Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 18, 1998

Mr. Brian Beals, Section Chief
Air, Radiation Technology Branch
U.S. Environmental Protection Agency
Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

RE: PSD-FL-219 Supplemental Recommended Order

Dear Mr. Beals:

Enclosed is a copy of the Supplemental Recommended Order for the Florida Power and Light Company's Manatee Orimulsion Project at their Manatee Power Plant in Manatee County, Florida (PSD-FL-219).

Sincerely,

Patty Adams

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

CHF/pa

Enclosures

State of Florida
Division of Administrative Hearings

Sharyn L. Smith
Director and Chief Judge
Ann Cole
Clerk of the Division

The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida
32399-3060

May 7, 1998

W. Douglas Beason, Assistant General Counsel
Department of Environmental Protection
Douglas Building, Mail Station 35
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-0450

Re: In Re: Florida Power & Light Company, Manatee Orimulsion Project, PSD Permit No. PSD-FL-219, DOAH Case Nos. 95-4829, 95-5036, 95-5037, and 95-5598

Dear Mr. Beason:

Enclosed is the Supplemental Recommended Order in the above-referenced case. The exhibits and the transcript were forwarded with the Supplemental Recommended Order entered in Case No. 94-5675EPP, on April 17, 1998.

Copies of the Supplemental Recommended Order and this letter have been furnished to all parties of record. This letter will serve to notify the parties.

As required by Section 120.57(1)(k), Florida Statutes (1997), you are requested to furnish the Division of Administrative Hearings with a copy of the Final Order within 15 days of its rendition.

Sincerely,

J. LAWRENCE JOHNSTON
Administrative Law Judge

JLJ/js

Enclosures

cc: All Counsel/Qualified Representatives of Record

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: FLORIDA POWER & LIGHT COMPANY, MANATEE ORIMULSION PROJECT, PSD PERMIT NO. PSD-FL-219	)	Case Nos. 95-4829 95-5036 95-5037 95-5598

SUPPLEMENTAL RECOMMENDED ORDER

On January 15-16, 20-23, and 26-29, and February 3-4, 1998, an evidentiary hearing was held in this case in Palmetto, Florida, before J. Lawrence Johnston, Administrative Law Judge, Division of Administrative Hearings, as a result of the Order of Remand entered by the Department of Environmental Protection (DEP) on October 13, 1997.

APPEARANCES

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For City of St. Petersburg:

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City of St. Petersburg
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STATEMENT OF THE ISSUES

The issues on remand are limited to those encompassed by the New Conditions on the Orimulsion Conversion Project proposed by Florida Power & Light Company (FPL) that are pertinent to FPL's application for a Prevention of Significant Deterioration (PSD) air construction permit--specifically, the proposed further reductions in emissions of nitrogen oxides (NOx) and particulate matter (PM) from the Plant. The Siting Board remanded for a determination as to whether the proposed reductions are scientifically and technically achievable, in particular considering the relative size, distribution, and other characteristics of particulate matter expected to be emitted, as well as whether there may be an increase in the emission of small particulates over those historically emitted and, if so, whether such increase would present an increased public health or environmental risk.

PRELIMINARY STATEMENT

These cases (the PSD cases) originally were consolidated with an application for site certification of the Manatee Orimulsion Conversion Project filed by FPL under Section

403.5175, Florida Statutes (DOAH Case No. 94-5675EPP, or the EPP case).

The consolidated cases were heard from November 28 through December 13, 1995. The parties in the original hearing were: the applicant, FPL; DEP; the Southwest Florida Water Water Management District (SWFWMD); Manasota-88, Inc. (M-88); Manatee County Save Our Bays Association (MCSOBA); the Hillsborough County Environmental Protection Commision (EPC); and Pinellas County.

A Recommended Order was entered in the EPP case on February 19, 1996, and in the PSD cases on February 28, 1996.

On April 25, 1996, the Siting Board entered a Final Order (FO) in the EPP case which rejected the EPP RO. In view of the Siting Board's FO, DEP took no action in the PSD cases.

FPL appealed the Siting Board's FO in the EPP case. On May 14, 1997, the District Court of Appeal, First District, held that the FO failed to satisfy the requirements of the APA, and therefore defied judicial review, and remanded "for such further proceedings necessary to produce a final order consistent with" the Court's opinion. Florida Power & Light Co. v. State of Florida Siting Board, 693 So. 2d 1025, 1026 (Fla. 1st DCA 1997).

On September 30, 1997, the Siting Board issued an Order of Remand in the EPP case. It stated in part: "In duly responding to the mandate of the First District Court of Appeal, however, the Board has found that the evaluation it performs today is different than it was when the order of April 25, 1996, was entered in this matter. This difference results from a public

stipulation by [FPL] given on the record before the Siting Board in public session on September 9, 1997, to accept additional conditions under which the Manatee Orimulsion Project, if approved, would be operated by FPL and its contractual affiliates." Among these "New Conditions" accepted by FPL were more stringent air emission limitations for nitrogen oxides (NOx) and particulate matter (PM).

On October 15, 1997, DEP filed its Order of Remand as to the PSD cases that had been consolidated with DOAH Case No. 94-5675EPP for purposes of the original evidentiary hearings in those cases. As a result of the matters presented in a prehearing conference held in the EPP case on October 21, 1997, the PSD cases were consolidated with the EPP case for purposes of the remand hearing, which was rescheduled from November 3 through 7, 1997, until January 15 through 30, 1998.

On October 9, 1997, CSX Transportation, Inc. (CSXT) and AmeriSteel Corporation (AmeriSteel) petitioned to intervene in the EPP case. On October 10, 1997, the Civic Association of Port Tampa (CAPT) and Manatee Citizens Against Pollution (MCAP) petitioned to intervene.

FPL responses in opposition to the CSXT and AmeriSteel intervention petitions were treated in part as motions in opposition to the grant of party status to CSXT and AmeriSteel. (FPL also filed responses to the intervention petitions filed by MCAP and CAPT, but they did not constitute motions in opposition and required no ruling.) Based on the written argument, an Order Denying Motions to Dismiss Intervention was entered on

November 20, 1997. However, over AmeriSteel's objection, it was ruled that, unless stipulated or otherwise established, CSXT and AmeriSteel would have to prove their allegations supporting standing at the remand hearing.

CAPT, MCAP, CSXT and AmeriSteel continued to participate in the consolidated cases; however, none of them ever petitioned to intervene specifically in the PSD cases. AmeriSteel filed an Amended Petition to Intervene in the consolidated cases on December 22, 1997, but it did not specify that it was being filed in the PSD cases, as well as the EPP case. It also made clear that AmeriSteel was only raising economic issues that were not material to the PSD cases. CAPT also did not raise any issues material to the PSD cases, but MCAP and CSXT did.

On November 24, 1997, Friends of the Aquifer, Inc. (FOA) filed a Petition to Intervene; leave to intervene was granted on November 26, 1997, subject to proof of FOA's allegations supporting standing. However, nothing in FOA's Petition to Intervene raised any issues material to the PSD cases, and FOA never intervened specifically in the PSD cases.

The Clean Air Society, Inc. (CASI) filed a Petition to Intervene on December 24, 1997, but it was denied without prejudice on January 7, 1998, because CASI did not certify service on all parties. CASI re-filed its Petition to Intervene, properly certifying service on all parties, on January 13, 1998. While CASI never intervened specifically in the PSD cases, it did raise issues material to the PSD cases.

FPL's Motion in Opposition to City of St. Petersburg's Petition for Leave to Intervene was filed on January 6, 1998. However, the City's Petition for Leave to Intervene had not been docketed. The City's Petition for Leave to Intervene was filed successfully on January 8, 1998, but it did not intervene specifically in the PSD cases. However, the City's Petition for Leave to Intervene did mention some issues material to the PSD cases. No ruling on FPL's Motion in Opposition was made before the start of the remand hearing.

The parties filed a Prehearing Stipulation for Remand Hearing on January 13, 1998. At the start of the remand hearing on January 15, 1998, FPL filed an EPC letter advising that it was the EPC's intention to have included in the prehearing stipulation a statement that the EPC was not opposed to the issuance of a PSD permit to FPL, so long as it was issued subject to the conditions in the Stipulation between FPL, Pinellas County, the EPC and DEP executed on November 28, 1995. Those conditions were recommended in the 1996 ROs.

Also on January 15, 1998, over FPL's objection, the City of St. Petersburg was given leave to participate as a party, subject to proof of its allegations supporting standing; however, it still was not made clear whether the City intended to intervene in the PSD cases as well as the EPP case.

On January 16, 1998, FPL stipulated to the standing of CAPT to be a party to the EPP case; CAPT never expressed any interest in being a party to the PSD cases.

The Statement of Party Position of Pinellas County was filed on January 20, 1998. It stated that, like the EPC, Pinellas County was not opposed to the issuance of a PSD permit to FPL, so long as it was issued subject to the conditions set forth in the Stipulation between FPL, Pinellas County, the EPC and DEP.

During the course of the remand hearing, FPL reached understandings with CASI and MCAP regarding the evidence they would present, and on January 29, 1998, FPL stipulated to their standing to be parties to the consolidated proceeding, subject to those understandings.

On January 16, 1998, the Public Service Commission (PSC) filed an Emergency Motion to Quash Subpoena Duces Tecum (served by M-88 and MCSOBA on Electric and Gas Division Director Joe Jenkins) and Motion for Protective Order. The emergency motions were heard on January 21, 1998, during the remand hearing. The demand for document production contained in the subpoena was withdrawn. Later in the hearing, the motions were granted at least in part, and M-88 and MCSOBA were required to file their proffer of Mr. Jenkins' testimony in writing. The written proffer was filed on February 4, 1998.

At the consolidated remand hearing, FPL called 21 witnesses, mostly experts, and had the following exhibits admitted into evidence: FPL Exhibits R-1 through R-15; R-17 through R-19; R-21 through R-28; R-31; R-34 through R-35; R-38; R-41; R-44 through R-47; R-49; R-53; R-54; R-58 through R-66; R-68 through R-83; R-86 through R-98; R-100 through R-112; R-114 through R-119; R-123; R-124; R-126; R-127; R-130 through R-133; R-135; R-136; R-138; R-

141; R-142; R-144; R-147 through R-148; and R-173. DEP called Hamilton Oven and had DEP Exhibit R-1 (a partial update of the conditions of certification) admitted into evidence. All of this evidence was presented in support of FPL's proposed Orimulsion Conversion Project (the Project), as modified by the previous and new conditions of certification. Much of the evidence in support was material only to the EPP case.

M-88 and MCSOBA called five witnesses, had M-88 O.R. 1 officially recognized, and had M-88 Exhibits R-3, R-6 through R-8, R-11, R-13, R-15, and R-18 through R-20 admitted in evidence. CSXT called four witnesses, including two experts, and had CSXT Exhibits 1 through 5, 7 through 22, 24 and 25 admitted in evidence. AmeriSteel called two witnesses, including one expert, and had AmeriSteel Exhibits R-1, R-2, and R-4 through R-9 admitted in evidence. MCAP called two experts and had MCAP Exhibits 1 through 4, 11, 14, 23, 25, 36, 40C, and 40D admitted in evidence. The City of St. Petersburg called one witness and had CSP Exhibits 1 through 5 admitted in evidence. CASI called two witnesses, including one expert. This evidence was presented in opposition to the Project, as modified by the previous and new conditions of certification; some of the opponents suggested that still more conditions of certification should be added. Much of the evidence in support was material only to the EPP case.

Public comment also was received during the remand hearing. Sworn oral public comment was received from 56 individuals during a portion of the remand hearing devoted to that purpose on January 26, 1998. Many of these individuals submitted written

exhibits with their comments. Additionally, written public comment was received. All of the public comment is included in the record. Much of it was material only to the EPP case.

The hearing was continued until February 3 through 4, 1998, for rebuttal. In rebuttal, FPL recalled seven of its witnesses, called two additional experts, and had FPL Exhibits R-125, R-149, R-151, R-153 through R-160, R-162 through R-171, R-178 and R-179 admitted into evidence. Requests for surrebuttal were denied; proffers of surrebuttal were required to be made in writing.

The parties requested and were given 28 days from the filing of the transcript in which to serve their proposed supplemental recommended orders (PSRO's) with proposed findings of fact and conclusions of law.

As required, written proffers of surrebuttal testimony were filed after the close of the evidence.

Twenty-three volumes of remand hearing transcripts (totaling 2,958 pages) were filed on February 12, 1998, making the PSRO's due to be served on March 16, 1998.

On March 10, 1998, the PSC filed a Motion to Strike Proffered Testimony of Joe Jenkins, together with an Affidavit of Joe Jenkins. M-88 and MCSOBA filed a response in opposition. The PSC's Motion to Strike Proffered Testimony of Joe Jenkins is denied. The purpose of a proffer is to preserve an evidentiary issue for appeal; the appellate court is the appropriate forum for the decision as to the sufficiency of the proffer in light of the PSC's Motion to Strike Proffered Testimony of Joe Jenkins and the Affidavit of Joe Jenkins.

FPL, DEP, M-88/MCSOBA, CSXT, and MCAP timely filed PSRO's. The City of St. Petersburg adopted the PSRO filed by M-88 and MCSOBA. Instead of filing a PSRO, AmeriSteel filed a Notice of Withdrawal of Petition to Intervene.

A separate supplemental recommended order (SRO) was issued in the EPP case. Additional prehearing and hearing details are included in the Preliminary Statement in the EPP SRO.

FINDINGS OF FACT

Facts as to Standing

1. Standing is not an issue as to parties to the PSD cases prior to the Order of Remand. The standing of MCAP and CASI was admitted or stipulated. CAPT only intervened in the EPP case. AmeriSteel withdrew its Petition to Intervene. To the extent that they intended to intervene in the PSD cases, the standing of CSXT, the City of St. Petersburg, and FOA remains at issue.

A. CSXT

2. CSXT owns land underlying the railroad right of way in Manatee and Hillsborough Counties over which FPL proposes to ship Orimulsion flyash and gypsum by rail and approximately 500 acres in and around the Port Tampa channel through which FPL proposes to ship gypsum. CSXT has a valid interest in ensuring that Orimulsion waste products do not spill or leak onto its right-of-way or onto its property at Port Tampa. But this interest does not pertain to FPL's PSD air permit application.

3. CSXT is one of FPL's customers and ratepayers. Last year, CSXT purchased over $330,000 of electricity from FPL. But

this interest also does not pertain to FPL's PSD air permit application.

4. FPL presented convincing evidence that, although CSXT avoided presenting a case on standing on this basis, CSXT's primary interest in this proceeding arises from the negative impact Orimulsion conversion could have on its rail freight business. But this interest also does not pertain to FPL's PSD air permit application.

B. City of St. Petersburg

5. The Florida Legislature has deeded to the City of St. Petersburg title to extensive sovereign submerged lands of Tampa Bay and along the shorelines of Tampa Bay and the Gulf of Mexico. The City of St. Petersburg also has significant landholdings along the shoreline of Tampa Bay, including Maximo Park, Bay Vista Park, the municipal pier, and the Vinoy Basin. The City also owns a public beach fronting on the Gulf of Mexico and located within the City of Treasure Island. The City of St. Petersburg has an interest in protecting these holdings from possible harm from an Orimulsion spill in Tampa Bay. But this interest does not pertain to FPL's PSD air permit application.

6. The City's interest in FPL's PSD air permit application is akin to the interest of Pinellas County and the Hillsborough County EPC.

C. Friends of the Aquifer, Inc. (FOA)

7. FOA scrutinizes pipeline construction and maintenance in Florida and elsewhere to determine and challenge potential damage to the environment. It has challenged the construction of the

proposed Colonial pipeline between Georgia and Florida, the GATX pipeline between Tampa and Orlando, and the proposed GATX pipeline between Tampa and Ft. Myers.

8. FOA has approximately 175 members in central and southwest Florida. Approximately 150 of these members live in Charlotte, Lee, Sarasota, Collier, and DeSoto counties, in such towns as Ft. Myers, Sarasota, Naples, Cape Cod, Punta Gorda, Charlotte Harbor, Naples, and Punta Gorda. Approximately 25 of these members live in Hillsborough, Pinellas and Manatee Counties, in such towns as Tampa, Clearwater, Largo, Zephyrhills, St. Petersburg, and Seminole.

9. More than half of FOA's members own their own homes. Certain of its members live on or work on the water, of which two to three live on the water in Pinellas, Hillsborough, and Manatee counties. They may be affected, as may be the other members, by pollution to the air, groundwater, and aquifers, if the same resulted from the introduction of Orimulsion to the environment. However, FOA sought to intervene in this consolidated proceeding out of concern for FPL's proposed use of an existing 14 1/2 mile pipeline to transmit Orimulsion from Port Manatee to the Plant, and this concern has nothing to do with the PSD air permit cases.

Scientific and Technical Feasibility of NOx and PM Reductions

10. The Siting Board's Order on Remand specified that evidence and public comment be received on, and that a Supplemental Recommended Order be entered addressing, the scientific and technically feasibility of FPL's proposed

reductions in emissions of nitrogen oxides (NOx) and particulate matter.

A. NOx

11. At the 1995 hearing, FPL proposed to use low-NOx burners and reburn technology to control NOx emissions from the converted Manatee Plant units. At that time, FPL agreed to a NOx emission limit of 0.23 lbs/mmBtu (30-day rolling average), with a condition authorizing DEP to establish a lower NOx emission limit if it determined that a rate lower than 0.23 lbs/mmBtu could be practicably and consistently achieved based upon the results of a six-month test program to be developed by a NOx Emissions Reduction Team. (PSD RO ¶41) FPL also agreed to a daily NOx emissions cap of 42.23 tons per day (tpd) during the ozone season (May 15 through September 15) and an annual NOx emissions limit of 13,410 tons per year (tpy).

12. When FPL first proposed the use of low-NOx burners in November 1995, it was assumed that the low-NOx burners would have to carry the full fuel load to the Manatee boilers. When reburn technology was considered for use in conjunction with low-NOx burners, consideration was given to using smaller low-NOx burners so that less thermal NOx would be produced during combustion. The use of reburn technology makes this possible because the reburn system carries some of the fuel load. At the time of the 1995 hearing, FPL's experts testified that, in combination with reburn technology, low-NOx burners would be able to achieve a NOx emissions rate of .27 lbs/mmBtu and that the reburn technology would then further reduce NOx emissions to .23 lbs/mmBtu.

13. Since the 1995 hearing, additional development work has been done. As a result, FPL proposed New Conditions with more stringent NOx limits. The New Conditions contain an emissions rate limit of 0.150 lbs/mmBtu (30-day rolling average) for Orimulsion and high sulfur fuel oil (HSFO), a daily limit of 34.6 tpd during the ozone season, and an annual limit of 7,318 tpy. (Siting Board's Order of Remand, Att. A, at pages 1-2, paragraphs 5 and 7.b.)

14. The scientific and technical feasibility of the New Conditions for NOx emissions depends upon the abilities of the low NOx burners to achieve a NOx emissions rate of just .24 lbs/mmBtu of NOx and of the reburn technology to achieve the rest of the necessary NOx reduction.

15. The required 0.24 lbs/mmBtu emission rate for the low-NOx burners was confirmed in combustion testing conducted in the United Kingdom after the 1995 hearing, during which low-NOx burners achieved maximum NOx emission rates of 0.2 lbs/mmBtu while firing Orimulsion.

16. The post-1995 low NOx burner testing was conducted by International Combustion, Limited (ICL), which was acquired by ABB Combustion Services, Limited (ABB) in December 1997. Although ICL/ABB has not previously designed low-NOx burners specifically for burning Orimulsion, ICL/ABB has extensive experience in combustion technology in general and low-NOx combustion technology in particular. Previously, ICL/ABB has guaranteed NOx emission rates of 0.30 lbs/mmBtu for wall-fired low-NOx burners of liquid fuel. Indeed, there is no evidence

that any low-NOx burner of liquid fuel has achieved a NOx emission rate of 0.24 lbs/mmBtu to date. Nonetheless, based on testing, ICL made a proposal to FPL in April 1997, to guarantee a NOx emission rate of 0.24 lbs/mmBtu for burning Orimulsion at FPL's Manatee Plant, subject to certain conditions.

17. By its terms, ICL's April 1997, guarantee proposal has expired. No contract has been signed for the supply of low-NOx burners by ICL/ABB; nor has a letter of intent been signed by FPL and ICL/ABB. However, a contractual guarantee is not critical to a finding on the scientific or technical feasibility of the low-NOx burners to achieve a 0.24 lbs/mmBtu emissions rate limit.

18. It should be borne in mind that the balanced distribution of air within the windbox of a low-NOx burner system was "essential" to ICL's April 1997, proposal, as the whole function of the burner depends upon the control of the combustion air. ICL's April 1997, proposal cautioned that impacts of the reburn system on the air flow distribution within the windbox of the burner would make it necessary to conduct FD ducting windbox modeling before ICL made any final performance guarantees. Since the reburn system has not yet been completely designed and built in conjunction with the low-NOx burners, this modeling has not yet been conducted.

19. The proposed reburn system also has been optimized since the 1995 hearing. At that time, the reburn system was only in the initial stages of the design process. Experimental testing had been performed on a one million Btu test facility to validate Orimulsion as a reburn fuel. However, a question remained as to

whether reburn technology could achieve NOx emission rates lower than 0.23 lbs/mmBtu.

20. Since the 1995 hearing, Energy and Environmental Research Corporation (EER) has conducted additional development work in accordance with its established design methodology. EER has extensive experience with reburn technology, including research work for the U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy, as well as a commercial application on a utility boiler system (albeit not in the 800 MW class.)

21. After the 1995 hearing, EER fired Orimulsion as a reburn fuel in a pilot-scale ten million Btu testing facility under conditions more representative of those expected for the Manatee Plant units. This additional testing confirmed that use of Orimulsion as a reburn fuel can achieve NOx emission rates comparable to those experienced with natural gas and fuel oils. With a starting NOx emission rate of 0.24 lbs/mmBtu, Orimulsion reburning on this test facility achieved NOx emission rates on the order of 0.1 to 0.11 lbs/mmBtu.

22. After the 1995 hearing, EER also conducted extensive isothermal flow modeling on a 1/18th scale model of the actual Manatee Plant boilers. This modeling enabled EER to specify and optimize the design of the reburn system, including quantification and location of the reburn injectors, and introduction of additional booster fans to achieve desired mixing characteristics.

23. It is uncertain whether EER's modeling was based on accurate low-NOx burner design information. EER's modeling utilizes low-NOx burner design information related to burner

dimensions and air flow distributions within the burners. EER's cold flow (isothermal flow) model is based on a low-NOx burner throat diameter of 41 inches. EER was able to fine tune their modeling because it had this low-NOx burner design information. However, ICL provided only an "indication" of the burner throat diameter to EER (the ICL/ABB witness "guessed" that the diameter supplied was 36 inches.) The actual burner throat diameter is unknown because the burners have not yet been designed.

24. Based on the results of its established design methodology, EER projects that, at an initial low-NOx burner emission rate of 0.24 lbs/mmBtu, the Manatee Plant reburn system will reduce NOx emissions to 0.12 lbs/mmBtu while firing Orimulsion and HSFO. EER has used this design methodology in the past to predict the performance of reburn systems currently in commercial operation. In prior experience, actual performance in commercial operation has been the same or better than EER projections.

25. In October-November 1997, EER demonstrated that Orimulsion reburning can achieve NOx emission reductions greater than 50 percent on an existing, full-scale (80 MW), tangentially-fired, utility boiler in Hennepin, Illinois. The Hennepin demonstration further validated extension of the EER design methodology to Orimulsion.

26. Since the Hennepin demonstration, EER has provided FPL guarantees that the Manatee Plant reburn system will achieve an emission rate of 0.1255 lbs/mmBtu on a 30-day rolling average (based on a low-NOx burner emission rate of 0.24 lbs/mmBtu). In an earlier April 1997 proposal to FPL, EER expressed reluctance to

guarantee emission rates at this level, based on the lack of experience with Orimulsion as a reburn fuel in a full-scale boiler. However, these concerns were expressed before EER demonstrated Orimulsion reburning on the full-scale Hennepin facility.

27. EER's guaranteed NOx emission rate corresponds to a reburn rate of about 23 percent of the total fuel input to the boiler. Project opponents point out that neither the EER pilot-scale testing nor the Hennepin demonstration project achieved reburn rates above 20 percent. However, the 20 percent reburn rate used in the pilot-scale testing is equivalent to the 23 percent rate projected for the Manatee boilers when appropriate design considerations are taken into account. Likewise, the optimum reburn rate for the Hennepin unit was limited to 15-16 percent due to limitations of the existing over-fire-air system. But for that limitation, even greater NOx reductions probably would have been achieved during the Hennepin demonstration.

28. CSXT's expert witness characterized the proposed NOx limit of 0.15 lbs/mmBtu as "aggressive" based on his understanding that low-NOx burners and reburn technology have never been demonstrated to achieve the levels proposed for this Project. However, the CSXT witness has never designed a NOx emissions control system. Moreover, he admitted that it is technically feasible for low-NOx burners to achieve the assumed NOx rate of 0.24 lbs/mmBtu. He also apparently was unaware that reburn technology is achieving NOx emission rates of 0.11 lbs/mmBtu on a large-scale (660 MW) boiler in Italy. Although the Italian boiler uses heavy fuel oil as a reburn fuel, experience indicates that

Orimulsion reburning is at least as effective as heavy fuel oil reburning.

29. EER's April 1997, proposal to FPL refers to a burner design assessment to be conducted as part of EER's design basis document development. EER has not performed this burner design assessment.

30. Until the low-NOx burners and reburn system are designed, built and tested, it is not certain that a NOx emission rate of 0.150 lbs/mmBtu (30-day rolling average) will be achieved. But based on the evidence, it is found that 0.150 lbs/mmBtu (30-day rolling average) is scientifically and technically achievable.

31. FPL and DEP proposed in their proposed supplemental recommended orders setting a NOx emissions limitation of 0.1255 lbs/mmBtu (30-day rolling average), based on the evidence. While the Order of Remand did not request evidence and findings on the question of the scientific and technical feasibility of such a limitation, it does appear that such a limitation would be "aggressive."

32. The actual reason FPL and DEP are now proposing an even lower emissions limitation for NOx appears to be that a NOx emissions limitation of 0.1255 lbs/mmBtu is necessary in order to achieve the 7,318 tpy annual emissions limitation in the New Conditions at an 87 percent capacity factor. It was pointed out in the remand hearing that enforcement of an annual emissions limitation may be problematic and that, for purposes of determining whether BACT review for NOx is required, historical

emissions must be compared to enforceable emissions limitations. See Finding 48, infra.

33. The evidence is that the daily NOx emissions limit during the ozone season in the New Conditions--34.6 tpd--is scientifically and technically achievable. As M-88 and MCSOBA pointed out, NOx emissions of .1255 lbs/mmBtu would achieve daily emissions of less than 34.6 tpd. The daily cap requires only that NOx emissions, after conversion, be 0.188 lbs/mmBtu or less.

B. PM

34. Particulate matter (PM) emissions were not disputed during the 1995 hearing. Nevertheless, the New Conditions contain more stringent particulate emission limits, including a short term limit of 0.02 lbs/mmBtu rather than the 0.03 lbs/mmBtu limit contemplated in 1995, and an annual limit of 1,202 tpy rather than 1,768 tpy limit proposed in 1995. Siting Board's Order of Remand, Att. A, at p.1, ¶4.a. The Order of Remand requests consideration of whether these reductions are scientifically and technically achievable. Siting Board's Order of Remand, at p.3, ¶2.

35. As with NOx, there is no fundamental difference in the particulate controls that FPL now proposes from that contemplated in 1995. The only change is that the efficiency of the proposed electrostatic precipitators (ESP) has been increased from 90 to 94 percent through a 20 percent increase in the surface area of the ESP. With the increased efficiency, the ESPs will achieve an emission rate of 0.018 lbs/mmBtu.

36. Although the proposed flue gas desulfurization (FGD) system is designed primarily for sulfur dioxide (SO_2) control, it

also will remove particulate matter. Based on conservative estimates, the FGD will remove approximately 20 percent of the total PMexiting the ESP. At an 87 percent capacity factor, this translates to an emission rate of 0.0144 lbs/mmBtu or 840 tpy from the Manatee Plant stacks.

37. In addition to stack emissions, there will be particulate emissions from materials handling and fugitive sources after conversion to Orimulsion. At the 1995 hearing, it was contemplated that there would be 36 tpy of particulate emissions associated with materials handling and fugitive sources.

38. Primarily as a result of the decision to use rail, FPL's estimate of handling and fugitive emissions has been reduced to 18 tpy. Among other things, emission units once contemplated have been eliminated, including a limestone blending silo, three limestone day silos and associated conveyors, and three limerock/limestone precrushers identified as emission units 08 and 10 through 18 in Condition XIII.B.17 of the proposed Conditions of Certification.

39. With the more efficient ESP and the revised estimate of materials handling and fugitive emissions, FPL now estimates that maximum facility-wide particulate emissions (i.e., from stacks, as well as materials handling and fugitive) will not exceed 858 tpy after conversion. As a result, since the Order of Remand, FPL agreed to a further reduction in the annual PM limit in New Condition XXXI.B.4 to 858 tpy. (This Additional Condition is reflected in DEP Exhibit R-1.)

40. The evidence is uncontroverted that future particulate emissions from the stack will not exceed 840 tpy. However, CSXT's expert attempted to dispute FPL's estimate of future materials handling and fugitive emissions. Based on his own calculations of materials handling and fugitive emissions, the CSXT expert estimated total particulate emissions to be 1,112 tpy, as compared to FPL's estimate of 858 tpy. However, this 254 tpy difference is attributable to incorrect technical and regulatory assumptions made by the CSXT expert.

41. The primary difference between the FPL and CSXT estimates concerns the emission rate assumed for baghouse collectors. The CSXT expert calculated an additional 212 tpy of emissions from these sources by assuming an emission rate of 0.02 grains per dry standard cubic foot (gr/dscf), rather than the 0.003 gr/dscf rate used by FPL. As FPL's expert explained on rebuttal, however, the bag filters to be used for this Project have always been designed to achieve the lower 0.003 gr/dscf rate. Although DEP originally included the 0.02 gr/dscf limit in the proposed permit because it is a DEP rule requirement, there is no reason that the lower 0.003 gr/dscf rate could not be substituted in the final Conditions of Certification.

42. The remaining difference between the CSXT and FPL estimates results from: the CSXT witness' use of inaccurate moisture and silt contents for limestone and flyash in his emission calculations; his inclusion of emission estimates for sources that have been eliminated from FPL's proposal; his overstatement of emissions from negligible sources; and his assumption that fugitive

emissions would be uncontrolled despite a longstanding DEP rule which requires use of reasonable precautions, including paving, watering, enclosing, and compacting, to "prevent" such emissions. (Fla. Admin. Code Rule 62-296.320(4)(c)).

43. The evidence clearly demonstrates that the particulate emission limits set forth in the New Conditions are scientifically and technically achievable.

Applicability of BACT Review for NOx, PM and CO

44. In the Recommended Order entered on February 19, 1996, Best Available Control Technology (BACT) determinations were made for NOx and carbon monoxide (CO). The Order of Remand did not specify that new BACT determinations should be made, and none were. FPL and DEP took the position that, with the emissions reductions in the New Conditions, BACT for NOx no longer applies. Opponents of the project took the position that, not only should BACT apply to NOx, it also should be applied to PM. They also questioned whether the proposed project, with the New Conditions, will be able to meet the BACT limits for CO previously established in the original Recommended Order.

A. NOx

45. Under DEP's Prevention of Significant Deterioration (PSD) rules, modifications to major facilities, such as the Manatee Plant, are subject to BACT and other PSD review requirements for all pollutants which will experience a "significant net emissions increase." Florida Administrative Code, Rule 62-212.400(2)(f). The rules define "significant net emissions increase" as any

emissions increase equal to or greater than the applicable "significant emission rate." Florida Administrative Code, Rule 62-212.400(2)(e)2. For NOx, the "significant emission rate" is 40 tpy. Florida Administrative Code, Rule 62-212, Table 212.400-2.

46. At the 1995 hearing, the evidence indicated that historical actual NOx emissions were 7,318 tpy based on fuel usage data from 1993-94 and the historical NOx emission limit of 0.3 lbs/mmBtu. At that time, the evidence indicated that annual NOx emissions would increase by 6,092 tpy to 13,410 tpy after conversion. (PSD RO ¶23) Because this would have been a "significant net emissions increase," PSD review, including determination of BACT, was conducted for NOx emissions. (PSD RO ¶¶25-50)

47. Under the New Conditions, annual NOx emissions would be capped at 7,318 tpy. (Siting Board's Order of Remand, Att. A., at p.1, ¶5.) If historical actual emissions were 7,318 tpy as established in 1995, there would be no increase in NOx emissions, and BACT would not apply for NOx.

48. As previously mentioned, opponents of the project raised the question whether the tpy cap is an enforceable emissions limit. In order to meet this objection, FPL and DEP have proposed reducing the emissions limit for NOx still further, to .1255 lbs/mmBtu (30-day rolling average). See Finding 32, supra. But an operating margin should be built into a 30-day rolling average emissions limit, and it is questionable whether this most stringent NOx limitation is scientifically and technically achievable.

49. Project opponents also contend that historical actual emissions were lower than the 7,318 tpy assumed in 1995. They point out that DEP originally estimated historical actual emissions to be 6,827 tpy based upon 1993-94 fuel usage and the average of four stack tests conducted on the Manatee Plant during the same period. CSXT also calculated historical actual emissions to be 5,478 tpy based upon 1993-94 fuel usage and continuous emission monitoring (CEM) data collected in the last two quarters of 1996, and first two quarters of 1997. If historical actual emissions were as low as 6,827 or 5,478 tpy, the annual tonnage cap of 7,318 tpy included in the New Conditions would represent a "significant net emissions increase," and BACT would still apply for NOx.

50. The 6,827 tpy figure originally calculated by DEP is based on the inappropriate use of stack test data to determine annual emissions. DEP rules specifically state that "stack tests, standing alone, are not normally considered scientifically accurate and verifiable for determining annual emissions for fee purposes." Florida Administrative Code, Rule 62-213.205(1)(e). Stack tests reflect only snapshots in time and may not be representative of operation over an entire year. Moreover, stack tests for NOx rely upon an indirect method of determining heat input which effectively overstates heat inputs in terms of lbs/mmBtu.

51. When asked about DEP's original estimate of 6,827 tpy at the 1995 hearing, the Chief of DEP's Bureau of Air Regulation agreed that the evidence suggested that 7,318 tpy was a more appropriate estimate of historical NOx emissions.

52. The CSXT expert's estimate of 5,478 tpy also understates historical actual emissions by improperly using one year's worth of CEM data from 1996-97 to calculate historical actual emissions during the two-year 1993-94 period. The CSXT expert acknowledged that NOx emission rates are generally higher when utility units operate at higher loads; yet he did not account for differences in loads between 1993-94 and 1996-97. By contrast, FPL's expert examined two full year's worth of data from 1995-96, as well as a portion of 1997. He then adjusted the CEM data to account for higher loads experienced in 1993-94 to arrive at the conclusion that the proper emission rate to apply to the 1993-94 fuel use is 0.3 lbs/mmBtu.

53. FPL contends that, when factors such as load and heat input are factored into the earlier DEP calculation of 6,827 tpy and the CSXT calculation of 5,478 tpy, it can be determined that the proper historical emissions rate to be applied to the 1993-94 fuel use to obtain the most accurate historical NOx emissions is 0.3 lbs/mmBtu. FPL insists that it is just a coincidence that this happens to be the permitted emissions limit for NOx under the existing permit.

54. FPL's expert testified that the adjusted continuous emission monitoring limit "could have been" 0.3 lbs/mmBtu at a 56 percent load factor using this analysis. CSXT raised the question how this could be since the relationship between increases in load and emission rate is linear, and stack test information from 1993 and 1994, performed when the units were operating at 80-90% of capacity, show emission limits less than

the 0.3 lbs/mmBTU number. But this apparent inconsistency only serves to demonstrate why long-term emission rates should not be extrapolated from stack test "snapshots."

55. CSXT's expert also pointed out that Annual Operation Reports (AORs) for 1993-94 contained average annual emissions of 7,198 tpy. However, the AOR's do not reflect heat content of the fuel used during the 1993-94, as does the 7,318 tpy figure calculated by FPL.

56. The evidence presented at the remand hearing demonstrates that there are multiple, if not unlimited, ways to calculate historical actual emissions from the Manatee Plant. Some calculations are sounder than others. Based on all the evidence, it is found that the historical NOx emissions are 7,318 tpy figure calculated by FPL, and certainly not less than the 7,198 tpy reflected in the AOR's.

57. If historical NOx emissions were lower, or if the emissions rate limit for NOx imposed as a result of this proceeding is exceeded, it is possible to ensure that the project will not trigger BACT review by requiring FPL to adjust its capacity factor in accordance with actual future NOx emissions from the Plant. For example, assuming historical NOx emissions of 7,318 tpy and the intended 87% capacity factor for the Plant burning Orimulsion, the actual NOx emissions rate cannot exceed 0.1255 lbs/mmBtu (30-day rolling average); but if it does, the Plant's capacity factor can be reduced as necessary to maintain annual NOx emissions at 7,318 tons. Of course, reducing the

Plant's capacity factor will impact the economics of the project and system-wide emissions reductions. See Finding 90, infra.

58. Opponents of the proposed project also contend that 1993-94 are not representative years for calculating historic NOx emissions for the following reasons: first, they are the two highest years for NOx emissions from 1987 to 1996; and, second, steam atomizers that would have the effect of reducing NOx emissions were installed at the Manatee Plant in late 1994 or 1995. But the greater weight of the evidence was that, regardless of those facts, the years 1993-94 were the appropriate years to use for determining historical NOx emissions at the Plant for purposes of determining whether BACT review for NOx is required.

B. PM

59. At the 1995 hearing, the evidence indicated that historical emissions of both total particulate and particulate with an aerodynamic diameter of less than 10 microns (PM_{10}) were 1,768 tpy. The evidence also indicated that the Project would not increase emissions above the historical 1,768 tpy figure. Accordingly, PSD review was not conducted for total particulate or PM_{10}.

60. The level of historical particulate emissions was not the subject of dispute at the 1995 hearing and is not placed at issue by the Order of Remand. Nevertheless, at the remand hearing, CSXT's expert presented new estimates of historical PM_{10} emissions ranging from 813 to 1,242 tpy based on recent particle size

distribution data which indicates that PM_{10} represents only a portion of total particulate emissions from the existing Plant.

61. The CSXT expert's lower historical PM_{10} emissions estimate of 813 tpy is invalid because it is based on particle size distribution data which were collected under operating conditions which are not representative of historical operation of the Manatee Plant units. FPL historically conducted soot-blowing on a nearly continuous basis; however, the particle size data used to calculate the 813 tpy estimate was collected during soot-blowing but after the Plant had not conducted soot-blowing for an extended period, resulting in a lower percentage of PM_{10}.

62. The CSXT expert's higher estimate of 1,242 tpy utilized particle size data that were collected during normal operation. However, this estimate was based on the CSXT expert's incorrect reading of read the existing Manatee Plant permit to limit soot-blowing to three hours per day. The actual language of the permit does not limit the amount of soot-blowing; rather, it authorizes higher PM emissions for up to three hours of soot-blowing per day.

63. Actually, PM_{10} is approximately 80% of total PM. Instead of 1,768 tpy, historical PM_{10} actually was approximately 1,414 tpy. (CSXT's expert assumed that PM_{10} is 76% of total PM, but 80% is more accurate.)

64. Based on the evidence, PSD review is not necessary for either total PM or PM_{10}. PSD review would not apply for PM_{10} even if historical PM_{10} emissions were 1,242 tpy. At that level of historical emissions, the 1,202 tpy limit in the New Conditions would result in a decrease in PM_{10} emissions. A fortiori, both the

858 tpy future emissions calculated by FPL and the 1,112 tpy estimated by CSXT's expert result in a decrease from historical PM_{10} emissions.

65. Some of the opponents (M-88, MCSOBA, MCAP and the City of St. Petersburg) contend that FPL erroneously calculated future PM emissions for purposes of determining applicability of BACT by using projected actual future stack emissions (840 tpy out of the 858 tpy total facility emissions) at 0.144 lbs/mmBtu instead of at the emissions limit in the New Conditions (0.02 lbs/mmBtu). But the opponents misconstrued the testimony of CSXT's expert in that regard. The expert did not testify that FPL had to use the emissions limit to calculate the stack component of the Plant's PM emissions; to the contrary, the testimony actually was that FPL was entitled to use projected actual future emissions for the stack component as a result of the applicable steam electric generating facility exemption.

C. CO

66. Not only do opponents say that BACT should apply to NOx and PM, they also question whether FPL will continue to be able to meet the BACT limits for CO (0.325 lbs/mmBtu) with the new proposed low-NOx burner and reburn technology installed, based upon statements in EER's April 1997, proposal for the Manatee Plant reburn system.

67. The concerns expressed in EER's proposal were included to justify the use of additional booster fans to provide needed mixing energy in the reburn zone to control CO emissions. FPL has agreed to the additional booster fans and other design and operational

recommendations to ensure adequate mixing to control CO emissions. With these and other assurances, including a multi-point continuous monitoring system for CO, EER has guaranteed CO emission rates below the proposed 0.325 lbs/mmBtu emission limit. While there are no reliable tools that can precisely predict CO emission rates, EER's experience indicates that the Manatee Plant reburn system will achieve the proposed CO emission limit.

Relative Size, Distribution and Characteristics of PM

68. The Siting Board's Order on Remand specified that evidence and public comment be received on, and that a Supplemental Recommended Order be entered addressing, the relative size, distribution, and characteristics of PM expected to be emitted from the Plant with the pollution control equipment (PCE) proposed by FPL.

69. Until recently, "small particulates" were generally considered to be particles with an aerodynamic diameter of less than 10 microns (PM_{10}). On July 18, 1997, however, the EPA promulgated revisions to the AAQS for particulate to include standards for particles smaller than 2.5 microns ($PM_{2.5}$), which would now define the term "small particulates."

70. Data collected while firing oil at the Manatee Plant indicate that the relative distribution of small particulates ($PM_{2.5}$ or less) ranges from 65 to 76 percent of total particulate emissions. (This means that a very large percentage of the Orimulsion PM_{10} emissions referenced in Finding 101, supra, actually also are $PM_{2.5}$ in size). Based on historical total particulate

emissions of 1,768 tpy, this translates to historical small particulate emissions of 1,149 tpy to 1,343 tpy.

71. While firing Orimulsion, the relative distribution of small particulates is greater--roughly 90 percent. However, with installation of the new PCE now proposed, small particulate emissions will decrease as a result of the Project.

72. The ESP will remove 94 percent of the small particulates, resulting in an emissions rate of less than 0.016 lbs/mmBtu. Additionally, based on conservative estimates from data provided by the FGD manufacturer, the FGD system will remove 10 percent of the remaining small particulates that exit from the ESP. Even making the conservative assumption that all particulate emissions will be small, the resulting out-the-stack emissions rate for small particulate will be just 0.0144 lbs/mmBtu. At an 87 percent capacity factor, this translates to annual small particulate emissions of 840 tpy while firing Orimulsion--a decrease in small particulate emissions compared to the historical emissions of 1,149 tpy to 1,343 tpy.

73. In addition to reducing stack emissions of small particulates, the Project will reduce the formation of small particulates in the ambient air. Between 40 and 50 percent of the small particulates in the ambient air are formed from gaseous SO_2 emissions. With the installation of the proposed FGD system, however, SO_2 emissions from the Manatee Plant will be reduced by approximately 13,000 tpy as compared to historical levels. (PSD RO ¶23) This reduction in actual SO_2 emissions will result in about

2,000 tpy less $PM_{2.5}$ forming in the ambient air of the Tampa Bay region from the conversion of gaseous SO_2 to particulate sulfates.

74. FPL presented no evidence as to the distribution of particulate smaller than 2.5 microns, either during historical burning of fuel oil at the Manatee Plant or during proposed burning of Orimulsion after conversion. An MCAP witness pointed to studies indicating that approximately half of the particulate emitted from burning Orimulsion will be in the range of 0.2 to 0.3 microns in size.

75. Witnesses for CASI and MCAP opined that the Project would increase emissions of "submicron" particles based on the higher distribution of those particulates associated with firing Orimulsion. They also expressed concern that ESPs cannot efficiently collect such "ultrafine" particles.

76. Ultrafine particulate of the size associated with Orimulsion creates special difficulties that, in general, can adversely affect the removal efficiencies of ESPs, as compared to efficiencies when burning fuel oil. One is that burning Orimulsion requires continuous soot-blowing, which may increase PM emissions. Another is that, because of the ultrafine nature of Orimulsion particulate, the particulate in the form of flyash must be allowed to build up longer on the ESP before the particulate is knocked from the precipitator. This can cause a loss of precipitator efficiency during the longer buildup. A third is that it might be more likely that particulate will pass through the precipitator due to increased rate at which air is required to pass through the ESP to compensate for the higher water content of Orimulsion.

77. Neither the MCAP nor the CASI witness was familiar with the specific ESP proposed by FPL. By contrast, FPL's expert reviewed the actual design of the ESP and modeled its performance using an EPA model which accounts for particle size. That analysis confirmed that the efficiency of the actual ESP designed for the Project will equal or exceed 94 percent for particles in the range of 1 to 0.1 microns.

78. As to other characteristics of the PM expected to be emitted, the composition of PM emissions from burning Orimulsion is essentially the same as the composition of Orimulsion flyash (the flyash being the particulate which the ESP captured.) According to the Material Safety Data Sheet (MSDS), the Orimulsion flyash (aka Powdered PCS Additive) is by weight between 1.9 to 2.7 percent nickel as nickel oxide, and 11.9 to 19.4 percent vanadium as vanadium pentoxide. All nickel compounds are NTP carcinogens, and are listed by the International Agency for Research on Cancer as class 1A carcinogens. Vanadium pentoxide is listed as an "Extremely Hazardous Substance" under SARA Title III (Superfund Amendment and Reauthorization Act of 1986).

79. The evidence at the 1995 hearing indicated that the addition of PCE would decrease the amount of metals, including vanadium and nickel, which make up a portion of the particulate matter. With the more efficient ESP and lower particulate emission limits now proposed, emissions of those metals will be less.

80. A witness for MCAP opined that emissions of vanadium, nickel, and magnesium will increase after conversion. However, this witness had no basis to compare historical and future

emissions because he was not familiar with the existing pollution controls on the Manatee Plant or the specific PCE proposed for the Project.

81. One witness for CASI opined that firing Orimulsion will increase the formation of sulfur trioxide (SO_3) and that this would preclude FPL from meeting the proposed opacity limit of 20 percent. However, the CASI witness was unaware of the SO_3 controls proposed for the Project. SO_3 will react with magnesium in the fuel, and magnesium hydroxide will be added to the system for additional SO_3 control. Magnesium hydroxide injection has been demonstrated to control SO_3 at an Orimulsion-fired power plant in Denmark.

82. With the installation of the ESP and FGD, as well as the proposed SO_3 controls, the 20 percent opacity limit is achievable. Although the proposed SO_3 controls will result in the formation of particulate, this additional particulate loading has been accounted for in the design of the ESP.

83. The CASI witness also expressed concern that proposed Condition of Certification XIII.B.13 would enable FPL to eliminate the proposed 20 percent opacity limit at the stack. However, the CASI witness misunderstood the proposed Conditions of Certification. Proposed Condition XIII.B.13 establishes an opacity limit between the ESP and FGD system, not at the stack. Although the condition would authorize FPL to request modification of the opacity limit between the ESP and FGD so long as the particulate emission limits are met, it would not affect separate proposed Condition XXIX.F.3.c, which would require FPL to meet a 20 percent opacity limit out the stack.

Public Health Risk from Increase in Small Particulates

84. The Siting Board's Order on Remand specified that evidence and public comment be received, and that a Supplemental Recommended Order be entered, addressing the issue whether any increased emission of "small particulates" would present an increased public health or environmental risk.

85. Small or ultrafine particulate is a valid health concern. Humans are designed to handle particulate larger than 10 microns in size without difficulty. They are removed by cilia in the air passage-ways and trapped by mucus, which can be eliminated by coughing. Particles smaller than 10 microns in size pass progressively deeper into the respiratory system. Particles smaller than 2.5 microns can pass into the alveolar air sacks of the lungs, where they cannot be eliminated by coughing, but rather are ingested by macrophage cells and handled by the body's lymphatic system. Such particles are eliminated relatively slowly or not at all. Such particles which are embedded in the lung cause the black lung characteristic of black lung disease.

86. One MCAP witness, as well as speakers during public comment, expressed concerns about the health effects of ultrafine particulate emissions. However, while it is true that burning Orimulsion results in a higher percentage of small and ultrafine particulate, as compared to burning fuel oil, the air quality impact analysis submitted by FPL demonstrates that, with the PCE planned for the conversion project, the maximum impact of the Plant stacks would be less than three percent of the 24-hour $PM_{2.5}$ standard and less than one percent of the $PM_{2.5}$ standard on an

annual basis. Moreover, the modeling shows that emissions from all sources, including the stacks and materials handling, will not cause or contribute to violations of the new AAQS for $PM_{2.5}$.

87. MCAP, M-88, and MCSOBA introduced evidence intended to prove that there is no safe threshold for exposure to particulate matter, especially small or ultrafine particulate matter. The evidence consisted of Federal Register, Vol. 52, No. 126, Pg. 24642 (July 1, 1987), and references to Dr. Dockerty's 1989 study of the incidence of respiratory diseases in children. Dr. Dockerty's study established a direct correlation between respiratory diseases, such as asthma and chronic bronchitis in children, and particulate matter, even in cities having air quality levels which did not exceed the federal PM_{10} standards and guidelines in place at that time.

88. Since Dr. Dockerty's study, the federal EPA has given much consideration to the subject, and after extensive peer review and wide public dissemination, promulgated the new $PM_{2.5}$ standards. The new $PM_{2.5}$ standards were designed specifically to address PM with a higher small and ultrafine component than was addressed by the old PM_{10} standards. The evidence is that the new $PM_{2.5}$ standards represent a reasonable and appropriate surrogate for particulates of that size and smaller. Compliance with the $PM_{2.5}$ standards should adequately address health concerns regarding PM arising from the burning of Orimulsion.

Other Issues Within New Conditions

89. The Siting Board's Order on Remand also requested that evidence and public comment be received and considered on "issues

encompassed within the New Conditions" in general, in addition to those specified.

90. Based on evidence submitted in the 1995 hearing, the original Recommended Order found that the Project would result in significant reductions in air emissions of all pollutants except CO on a system-wide basis throughout FPL's generating system. (PSD RO ¶24). At the remand hearing, FPL confirmed this finding based on updated dispatch model runs under both the base case and acid test scenarios. The updated analysis assumed the lower NOx emission rate of 0.1255 lb/mmBtu (except for 10 days of oil-firing at 0.27 lbs/mmBtu) and a lower particulate emission rate of 0.02 lbs/mmBtu for the converted Manatee Plant. For the various other units in FPL's system, however, the updated analysis assumed the same emission rates as the earlier 1995 analysis.

91. FPL's 1995 calculations of historic air emissions from other power plants throughout its system were not based solely upon actual test data. FPL used a combination of methodologies to calculate these systemwide emissions, including calculations from permit limits, calculations from emission factors and actual emission test data. As such, FPL's systemwide air emission calculations may not precisely depict the actual systemwide air emission reduction which will result from the Orimulsion conversion project. To the extent that these calculations over-estimate the existing systemwide emissions, they will also over-estimate systemwide air emission reduction due to less operating time for these plants.

Conditions of PSD Permit

92. The prior PSD RO recommended approval subject to conditions contained in the December 5, 1995, Draft Permit that was filed on January 17, 1996. The hearing on remand began with proposed new conditions of certification. The proposed new conditions of certification that are pertinent to the PSD permit application are included in DEP Exhibit R-1. These should be added to the PSD permit conditions. The evidence adduced during the remand hearing indicated that still more permit conditions would be appropriate and should be added to the PSD permit conditions.

93. The NOx emission rate limitation reflected in New Condition XIII.5 should be further reduced to 0.1255 lbs/mmBtu.

94. If necessary to meet the annual NOx emissions limitation of 7318 tpy reflected in New Condition XIII.5, plant capacity should be reduced below 87% as necessary to meet the annual limit.

95. PM limitations reflected in the New Conditions should be further modified as follows:

> (a) an out-the-stack short-term particulate limit of 0.0144 lbs/mmBtu should be substituted for the 0.02 lbs/mmBtu limit reflected in Condition XIII.4.a.;
>
> (b) a total annual facility limit of 858 tpy should be substituted for the 1,202 tpy limit reflected in New Condition XIII.4.a. (as already reflected in DEP Exhibit R-1);
>
> (c) an emission limit of 0.003 gr/dscf should be substituted for the 0.02 gr/dscf limit specified in Conditions XIII.B.17.c.(2) and XIII.B.19;
>
> (d) implementation of reasonable precautions to prevent fugitive emissions in accordance with Florida Administrative Code Rule 62-296.320(4)(c) should be required; and

(e) emission units 08 and 10 through 18 should be deleted from the sources listed in Condition XIII.B.17.

See Findings 36, 38, 39, 41, and 42, supra. See also FPL PSRO ¶41.

CONCLUSIONS OF LAW

Propriety of Remand

96. Several project opponents took the position in the EPP case that the remand should be dismissed for various reasons. These arguments were rejected. See EPP SRO ¶¶ 306-324. M-88 and MCSOBA also contend that the PSD remand should be dismissed for the same reasons, and those arguments likewise are rejected.

Manatee County Ordinance

97. During the prehearing conference on October 21, 1997, the parties raised a question as to the applicability of Manatee County Ordinance 96-22. M-88 and MCSOBA take the position that state and federal law require that it be incorporated into the PSD permit.

98. Manatee County Ordinance 96-22 was adopted in October 1996. Section V. D. of the ordinance prohibited burning fuel containing more than one percent sulfur. Elsewhere the ordinance established emissions limitations when fuel with more than one percent sulfur is burned.

99. In the Amended Prehearing Order entered on October 22, 1997, the parties were ordered to brief the issue (as well as other pertinent changes in the law since the 1995 evidentiary hearing in this case). Briefing was addressed only to Manatee County Ordinance 96-22. Manatee County's brief asserted that

Manatee County did not intend for Section V. D. of the Ordinance to apply to FPL's SCA.

100. Based on the parties' briefs, an Order Regarding Manatee County Ordinance 96-22 was entered on December 18, 1997. It concluded that Section V. D. of Manatee County Ordinance 96-22 was not intended to and does not apply to FPL's SCA on remand and that FPL does not need a variance from the Section V. D. prohibition in order to receive site certification.

101. There was additional oral argument on the issue at the remand hearing. M-88 and MCSOBA asserted that subsequent amendments to Manatee Ordinance 96-22 made clear an intent to apply Section V. D. of the ordinance to FPL's SCA. On January 20, 1998, M-88 and MCSOBA filed a motion to reconsider and an amended motion to reconsider the December 18, 1997, ruling. Initially, the amended motion to reconsider was taken under advisement. FPL filed a response in opposition, and DEP made oral argument in opposition. Manatee County continued to assert that Section V. D. of the ordinance did not apply to FPL's SCA. While the matter was under advisement, some evidence was elicited as to the issue during the remand hearing. Eventually, the amended motion to reconsider was denied. The additional argument and evidence supported the conclusions that Section V. D. of the ordinance was not intended to and does not apply to FPL's SCA and that FPL was not required to obtain a variance. Likewise, Section V. D. of Ordinance 96-22 does not apply to the pending PSD permit.

Natural Gas Alternative

102. M-88 and MCSOBA have taken the position that an issue on remand should be whether FPL's PSD permit application should be denied because FPL can burn natural gas at the Manatee Plant instead of Orimulsion. They contend that new evidence as to increased capacity in the existing natural gas pipeline from upgrading the pipeline to allow higher gas pressures makes natural gas a viable alternative at this time.

103. Nothing in the Siting Board's Order of Remand suggested that an issue on remand was whether FPL's SCA should be denied because FPL can burn natural gas at the Manatee Plant instead of Orimulsion. As a matter of law, it was concluded that the issue was outside the scope of the Siting Board's Order of Remand and that there was no jurisdiction to consider the issue on remand.

104. There also was no logical reason why increased pipeline capacity should have given rise to this issue. The EPP RO did not reject the natural gas alternative due to unavailability of natural gas but rather due to the relatively higher cost of natural gas, as compared to #6 fuel oil, over the next 20 years. (EPP RO ¶13) In addition, logically, the use of natural gas should not be considered an "alternative" to an application to convert to Orimulsion since the imposition of such an "alternative" actually would have amounted to a denial of FPL's SCA.

105. The federal Environmental Protection Agency would characterized this as "redefining the source," which is something

it does not require under its PSD permitting regulations. See In re: Hawaiian Commercial & Sugar Co., PSD Appeal No. 92-1, 4 E.A.D. 95, 1992 WL 191948, at pp. 3-4 (E.A.B. 1992); In re: Old Dominion Electric Cooperative, PSD Appeal No. 91-39, 3 E.A.D. 779, 1992 WL 92372 (E.A.B. 1992).

BACT

106. Several project opponents have taken the position that the Best Available Control Technology (BACT) should have been an issue on remand. But nothing in the Siting Board's Order of Remand suggested that BACT was an issue on remand. As a matter of law, it was concluded that the issue was outside the scope of the Siting Board's Order of Remand and that there was no jurisdiction to consider the issue on remand.

107. As a factual matter, as a result of the emissions limitations proposed in the New Conditions, BACT for NOx and PM no longer applies, and the BACT for CO, which was established in the prior ROs based on evidence presented during the 1995 hearing, will be met under the New Conditions.

Vacated Siting Board Conclusions

108. The Final Order entered by the Siting Board on April 25, 1997, included a Factual Background, The Application of [Section 403.5175(4)(b), Florida Statutes] Statutory Considerations, and rulings on several exceptions filed by Manasota-88 and MCSOBA. The apparent intent of the rulings granting some of the exceptions was to reverse Conclusions of Law in the RO. It is not clear whether the DEP in the PSD cases is bound by conclusions of the Siting Board in the EPP case.

109. FPL appealed the Siting Board's FO and raised several issues, including the issue whether the FO "violated both Chapter 120 and chapter 403, Florida Statutes (1995), by improperly adopting non-rule policy and adopting policy which is in conflict with the Department of Environmental Protection's policies and the Siting Board's own precedents." Florida Power & Light Co. v. State of Florida Siting Board, 693 So. 2d 1025, 1026 (Fla. 1st DCA 1997). However, finding the FO to be "so deficient concerning the APA's requirement to specify the findings of fact which are being rejected and the reasons for rejecting those findings that the order defies judicial review," the District Court of Appeal vacated the FO and remanded for entry of a final order comporting with the requirements of the APA; the District Court declined to reach any of the other issues raised on appeal. Id.

110. Instead of entering a final order comporting with the requirements of the APA, the Siting Board entered its Order of Remand. Even if the DEP in the PSD cases is bound by the Siting Board's conclusions of law in the EPP case, the Siting Board's FO has been vacated, it is not the law of the case in the EPP case for purposes of the remand hearing, and its conclusions do not bind DEP in the PSD cases.

111. The Siting Board's now vacated FO accepted an exception to the Conclusions of Law in the EPP RO regarding the "appropriate" Section 403.087(1) and (4), Florida Statutes, permit for FPL's air emissions of NOx. The now vacated FO held that such a permit required reasonable assurances that the

atmospheric nitrogen deposition to surface waters resulting from FPL's nitrogen oxide emissions will not cause or contribute to the continuation of any violations of surface water quality standards in Tampa Bay. The vacated FO also held that such a permit must abate or prevent pollution by complying with DEP's adopted standards, including adopted surface water quality standards which prohibit anyone from causing or contributing to any water quality violations, especially the narrative standard for nutrients such as nitrogen.

112. The Siting Board's now vacated FO also accepted part of an exception to the Conclusions of Law in the Recommended Order regarding Section 403.088(2)(b), Florida Statutes, and Rule 62-4.242, Florida Administrative Code. The vacated FO held that atmospheric nitrogen deposition to surface waters of the state must provide reasonable assurances of compliance with the substantive review criteria of that statute and rule as part of the demonstration of compliance with DEP's water quality standards, whether the demonstration occurs as part of the air emission permit or another appropriate DEP permit for the stationary source causing the atmospheric nitrogen deposition.

113. The Siting Board's now vacated FO also accepted an exception to the Conclusions of Law in the EPP RO regarding the use of algal assay growth tests. Characterizing the use of those tests as the permitting criteria, the vacated FO rejected such permitting criteria for nitrogen discharges to waterbodies, such as Tampa Bay, which currently violate DEP water quality standards due to excessive nitrogen levels. The vacated FO held that the

introduction of additional man-induced nitrogen inputs to waterbodies which are presently out of compliance with DEP's nutrient rule due to excessive nitrogen levels is prohibited by Section 403.088(2)(b), Florida Statutes, and Rule 62-302.300(3) and (5), Florida Administrative Code. The vacated FO observed that Section 403.088(2)(b), Florida Statutes, and Rule 62-302.300(5), Florida Administrative Code, mandate the abatement of nitrogen water pollution and the enhancement of the quality of waterbodies which are out of compliance with water quality standards. As reflected in its acceptance of M-88/MCSOBA proposed finding 230, the now vacated FO agreed with the finding that FPL's proposed addition of nitrogen to Tampa Bay by atmospheric deposition would be detrimental to Tampa Bay and concluded that such man-induced additions could not be permitted.

114. To the extent that no increases in NOx from historical levels are expected under the New Conditions, the Conclusions of Law from the vacated FO specified in the three preceding paragraphs no longer would be applicable.

Conclusions as to Party Standing

A. CSXT

115. CSXT alleged and proved that it owns property that could be damaged as a result of rail transportation of gypsum and flyash byproducts if not handled properly. CSXT also alleged and proved that, as an FPL ratepayer to the tune of $330,000 a year, it will enjoy the benefit of fewer savings as a result of the New Conditions (and that savings could be even less if FPL is unable to operate the Manatee Plant at 87% capacity under the New

Conditions). But it is concluded that those facts are not sufficient to confer standing on CSXT in these PSD air permit cases.

B. City of St. Petersburg

116. The City of St. Petersburg did not intervene specifically in the PSD cases. The City's proof of standing was limited to its ownership of significant property that could be damaged as a result of a large Orimulsion spill in Tampa Bay. However, the City's Petition for Leave to Intervene did mention some issues material to the PSD cases, and it is concluded that the City should have standing in the PSD cases on the same basis as Pinellas County.

C. Friends of the Aquifer, Inc. (FOA)

117. By virtue of a Stipulation as to Facts on Standing, FOA established that it has members who live in the area, including a handful who live and work on the water, and who "may be affected . . . by pollution to the air, groundwater, and aquifers, if the same resulted from the introduction of Orimulsion to the environment." But it is clear that the only interest FOA seeks to protect is the integrity of the Orimulsion transmission pipeline between Port Manatee and Manatee Plant. This interest has nothing to do with the PSD air permit cases.

RECOMMENDATION

Based upon the foregoing Findings of Fact and Conclusions of Law, it is

RECOMMENDED that the DEP enter a final order granting FPL's PSD permit application, subject to the Conditions of Certification described in Findings 92-95, supra.

DONE AND ENTERED this 7th day of May, 1998, at Tallahassee, Leon County, Florida.

J. LAWRENCE JOHNSTON
Administrative Law Judge
Division of Administrative Hearings
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NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit written exceptions within 15 days from the date of this Recommended Order. Any exceptions to this Recommended Order should be filed with the agency that will issue the final order in this case.