OF
AIR REGULATION

Mr. Walter P. Bussells
Managing Director & chief Operating Officer
Jacksonville Electric Authority
21 West Church Street
Jacksonville, Florida 32202-3139

Re: JEA Northside Repowering PSD-FL-010 &
Modification of St. Johns River Power Park PA 81-13

Dear Mr. Bussells:

In response to your letter of February 15, 1999, the Department of Environmental Protection does not consider the Prevention of Significant Deterioration Air Quality Permit Application for the repowering of Northside Units 1 & 2 to be a complete or sufficient Petition for Modification of the Conditions of Certification for the St. Johns River Power Park (SJRPP) facility. There is no specific supporting detail nor request for modifying conditions, nor proper modification fee within the submitted application, . Consequently, the 45 day time period for filing objections to the modification of conditions for the SJRPP has not been initiated.

It is my understanding that members of your staff, your attorney, and consultants will meet with this agency on March 19, 1999. We will discuss the submission of a proper modification at that time. The Siting coordination Office will coordinate the power plant siting modification process with the Bureau of Air Regulation's PSD process to ensure a timely completion of the regulatory process.

If you have any questions on this matter, I can be reached at (850) 487-0472.

Sincerely,

Hamilton S. Oven

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Office

cc: Al Linero, P.E.
Scott Goorland, Esq
All Parties
Syed Arif, BAR

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Helping Floridians create safe, vibrant, sustainable communities"

JEB BUSH
Governor

STEVEN M. SEIBERT
Secretary

26 February 1999

Hamilton S. Oven
Siting Coordinator
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Jacksonville Electric Authority Northside Repowering Project air quality permit application

Dear Mr. Oven:

We received for review a copy of the air quality permit application from Jacksonville Electric Authority (JEA) for its Northside Repowering Project. Because the Repowering Project involves certain changes in the nearby JEA St. Johns River Power Park, which was certified under the Florida Electrical Power Plant Siting Act (sections 403.501-403.518), a modification of the Power Park site certification is also being requested by JEA.

JEA's Northside Generating Station comprises three steam electrical generating turbines (Units 1, 2, and 3) and four small combustion turbines. Units 1 and 3 are listed in the 1998 JEA 10-year site plan as using natural gas for their primary fuel with fuel oil as the alternate fuel. Unit 2, which is on inactive reserve, is listed as a fuel oil burner, with no alternate fuel.

JEA proposes to replace the Unit 1 and 2 boilers with modern circulating fluidized-bed (CFB) boilers capable of burning coal or pet coke to power the existing Unit 1 and 2 steam turbines. Unit 3 would not be modified, except for its operating schedule (more later). Some other changes to the Northside Station and to the Power Park would be required in order to accommodate the change in boilers and fuel.

JEA's proposed repowering would, in effect, substitute coal and pet coke combustion for natural-gas-fired (and some oil-fired) combustion, which is typically cleaner-burning than coal or pet coke combustion. To control pollutant emissions from the coal and pet coke-burning boilers, JEA proposes to use a combination of CFB boiler technology (said to have inherently low emissions of nitrogen oxides), selective noncatalytic reduction, polishing scrubber, and electrostatic or fabric filter.

2555 SHUMARD OAK BOULEVARD • TALLAHASSEE, FLORIDA 32399-2100
Phone: (850) 488-8466/Suncom 278-8466 FAX: (850) 921-0781/Suncom 291-0781
Internet address: http://www.state.fl.us/comaff/

FLORIDA KEYS
Area of Critical State Concern Field Office
2796 Overseas Highway, Suite 212
Marathon, Florida 33050-2227

GREEN SWAMP
Area of Critical State Concern Field Office
205 East Main Street, Suite 104
Bartow, Florida 33830-4641

By use of these control technologies, JEA is able to pledge to restrict the annual emissions of nitrogen oxides, sulfur dioxide, and particulates from Units 1–3 by 10 percent compared with actual annual emissions from Units 1 and 3 during 1994–1995. This is a significant reduction, considering that Units 1 and 3 have a capacity of 873 MW, whereas repowered Units 1 and 2 and Unit 3 together will have 34 percent more capacity (1,173 MW). So JEA will theoretically generate up to 34 percent more power while reducing nitrogen oxides, sulfur dioxide, and particulates emissions by 10 percent. We say theoretically up to 34 percent because the pledged emissions reduction is to be achieved in part by operationally restricting Unit 3's output; thus the full 1,173-MW capacity of Units 1–3 may seldom be achieved.

Though nitrogen oxides, sulfur dioxide, and particulates emissions will be decreased by 10 percent, the emissions of other pollutants from repowered Units 1 and 2 will be considerably higher than the emissions from existing Unit 1, which they will in effect be replacing. See the table below (adapted from table 2-12 on page 2-24 in the Northside RepoweringProject permit application).

Projected Increase of Annual Emissions of PSD Regulated Pollutants from Repowered Units 1 and 2 Compared with Actual Annual Emissions from Unit 1

Pollutant	Net increase (tons/year)	Percent increase
CO	3,063	2,611%
NO_x	871	64%
SO_2	-2,941	-45%
PM_{10}	131	92%
TSP	99	49%
VOCs	107	626%
Lead	0.57	1,789%
Mercury	0.26	10,700%
Total flourides	3.02	385%
Sulfuric acid mist	-187	-95%

Although nitrogen oxides and particulates (PM_{10} and TSP) are shown increasing over the base (Unit 1) condition, JEA has committed to a 10 percent reduction of emissions of these pollutants from Units 1, 2, and 3, which suggests that the proposed operational reduction of use of Unit 3 may need to be significant in order to achieve this limitation.

We recommend that the Department of Environmental Protection consider the relevant policies of the State Comprehensive Plan as part of its evaluation of the permit application, particularly the following policies in the Air Quality section:

> Policy 1. Improve air quality and maintain the improved level to safeguard human health and prevent damage to the natural environment.

Policy 3. Reduce sulfur dioxide and nitrogen oxide emissions and mitigate their effects on the natural and human environment.

Policy 4. Encourage the use of alternative energy resources that do not degrade air quality.

Policy 5. Ensure, at a minimum, that power plant fuel conversion does not result in higher levels of air pollution.

The proposed reduction of nitrogen oxides, sulfur dioxide, and particulates emissons is laudable and consistent with Policy 3. The substantial increase in emissions of carbon monoxide, volatile organic compounds, lead, mercury, and flourides, on the other hand, is inconsistent with Policy 4. Because the proposed repowering would improve air quality by reducing Northside's emissions of nitrogen oxides, sulfur dioxide, and particulates while worsening air quality by increasing emissions of carbon monoxide, volatile organic compounds, lead, mercury, and flourides, it is neither wholly consistent nor wholly inconsistent with Policy 1 and Policy 5.

We note that there are alternatives to the proposal which would be more consistent with the listed Air Quality policies. First, it is likely that by using modern natural-gas-burning boilers instead of the proposed CFB boilers to repower Units 1 and 2, JEA could achieve greater reductions in air pollutant emissions from Northside Station. Other, less-effective alternatives for reducing pollutant emissions include (a) specifying in the air quality permit the proportions of coal and pet coke that could be burned in repowered Units 1 and 2 (and perhaps the proportions of natural gas and fuel oil that could be burned in Unit 3), in order to secure the lowest emissions profile, and (b) requiring stricter emission controls on Units 1 and 2 to restrict further the proposed Northside Repowering Project's emissions of carbon monoxide, volatile organic compounds, lead, mercury, and flourides. We recommend that the Department of Environmental Protection consider these alternatives in evaluating the Northside Repowering air quality permit.

Please direct any questions concerning these comments to Paul Darst at telephone 922-1764.

Sincerely,

James L. Quinn
Chief, Bureau of State Planning

cc: S. Arif, BAR

FOSTER WHEELER ENVIRONMENTAL CORPORATION

February 17, 1998

Mr. Cleve Holladay
Florida Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Street, Suite 23
Tallahassee, FL 32301

Dear Mr. Holladay:

SUBJECT: JEA NORTHSIDE REPOWERING PROJECT
AIR QUALITY MODELLING FILES

Enclosed please find a CD-ROM containing the air quality modelling files for the JEA Northside Repowering Project PSD Application, which was sent to FDEP earlier this week. Also enclosed is a hard copy of an Excel spreadsheet containing a listing of the files. The Excel file, which can be sorted in a variety of ways, is also on the CD-ROM.

Please let me know if you have any problems with any of these files. You can reach me at (770) 825-7142, or you may call Mike Bilello directly at (770) 825-7143.

Very truly yours,

Douglas J. Fulle
Lead Scientist, Air quality

Enclosure

cc. S. Arif (FDEP)(w/o enc.)
B. Gianazza (JEA)(w/enc.)
L. Deken (FWENC)(w/o enc.)
M. Bilello (FWENC)(w/o enc.)
L. Tilley (RESD)(w/enc.)
S. Krivo(EPA Region IV)(w/enc.)

TECHNOLOGY PARK, 302 RESEARCH DRIVE, NORCROSS, GA 30092-2925
TEL: 770-825-7100 FAX: 770-825-7261

FOSTER WHEELER ENVIRONMENTAL CORPORATION

February 17, 1998

Mr. Cleve Holladay
Florida Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Street, Suite 23
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S. Krivo(EPA Region IV)(w/enc.)

TECHNOLOGY PARK, 302 RESEARCH DRIVE, NORCROSS, GA 30092-2925
TEL: 770-825-7100 FAX: 770-825-7261

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JAQN8410	AAQS	NO2	Annual	1984	COARSE	
	JAQN8510	AAQS	NO2	Annual	1985	COARSE	
	JAQN8610	AAQS	NO2	Annual	1986	COARSE	
	JAQN8710	AAQS	NO2	Annual	1987	COARSE	
	JAQN8810	AAQS	NO2	Annual	1988	COARSE	
	JARN8610	AAQS	NO2	Annual	1986	REFINED	
	JARS8401	AAQS	SO2	24 hr	1984	REFINED	
	JARS8801	AAQS	SO2	3-HR	1988	REFINED	
	JAQS8401	AAQS	SO2	3/24 hr	1984	COARSE	
	JAQS8501	AAQS	SO2	3/24 hr	1985	COARSE	
	JAQS8601	AAQS	SO2	3/24 hr	1986	COARSE	
	JAQS8701	AAQS	SO2	3/24 hr	1987	COARSE	
	JAQS8801	AAQS	SO2	3/24 hr	1988	COARSE	
	JAQS8409	AAQS	SO2	Annual	1984	COARSE	
	JAQS8509	AAQS	SO2	Annual	1985	COARSE	
	JAQS8609	AAQS	SO2	Annual	1986	COARSE	
	JAQS8709	AAQS	SO2	Annual	1987	COARSE	
	JAQS8809	AAQS	SO2	Annual	1988	COARSE	
	JARS8509	AAQS	SO2	Annual	1985	REFINED	
	JAP18403	AAQS (ALTERNATE 1)	PM10	24 hr	1984	COARSE	
	JAP18503	AAQS (ALTERNATE 1)	PM10	24 hr	1985	COARSE	
	JAP18603	AAQS (ALTERNATE 1)	PM10	24 hr	1986	COARSE	
	JAP18703	AAQS (ALTERNATE 1)	PM10	24 hr	1987	COARSE	
	JAP18803	AAQS (ALTERNATE 1)	PM10	24 hr	1988	COARSE	
	RAS18503	AAQS (ALTERNATE 1)	PM10	24 hr	1985	REFINED	
	JAP18411	AAQS (ALTERNATE 1)	PM10	Annual	1984	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JAP18511	AAQS (ALTERNATE 1)	PM10	Annual	1985	COARSE	
	JAP18611	AAQS (ALTERNATE 1)	PM10	Annual	1986	COARSE	
	JAP18711	AAQS (ALTERNATE 1)	PM10	Annual	1987	COARSE	
	JAP18811	AAQS (ALTERNATE 1)	PM10	Annual	1988	COARSE	
	RAL18611	AAQS (ALTERNATE 1)	PM10	Annual	1986	REFINED	
	JAP28403	AAQS (BASE CASE)	PM10	24 hr	1984	COARSE	
	JAP28503	AAQS (BASE CASE)	PM10	24 hr	1985	COARSE	
	JAP28603	AAQS (BASE CASE)	PM10	24 hr	1986	COARSE	
	JAP28703	AAQS (BASE CASE)	PM10	24 hr	1987	COARSE	
	JAP28803	AAQS (BASE CASE)	PM10	24 hr	1988	COARSE	
	RAS28403	AAQS (BASE CASE)	PM10	24 hr	1984	REFINED	
	JAP28411	AAQS (BASE CASE)	PM10	Annual	1984	COARSE	
	JAP28511	AAQS (BASE CASE)	PM10	Annual	1985	COARSE	
	JAP28611	AAQS (BASE CASE)	PM10	Annual	1986	COARSE	
	JAP28711	AAQS (BASE CASE)	PM10	Annual	1987	COARSE	
	JAP28811	AAQS (BASE CASE)	PM10	Annual	1988	COARSE	
	RAL28511	AAQS (BASE CASE)	PM10	Annual	1985	REFINED	
	AQR18403	AQRV Analysis (ALTERNATE 1)	PM10	24 hr	1984	COARSE	Class I Areas
	AQR18503	AQRV Analysis (ALTERNATE 1)	PM10	24 hr	1985	COARSE	Class I Areas
	AQR18603	AQRV Analysis (ALTERNATE 1)	PM10	24 hr	1986	COARSE	Class I Areas
	AQR18703	AQRV Analysis (ALTERNATE 1)	PM10	24 hr	1987	COARSE	Class I Areas
	AQR18803	AQRV Analysis (ALTERNATE 1)	PM10	24 hr	1988	COARSE	Class I Areas
	AQR18411	AQRV Analysis (ALTERNATE 1)	PM10	Annual	1984	COARSE	Class I Areas
	AQR18511	AQRV Analysis (ALTERNATE 1)	PM10	Annual	1985	COARSE	Class I Areas
	AQR18611	AQRV Analysis (ALTERNATE 1)	PM10	Annual	1986	COARSE	Class I Areas
	AQR18711	AQRV Analysis (ALTERNATE 1)	PM10	Annual	1987	COARSE	Class I Areas

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	AQR18811	AQRV Analysis (ALTERNATE 1)	PM10	Annual	1988	COARSE	Class I Areas
	AQR28403	AQRV Analysis (BASE CASE)	PM10	24 hr	1984	COARSE	Class I Areas
	AQR28503	AQRV Analysis (BASE CASE)	PM10	24 hr	1985	COARSE	
	AQR28603	AQRV Analysis (BASE CASE)	PM10	24 hr	1986	COARSE	Class I Areas
	AQR28703	AQRV Analysis (BASE CASE)	PM10	24 hr	1987	COARSE	Class I Areas
	AQR28803	AQRV Analysis (BASE CASE)	PM10	24 hr	1988	COARSE	Class I Areas
	AQR28411	AQRV Analysis (BASE CASE)	PM10	Annual	1984	COARSE	Class I Areas
	AQR28511	AQRV Analysis (BASE CASE)	PM10	Annual	1985	COARSE	Class I Areas
	AQR28611	AQRV Analysis (BASE CASE)	PM10	Annual	1986	COARSE	Class I Areas
	AQR28711	AQRV Analysis (BASE CASE)	PM10	Annual	1987	COARSE	Class I Areas
	AQR28811	AQRV Analysis (BASE CASE)	PM10	Annual	1988	COARSE	Class I Areas
	JBA18403	BEFORE / AFTER (ALTERNATE 1)	PM10	24 hr	1984	COARSE	
	JBA18503	BEFORE / AFTER (ALTERNATE 1)	PM10	24 hr	1985	COARSE	
	JBA18603	BEFORE / AFTER (ALTERNATE 1)	PM10	24 hr	1986	COARSE	
	JBA18703	BEFORE / AFTER (ALTERNATE 1)	PM10	24 hr	1987	COARSE	
	JBA18803	BEFORE / AFTER (ALTERNATE 1)	PM10	24 hr	1988	COARSE	
	JBA18411	BEFORE / AFTER (ALTERNATE 1)	PM10	Annual	1984	COARSE	
	JBA18511	BEFORE / AFTER (ALTERNATE 1)	PM10	Annual	1985	COARSE	
	JBA18611	BEFORE / AFTER (ALTERNATE 1)	PM10	Annual	1986	COARSE	
	JBA18711	BEFORE / AFTER (ALTERNATE 1)	PM10	Annual	1987	COARSE	
	JBA18811	BEFORE / AFTER (ALTERNATE 1)	PM10	Annual	1988	COARSE	
	RBA18403	BEFORE / AFTER (ALTERNATE I)	PM10	24 hr	1987	REFINED	USED BEFORE - AFTER SOURCE GROUPS
	RBA28511	BEFORE / AFTER (ALTERNATE I)	PM10	Annual	1985	REFINED	USED BEFORE - AFTER SOURCE GROUPS
	RBA28611	BEFORE / AFTER (ALTERNATE I)	PM10	Annual	1986	REFINED	USED BEFORE - AFTER SOURCE GROUPS
	JBA28403	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1984	COARSE	
	JBA28503	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1985	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JBA28603	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1986	COARSE	
	JBA28703	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1987	COARSE	
	JBA28803	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1988	COARSE	
	RBA28403	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1984	REFINED	USED BEFORE - AFTER SOURCE GROUPS
	RBA28503	BEFORE / AFTER (BASE CASE)	PM10	24 hr	1985	REFINED	USED BEFORE - AFTER SOURCE GROUPS
	JBA28411	BEFORE / AFTER (BASE CASE)	PM10	Annual	1984	COARSE	
	JBA28511	BEFORE / AFTER (BASE CASE)	PM10	Annual	1985	COARSE	
	JBA28611	BEFORE / AFTER (BASE CASE)	PM10	Annual	1986	COARSE	
	JBA28711	BEFORE / AFTER (BASE CASE)	PM10	Annual	1987	COARSE	
	JBA28811	BEFORE / AFTER (BASE CASE)	PM10	Annual	1988	COARSE	
	JOLD8404	BEFORE / AFTER -existing	CO	1/8 hr	1984	COARSE	
	JOLD8504	BEFORE / AFTER -existing	CO	1/8 hr	1985	COARSE	
	JOLD8604	BEFORE / AFTER -existing	CO	1/8 hr	1986	COARSE	
	JOLD8704	BEFORE / AFTER -existing	CO	1/8 hr	1987	COARSE	
	JOLD8804	BEFORE / AFTER -existing	CO	1/8 hr	1988	COARSE	
	JOLD8410	BEFORE / AFTER -existing	NO2	Annual	1984	COARSE	
	JOLD8510	BEFORE / AFTER -existing	NO2	Annual	1985	COARSE	
	JOLD8610	BEFORE / AFTER -existing	NO2	Annual	1986	COARSE	
	JOLD8710	BEFORE / AFTER -existing	NO2	Annual	1987	COARSE	
	JOLD8810	BEFORE / AFTER -existing	NO2	Annual	1988	COARSE	
	JOLD8406	BEFORE / AFTER -existing	Pb	24 hr	1984	COARSE	
	JOLD8506	BEFORE / AFTER -existing	Pb	24 hr	1985	COARSE	
	JOLD8606	BEFORE / AFTER -existing	Pb	24 hr	1986	COARSE	
	JOLD8706	BEFORE / AFTER -existing	Pb	24 hr	1987	COARSE	
	JOLD8806	BEFORE / AFTER -existing	Pb	24 hr	1988	COARSE	
	JOLD8401	BEFORE / AFTER -existing	SO2	3/24 hr	1984	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JOLD8501	BEFORE / AFTER -existing	SO2	3/24 hr	1985	COARSE	
	JOLD8601	BEFORE / AFTER -existing	SO2	3/24 hr	1986	COARSE	
	JOLD8701	BEFORE / AFTER -existing	SO2	3/24 hr	1987	COARSE	
	JOLD8801	BEFORE / AFTER -existing	SO2	3/24 hr	1988	COARSE	
	JOLD8409	BEFORE / AFTER -existing	SO2	Annual	1984	COARSE	
	JOLD8509	BEFORE / AFTER -existing	SO2	Annual	1985	COARSE	
	JOLD8609	BEFORE / AFTER -existing	SO2	Annual	1986	COARSE	
	JOLD8709	BEFORE / AFTER -existing	SO2	Annual	1987	COARSE	
	JOLD8809	BEFORE / AFTER -existing	SO2	Annual	1988	COARSE	
	JWCO8604	BEFORE / AFTER -future	CO	1 hr	1986	REFINED	
	JNEW8404	BEFORE / AFTER -future	CO	1/8 hr	1984	COARSE	
	JNEW8504	BEFORE / AFTER -future	CO	1/8 hr	1985	COARSE	
	JNEW8604	BEFORE / AFTER -future	CO	1/8 hr	1986	COARSE	
	JNEW8704	BEFORE / AFTER -future	CO	1/8 hr	1987	COARSE	
	JNEW8804	BEFORE / AFTER -future	CO	1/8 hr	1988	COARSE	
	JWCO8504	BEFORE / AFTER -future	CO	8 hr	1985	REFINED	
	JNEW8410	BEFORE / AFTER -future	NO2	Annual	1984	COARSE	
	JNEW8510	BEFORE / AFTER -future	NO2	Annual	1985	COARSE	
	JNEW8610	BEFORE / AFTER -future	NO2	Annual	1986	COARSE	
	JNEW8710	BEFORE / AFTER -future	NO2	Annual	1987	COARSE	
	JNEW8810	BEFORE / AFTER -future	NO2	Annual	1988	COARSE	
	JWNO8609	BEFORE / AFTER -future	NO2	annual	1986	REFINED	
	JNEW8406	BEFORE / AFTER -future	Pb	24 hr	1984	COARSE	
	JNEW8506	BEFORE / AFTER -future	Pb	24 hr	1985	COARSE	
	JNEW8606	BEFORE / AFTER -future	Pb	24 hr	1986	COARSE	
	JNEW8706	BEFORE / AFTER -future	Pb	24 hr	1987	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JNEW8806	BEFORE / AFTER -future	Pb	24 hr	1988	COARSE	
	JWPB8406	BEFORE / AFTER -future	Pb	24 hr	1984	REFINED	
	JNEW8401	BEFORE / AFTER -future	SO2	3/24 hr	1984	COARSE	
	JNEW8501	BEFORE / AFTER -future	SO2	3/24 hr	1985	COARSE	
	JNEW8601	BEFORE / AFTER -future	SO2	3/24 hr	1986	COARSE	
	JNEW8701	BEFORE / AFTER -future	SO2	3/24 hr	1987	COARSE	
	JNEW8801	BEFORE / AFTER -future	SO2	3/24 hr	1988	COARSE	
	JWSO8801	BEFORE / AFTER -future	SO2	3/24 hr	1988	REFINED	
	JNEW8409	BEFORE / AFTER -future	SO2	Annual	1984	COARSE	
	JNEW8509	BEFORE / AFTER -future	SO2	Annual	1985	COARSE	
	JNEW8609	BEFORE / AFTER -future	SO2	Annual	1986	COARSE	
	JNEW8709	BEFORE / AFTER -future	SO2	Annual	1987	COARSE	
	JNEW8809	BEFORE / AFTER -future	SO2	Annual	1988	COARSE	
	JSI18410	Class I Sig Impact	NO2	Annual	1984	COARSE	
	JSI18510	Class I Sig Impact	NO2	Annual	1985	COARSE	
	JSI18610	Class I Sig Impact	NO2	Annual	1986	COARSE	
	JSI18710	Class I Sig Impact	NO2	Annual	1987	COARSE	
	JSI18810	Class I Sig Impact	NO2	Annual	1988	COARSE	
	JSI18401	Class I Sig Impact	SO2	3/24 hr	1984	COARSE	
	JSI18501	Class I Sig Impact	SO2	3/24 hr	1985	COARSE	
	JSI18601	Class I Sig Impact	SO2	3/24 hr	1986	COARSE	
	JSI18701	Class I Sig Impact	SO2	3/24 hr	1987	COARSE	
	JSI18801	Class I Sig Impact	SO2	3/24 hr	1988	COARSE	
	JSI18409	Class I Sig Impact	SO2	Annual	1984	COARSE	
	JSI18509	Class I Sig Impact	SO2	Annual	1985	COARSE	
	JSI18609	Class I Sig Impact	SO2	Annual	1986	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JSI18709	Class I Sig Impact	SO2	Annual	1987	COARSE	
	JSI18809	Class I Sig Impact	SO2	Annual	1988	COARSE	
	JS118403	Class I Sig Impact(ALERNATE 1)	PM10	24 HR	1984	COARSE	
	JS118503	Class I Sig Impact(ALERNATE 1)	PM10	24 HR	1985	COARSE	
	JS118603	Class I Sig Impact(ALERNATE 1)	PM10	24 HR	1986	COARSE	
	JS118703	Class I Sig Impact(ALERNATE 1)	PM10	24 HR	1987	COARSE	
	JS118803	Class I Sig Impact(ALERNATE 1)	PM10	24 HR	1988	COARSE	
	JS118411	Class I Sig Impact(ALERNATE 1)	PM10	Annual	1984	COARSE	
	JS118511	Class I Sig Impact(ALERNATE 1)	PM10	Annual	1985	COARSE	
	JS118611	Class I Sig Impact(ALERNATE 1)	PM10	Annual	1986	COARSE	
	JS118711	Class I Sig Impact(ALERNATE 1)	PM10	Annual	1987	COARSE	
	JS118811	Class I Sig Impact(ALERNATE 1)	PM10	Annual	1988	COARSE	
	JS128403	Class I Sig Impact(BASE CASE)	PM10	24 HR	1984	COARSE	
	JS128503	Class I Sig Impact(BASE CASE)	PM10	24 HR	1985	COARSE	
	JS128603	Class I Sig Impact(BASE CASE)	PM10	24 HR	1986	COARSE	
	JS128703	Class I Sig Impact(BASE CASE)	PM10	24 HR	1987	COARSE	
	JS128803	Class I Sig Impact(BASE CASE)	PM10	24 HR	1988	COARSE	
	JS128411	Class I Sig Impact(BASE CASE)	PM10	Annual	1984	COARSE	
	JS128511	Class I Sig Impact(BASE CASE)	PM10	Annual	1985	COARSE	
	JS128611	Class I Sig Impact(BASE CASE)	PM10	Annual	1986	COARSE	
	JS128711	Class I Sig Impact(BASE CASE)	PM10	Annual	1987	COARSE	
	JS128811	Class I Sig Impact(BASE CASE)	PM10	Annual	1988	COARSE	
	JSI48404	Class II Sig Impact	CO	1/8 hr	1984	COARSE	
	JSI48504	Class II Sig Impact	CO	1/8 hr	1985	COARSE	
	JSI48604	Class II Sig Impact	CO	1/8 hr	1986	COARSE	
	JSI48704	Class II Sig Impact	CO	1/8 hr	1987	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JSI48804	Class II Sig Impact	CO	1/8 hr	1988	COARSE	
	JSI48410	Class II Sig Impact	NO2	Annual	1984	COARSE	
	JSI48510	Class II Sig Impact	NO2	Annual	1985	COARSE	
	JSI48610	Class II Sig Impact	NO2	Annual	1986	COARSE	
	JSI48710	Class II Sig Impact	NO2	Annual	1987	COARSE	
	JSI48810	Class II Sig Impact	NO2	Annual	1988	COARSE	
	JSI48406	Class II Sig Impact	Pb	24-hr	1984	COARSE	
	JSI48506	Class II Sig Impact	Pb	24-hr	1985	COARSE	
	JSI48606	Class II Sig Impact	Pb	24-hr	1986	COARSE	
	JSI48706	Class II Sig Impact	Pb	24-hr	1987	COARSE	
	JSI48806	Class II Sig Impact	Pb	24-hr	1988	COARSE	
	JSI48401	Class II Sig Impact	SO2	3/24 hr	1984	COARSE	
	JSI48501	Class II Sig Impact	SO2	3/24 hr	1985	COARSE	
	JSI48601	Class II Sig Impact	SO2	3/24 hr	1986	COARSE	
	JSI48701	Class II Sig Impact	SO2	3/24 hr	1987	COARSE	
	JSI48801	Class II Sig Impact	SO2	3/24 hr	1988	COARSE	
	JSI48409	Class II Sig Impact	SO2	Annual	1984	COARSE	
	JSI48509	Class II Sig Impact	SO2	Annual	1985	COARSE	
	JSI48609	Class II Sig Impact	SO2	Annual	1986	COARSE	
	JSI48709	Class II Sig Impact	SO2	Annual	1987	COARSE	
	JSI48809	Class II Sig Impact	SO2	Annual	1988	COARSE	
	JSP18403	Class II Sig Impact(ALERNATE 1)	PM10	24 HR	1984	COARSE	
	JSP18503	Class II Sig Impact(ALERNATE 1)	PM10	24 HR	1985	COARSE	
	JSP18603	Class II Sig Impact(ALERNATE 1)	PM10	24 HR	1986	COARSE	
	JSP18703	Class II Sig Impact(ALERNATE 1)	PM10	24 HR	1987	COARSE	
	JSP18803	Class II Sig Impact(ALERNATE 1)	PM10	24 HR	1988	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JSP18411	Class II Sig Impact(ALERNATE 1)	PM10	Annual	1984	COARSE	
	JSP18511	Class II Sig Impact(ALERNATE 1)	PM10	Annual	1985	COARSE	
	JSP18611	Class II Sig Impact(ALERNATE 1)	PM10	Annual	1986	COARSE	
	JSP18711	Class II Sig Impact(ALERNATE 1)	PM10	Annual	1987	COARSE	
	JSP18811	Class II Sig Impact(ALERNATE 1)	PM10	Annual	1988	COARSE	
	R2S18803	Class II Sig Impact(ALTERNATE 1)	PM10	24 HR	1988	REFINED	
	JSP28403	Class II Sig Impact(BASE CASE)	PM10	24 HR	1984	COARSE	
	JSP28503	Class II Sig Impact(BASE CASE)	PM10	24 HR	1985	COARSE	
	JSP28603	Class II Sig Impact(BASE CASE)	PM10	24 HR	1986	COARSE	
	JSP28703	Class II Sig Impact(BASE CASE)	PM10	24 HR	1987	COARSE	
	JSP28803	Class II Sig Impact(BASE CASE)	PM10	24 HR	1988	COARSE	
	R2S28703	Class II Sig Impact(BASE CASE)	PM10	24 HR	1987	REFINED	
	JSP28411	Class II Sig Impact(BASE CASE)	PM10	Annual	1984	COARSE	
	JSP28511	Class II Sig Impact(BASE CASE)	PM10	Annual	1985	COARSE	
	JSP28611	Class II Sig Impact(BASE CASE)	PM10	Annual	1986	COARSE	
	JSP28711	Class II Sig Impact(BASE CASE)	PM10	Annual	1987	COARSE	
	JSP28811	Class II Sig Impact(BASE CASE)	PM10	Annual	1988	COARSE	
	R2L28811	Class II Sig Impact(BASE CASE)	PM10	Annual	1988	REFINED	
	FARC8405	FARC Analysis	FARCs	8/24HR/Annual	1984	COARSE	
	FARC8505	FARC Analysis	FARCs	8/24HR/Annual	1985	COARSE	
	FARC8605	FARC Analysis	FARCs	8/24HR/Annual	1986	COARSE	
	FARC8705	FARC Analysis	FARCs	8/24HR/Annual	1987	COARSE	
	FARC8805	FARC Analysis	FARCs	8/24HR/Annual	1988	COARSE	
	JEMX8808	MONITORING EXEMPTION	CO	24 hr	1988	COARSE	
	JEMX8404	MONITORING EXEMPTION	CO	8 hr	1984	COARSE	
	JEMX8504	MONITORING EXEMPTION	CO	8 hr	1985	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JEMX8604	MONITORING EXEMPTION	CO	8 hr	1986	COARSE	
	JEMX8704	MONITORING EXEMPTION	CO	8 hr	1987	COARSE	
	JEMX8804	MONITORING EXEMPTION	CO	8 hr	1988	COARSE	
	JEMX8408	MONITORING EXEMPTION	FI	24 hr	1984	COARSE	
	JEMX8508	MONITORING EXEMPTION	FI	24 hr	1985	COARSE	
	JEMX8608	MONITORING EXEMPTION	FI	24 hr	1986	COARSE	
	JEMX8708	MONITORING EXEMPTION	FI	24 hr	1987	COARSE	
	JEMX8808	MONITORING EXEMPTION	FI	24 hr	1988	COARSE	
	JEMX8407	MONITORING EXEMPTION	Hg	24 hr	1984	COARSE	
	JEMX8507	MONITORING EXEMPTION	Hg	24 hr	1985	COARSE	
	JEMX8607	MONITORING EXEMPTION	Hg	24 hr	1986	COARSE	
	JEMX8707	MONITORING EXEMPTION	Hg	24 hr	1987	COARSE	
	JEMX8407	MONITORING EXEMPTION	Hg	24 hr	1984	COARSE	
	JEMX8410	MONITORING EXEMPTION	NO2	Annual	1984	COARSE	
	JEMX8510	MONITORING EXEMPTION	NO2	Annual	1985	COARSE	
	JEMX8610	MONITORING EXEMPTION	NO2	Annual	1986	COARSE	
	JEMX8710	MONITORING EXEMPTION	NO2	Annual	1987	COARSE	
	JEMX8810	MONITORING EXEMPTION	NO2	Annual	1988	COARSE	
	JEMX8401	MONITORING EXEMPTION	SO2	24 hr	1984	COARSE	
	JEMX8501	MONITORING EXEMPTION	SO2	24 hr	1985	COARSE	
	JEMX8601	MONITORING EXEMPTION	SO2	24 hr	1986	COARSE	
	JEMX8701	MONITORING EXEMPTION	SO2	24 hr	1987	COARSE	
	JEMX8801	MONITORING EXEMPTION	SO2	24 hr	1988	COARSE	
	JSP18403	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 hr	1984	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP18503	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 hr	1985	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP18603	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 hr	1986	COARSE	Used sig. Impact results for Mon. Exmp.

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JSP18703	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 hr	1987	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP18803	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 hr	1988	COARSE	Used sig. Impact results for Mon. Exmp.
	RXP18403	MONITORING EXEMPTION (ALTERNATE 1)	PM10	24 HR	1984	REFINED	
	JSP28403	MONITORING EXEMPTION (BASE CASE)	PM10	24 hr	1984	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP28503	MONITORING EXEMPTION (BASE CASE)	PM10	24 hr	1985	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP28603	MONITORING EXEMPTION (BASE CASE)	PM10	24 hr	1986	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP28703	MONITORING EXEMPTION (BASE CASE)	PM10	24 hr	1987	COARSE	Used sig. Impact results for Mon. Exmp.
	JSP28803	MONITORING EXEMPTION (BASE CASE)	PM10	24 hr	1988	COARSE	Used sig. Impact results for Mon. Exmp.
	RXP28603	MONITORING EXEMPTION (BASE CASE)	PM10	24 HR	1986	REFINED	
	JAV18403	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 hr	1984	COARSE	
	JAV18503	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 hr	1985	COARSE	
	JAV18603	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 hr	1986	COARSE	
	JAV18703	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 hr	1987	COARSE	
	JAV18803	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 hr	1988	COARSE	
	RAV18503	OVERLAP / AAQS (ALTERNATE 1)	PM10	24 HR	1985	REFINED	
	JAV18411	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1984	COARSE	
	JAV18511	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1985	COARSE	
	JAV18611	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1986	COARSE	
	JAV18711	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1987	COARSE	
	JAV18811	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1988	COARSE	
	RAV18611	OVERLAP / AAQS (ALTERNATE 1)	PM10	Annual	1986	REFINED	
	JAV28403	OVERLAP / AAQS (BASE CASE)	PM10	24 hr	1984	COARSE	
	JAV28503	OVERLAP / AAQS (BASE CASE)	PM10	24 hr	1985	COARSE	
	JAV28603	OVERLAP / AAQS (BASE CASE)	PM10	24 hr	1986	COARSE	
	JAV28703	OVERLAP / AAQS (BASE CASE)	PM10	24 hr	1987	COARSE	
	JAV28803	OVERLAP / AAQS (BASE CASE)	PM10	24 hr	1988	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	RAV28403	OVERLAP / AAQS (BASE CASE)	PM10	24 HR	1984	REFINED	
	JAV28411	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1984	COARSE	
	JAV28511	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1985	COARSE	
	JAV28611	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1986	COARSE	
	JAV28711	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1987	COARSE	
	JAV28811	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1988	COARSE	
	RAV28511	OVERLAP / AAQS (BASE CASE)	PM10	Annual	1985	REFINED	
	J2V18403	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 hr	1984	COARSE	
	J2V18503	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 hr	1985	COARSE	
	J2V18603	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 hr	1986	COARSE	
	J2V18703	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 hr	1987	COARSE	
	J2V18803	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 hr	1988	COARSE	
	R2V18803	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 HR	1988	REFINED	
	R2V28703	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	24 HR	1987	REFINED	
	J2V18411	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	Annual	1984	COARSE	
	J2V18511	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	Annual	1985	COARSE	
	J2V18611	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	Annual	1986	COARSE	
	J2V18711	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	Annual	1987	COARSE	
	J2V18811	OVERLAP / CLASS II INCREMENT (ALTERNATE 1)	PM10	Annual	1988	COARSE	
	J2V28403	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	24 hr	1984	COARSE	
	J2V28503	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	24 hr	1985	COARSE	
	J2V28603	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	24 hr	1986	COARSE	
	J2V28703	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	24 hr	1987	COARSE	
	J2V28803	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	24 hr	1988	COARSE	
	J2V28411	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1984	COARSE	
	J2V28511	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1985	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	J2V28611	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1986	COARSE	
	J2V28711	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1987	COARSE	
	J2V28811	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1988	COARSE	
	R2V28811	OVERLAP / CLASS II INCREMENT (BASE CASE)	PM10	Annual	1988	REFINED	
	J1RS8401	PSD INCREMENT CLASS I	SO2	24 hr	1984	REFINED	
	J1RS8801	PSD INCREMENT CLASS I	SO2	3-HR	1988	REFINED	
	JC1S8401	PSD INCREMENT CLASS I	SO2	3/24 hr	1984	COARSE	
	JC1S8501	PSD INCREMENT CLASS I	SO2	3/24 hr	1985	COARSE	
	JC1S8601	PSD INCREMENT CLASS I	SO2	3/24 hr	1986	COARSE	
	JC1S8701	PSD INCREMENT CLASS I	SO2	3/24 hr	1987	COARSE	
	JC1S8801	PSD INCREMENT CLASS I	SO2	3/24 hr	1988	COARSE	
	J1RS8409	PSD INCREMENT CLASS I	SO2	Annual	1984	REFINED	
	JC1S8409	PSD INCREMENT CLASS I	SO2	Annual	1984	COARSE	
	JC1S8509	PSD INCREMENT CLASS I	SO2	Annual	1985	COARSE	
	JC1S8609	PSD INCREMENT CLASS I	SO2	Annual	1986	COARSE	
	JC1S8709	PSD INCREMENT CLASS I	SO2	Annual	1987	COARSE	
	JC1S8809	PSD INCREMENT CLASS I	SO2	Annual	1988	COARSE	
	J2RN8410	PSD INCREMENT CLASS II	NO2	Annual	1984	REFINED	
	J2CN8410	PSD INCREMENT CLASS II	NO2	Annual	1984	COARSE	
	J2CN8510	PSD INCREMENT CLASS II	NO2	Annual	1985	COARSE	
	J2CN8610	PSD INCREMENT CLASS II	NO2	Annual	1986	COARSE	
	J2CN8710	PSD INCREMENT CLASS II	NO2	Annual	1987	COARSE	
	J2CN8810	PSD INCREMENT CLASS II	NO2	Annual	1988	COARSE	
	JSR28701	PSD INCREMENT CLASS II	SO2	24 hr	1987	REFINED	
	J2RS8801	PSD INCREMENT CLASS II	SO2	3-HR	1988	REFINED	
	JC2S8401	PSD INCREMENT CLASS II	SO2	3/24 hr	1984	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	JC2S8501	PSD INCREMENT CLASS II	SO2	3/24 hr	1985	COARSE	
	JC2S8601	PSD INCREMENT CLASS II	SO2	3/24 hr	1986	COARSE	
	JC2S8701	PSD INCREMENT CLASS II	SO2	3/24 hr	1987	COARSE	
	JC2S8801	PSD INCREMENT CLASS II	SO2	3/24 hr	1988	COARSE	
	J2RS8709	PSD INCREMENT CLASS II	SO2	Annual	1987	REFINED	
	JC2S8409	PSD INCREMENT CLASS II	SO2	Annual	1984	COARSE	
	JC2S8509	PSD INCREMENT CLASS II	SO2	Annual	1985	COARSE	
	JC2S8609	PSD INCREMENT CLASS II	SO2	Annual	1986	COARSE	
	JC2S8709	PSD INCREMENT CLASS II	SO2	Annual	1987	COARSE	
	JC2S8809	PSD INCREMENT CLASS II	SO2	Annual	1988	COARSE	
	J2P18403	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	24 hr	1984	COARSE	
	J2P18503	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	24 hr	1985	COARSE	
	J2P18603	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	24 hr	1986	COARSE	
	J2P18703	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	24 hr	1987	COARSE	
	J2P18803	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	24 hr	1988	COARSE	
	J2P18411	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	Annual	1984	COARSE	
	J2P18511	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	Annual	1985	COARSE	
	J2P18611	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	Annual	1986	COARSE	
	J2P18711	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	Annual	1987	COARSE	
	J2P18811	PSD INCREMENT CLASS II (ALTERNATE 1)	PM10	Annual	1988	COARSE	
	J2P28403	PSD INCREMENT CLASS II (BASE CASE)	PM10	24 hr	1984	COARSE	
	J2P28503	PSD INCREMENT CLASS II (BASE CASE)	PM10	24 hr	1985	COARSE	
	J2P28603	PSD INCREMENT CLASS II (BASE CASE)	PM10	24 hr	1986	COARSE	
	J2P28703	PSD INCREMENT CLASS II (BASE CASE)	PM10	24 hr	1987	COARSE	
	J2P28803	PSD INCREMENT CLASS II (BASE CASE)	PM10	24 hr	1988	COARSE	
	J2P28411	PSD INCREMENT CLASS II (BASE CASE)	PM10	Annual	1984	COARSE	

	FileName	Analysis	Pollutant	Averaging	Year	Grid	Notes
	J2P28511	PSD INCREMENT CLASS II (BASE CASE)	PM10	Annual	1985	COARSE	
	J2P28611	PSD INCREMENT CLASS II (BASE CASE)	PM10	Annual	1986	COARSE	
	J2P28711	PSD INCREMENT CLASS II (BASE CASE)	PM10	Annual	1987	COARSE	
	J2P28811	PSD INCREMENT CLASS II (BASE CASE)	PM10	Annual	1988	COARSE	

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO

February 11, 1999

RECEIVED
FEB 18 1999
BUREAU OF
AIR REGULATION

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the Draft Prevention of Significant Deterioration Application for Jacksonville Electric Authority's proposed repowering project at the Northside Generating Station in Jacksonville, Florida. The project is located 61 km east of Okefenokee Wilderness and 102 km south of Wolf Island Wilderness, both Class I air quality areas, administered by the U.S. Fish and Wildlife Service. The technical review comments from our Air Quality Branch are enclosed. In summary, we agree that the proposed emission controls represent best available control technology. In addition, we agree that there is low potential for impacts to the Class I areas due to the proposed emissions from this project.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

Sam D. Hamilton
Regional Director

Enclosure

cc: S. Arif, BAR

Technical Review of
Draft Prevention of Significant Deterioration Permit Application
For Jacksonville Electric Authority's Northside Generating Station
Jacksonville, Florida
by
Air Quality Branch, Fish and Wildlife Service – Denver
February 3, 1999

Jacksonville Electric Authority (JEA) is proposing to install two new coal and petroleum coke fired boilers and ancillary equipment at its Northside Generating Station in Jacksonville, Florida. The Northside Generating Station is located 61 km east of Okefenokee Wilderness and 102 km south of Wolf Island Wilderness, both Class I air quality areas administered by the U.S. Fish and Wildlife Service. The project will result in PSD-significant increases in emissions of nitrogen oxides (NO_X), volatile organic compounds (VOC), particulate matter (PM), fine particulate matter less than 10 microns in diameter (PM-10), carbon monoxide (CO), mercury (Hg), and fluorides (F). Emissions (in tons per year – TPY) are summarized below.

POLLUTANT	EMISSIONS INCREASE (TPY)
NO_X	871
VOC	225
PM	99
PM-10	131
CO	5,323
Hg	0.26
F	3.02

Best Available Control Technology (BACT) Analysis

JEA is proposing to repower its Northside Units 1 & 2 by installing two new coal and petroleum coke fired circulating fluidized bed (CFB) boilers each rated at 297.5 megawatt output (2764 mmBtu/hr input). A review of the RACT/BACT/LAER Clearinghouse (RBLC) found eight coal-fired fluidized-bed boilers permitted since 1991. Of those eight, half added Selective Non-Catalytic Reduction (SNCR) to control NO_x emissions to 0.07-0.20 lb/mmBtu; those boilers without add-on NO_x controls had limits of 0.20-0.50 lb/mmBtu. (Because a well-operated CFB can achieve NO_x emissions as low as 0.20 lb/mmBtu without add-on controls, and SNCR can reduce remaining emissions by another 60%, a limit of 0.07 lb/mmBtu is feasible.) Particulate matter (PM) emissions from most of the boilers were controlled by fabric filters (one had an electrostatic precipitator) and PM limits ranged from 0.015 to 0.03 lb/mmBtu. None of the boilers had add-on controls for SO_2. However, they all relied upon the presence of limestone in the fluidized bed to reduce SO_2 emissions to 0.16-0.6 lb/mmBtu.

JEA is proposing to limit NO_x emissions to 0.09 lb/mmBtu. This will be achieved by a combination of the relatively low combustion temperatures found in CFB boilers, which produce low NO_x emissions, plus the addition of SNCR. JEA considered and rejected Selective Catalytic Reduction (SCR) on the basis that SCR is not economically feasible. However, although JEA described the method by which it reached this conclusion, they did not provide actual cost calculations to support it. As an alternative approach, we ran the EPA Integrated Air Pollution Control System Costing Program (version 5a) for JEA's CFB with SCR and found that, not only did the model predict higher NO_x emissions than proposed by JEA, the cost per ton of NO_x removed was well beyond acceptable levels. Therefore, although we encourage applicants such as JEA to provide more information to support their conclusions, in this case the proposed control technology and limit of 0.09 lb/mmBtu represent BACT for a boiler of this very large size. (NO_x is more difficult to control with SNCR as the size of the boiler and firebox increases.)

JEA is proposing to meet a PM limit of 0.011 lb/mmBtu by use of a fabric filter or electrostatic precipitator. We are not aware of any CFB boiler with a lower PM limit.

Because there will be no net increase in SO_2 emissions, SO_2 emissions are not subject to BACT. However, JEA proposes to control SO_2 by the use of limestone in the fluidized bed and by a "polishing" scrubber that would result in 98% overall SO_2 control and an emission rate of 0.2 lb/mmBtu. This level of control would represent BACT.

Mercury emissions are expected to be reduced about 40% by the SO_2 scrubbing system and by the PM control technology. Although additional mercury control could be achieved by use of carbon injection, the cost analysis presented by JEA indicates that it would cost approximately $35,000 for every gram of mercury removed.

Conclusions and Recommendations

We agree with JEA's proposal for BACT. The proposed control technology will result in one of the cleanest coal-fired boiler installations that we are aware of. However, as noted above, we encourage future applicants to provide thorough justification when rejecting certain technologies, such as SCR.

Air Quality Related Values (AQRV) Analysis

JEA performed a regional haze analysis using the Interagency Workgroup on Air Quality Modeling (IWAQM) protocol. The analysis predicted that visibility should not be affected at either Class I area because of the proposed project.

In addition, because of the types and amounts of emissions, there is low potential for effects to other AQRVs at the Class I areas from the proposed project.

Contact: Ellen Porter, Air Quality Branch (303) 969-2617.