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

RECOMMENDED ORDER

A final formal administrative hearing was held in these cases, consolidated with the hearing in a related existing electric power plant site certification hearing, in Palmetto, Florida, from November 28 through December 13, 1995, before J. Lawrence Johnston, Division of Administrative Hearings Hearing Officer.

APPEARANCES

For Florida Power & Light Company (FPL):	Peter C. Cunningham, Esquire Carolyn S. Raepple, Esquire Kathleen L. Blizzard, Esquire Douglas S. Roberts, Esquire Gary V. Perko, Esquire Hopping, Green, Sams, and Smith, P.A. Post Office Box 6526 Tallahassee, Florida 32314
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For Pinellas County:	A. Alexander Rhodes, Esquire Assistant County Attorney Pinellas County 315 Court Street Clearwater, Florida 34616
For Environmental Protection Commission of Hillsborough County (EPC):	Vernon R. Wagner, Esquire Environmental Protection Commission of Hillsborough County 1900 Ninth Avenue Tampa, Florida 33605
For the Southwest Florida Water Management District (SWFWMD):	Richard Tschantz, Esquire 2379 Broad Street Brooksville, Florida 34609-6899

For ManaSota-88, Inc. & Manatee County Save Our Bays Association (MCSOBA): Thomas W. Reese, Esquire
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STATEMENT OF THE ISSUE

This proceeding was conducted pursuant to Section 120.57, F.S., to determine whether the Department of Environmental Protection (DEP) should grant a Prevention of Significant Deterioration (PSD) air construction permit for Florida Power & Light Company's (FPL's) Manatee Orimulsion Conversion Project (Project), and if such a permit is granted, what conditions should be imposed.

PRELIMINARY STATEMENT

Pursuant to Section 403.5175, F.S., FPL submitted an application for site certification of the Manatee Orimulsion Conversion Project to the Florida Department of Environmental Protection (DEP) on September 30, 1994. On October 7, 1994, DEP referred the application to the Division of Administrative Hearings (DOAH), where it was assigned DOAH Case No. 94-5675EPP.

On or about September 30, 1994, FPL also submitted an application for an air construction permit to DEP's Division of Air Resources Management. On September 8, 1995, DEP provided notice of intent to issue a Prevention of Significant Deterioration (PSD) permit for the Project, along with a Technical Evaluation and Preliminary Determination, and proposed Best Available Control Technology (BACT) Determination. Petitions for an administrative proceeding on the proposed PSD permit were filed by Manasota-88 and MCSOBA (DOAH Case No. 95-4829), by the Environmental Protection Commission of Hillsborough County (EPC) (DOAH Case No. 95-5036), by Pinellas County (DOAH Case No. 95-5037), and by FPL (DOAH Case No. 95-5598).

Pursuant to Section 403.507(3), F.S., the administrative proceedings on the proposed PSD permit were consolidated with the certification proceeding for purposes of hearing at the consolidated hearing. (A separate recommended order was entered in Case No. 94-5675EPP on February 19, 1996; the Siting Board will enter the final order in that case.)

Several motions were ruled upon during the consolidated hearing. Motions by SWFWMD, Manatee County and FPL (two motions) for official recognition were granted. Manasota-88 and MCSOBA's ore tenus motion, made the second day of the hearing, to invoke the rule of sequestration was denied. Manasota-88 and MCSOBA's motion to dismiss FPL's petition for administrative proceedings on the proposed PSD permit (DOAH Case No. 95-5598) also was denied.

During prehearing procedures, continuing and throughout the course of the final hearing, FPL negotiated a series of stipulations with all of the governmental agencies having subject matter jurisdiction over aspects of the FPL applications. Through this negotiation process, the applicant ultimately agreed to modify its applications. On the second day of the consolidated hearing, FPL, Pinellas County, DEP and EPC entered into a stipulation in which the parties agreed that specific permit conditions providing for additional NOx emission minimization measures should be included in any final PSD permit for the Project. These conditions are included in the December 5, 1995, Draft Permit that was filed on January 17, 1996. Under the stipulation, Pinellas County and EPC agreed not to object to or appeal DEP's issuance of a final PSD permit, so

long as any such permit includes the agreed-upon permit conditions. Additionally, FPL agreed not to object to the standing of Pinellas County or EPC in this proceeding.

At the final hearing, FPL presented the testimony of 36 witnesses, mostly experts, and had FPL Exhibits 1 through 230 admitted into evidence. DEP presented the testimony of four expert witnesses and had DEP Exhibits 1 through 4 and 5(a)-(c) and (i) admitted into evidence. SWFWMD presented the testimony of two expert witnesses and had SWFWMD Exhibits 1 through 12 admitted into evidence. Manatee County presented the testimony of Carol Clarke, who was accepted as an expert in land use and comprehensive planning particularly as it relates to Manatee County; Manatee County Exhibit 2 was admitted into evidence. All of this evidence was presented in support of the application as ultimately modified by the conditions of certification.

Manasota-88 and MCSOBA presented the testimony of 12 witnesses at the consolidated hearing, most of whom were experts. They also had Manasota-88 Exhibits 7, 8, 10(A), 10(B), 10(C), 11(A), 11(B), 14, 15, 22, 26, 27, 31(A), 31(B), 31(C), 32, 33, 31(D), 35, and 36 admitted into evidence. Ruling was deferred on objections to the admissibility of Manasota-88 Exhibits 20, 21, 24 and 38. The objections to 20, 21 and 24 are now overruled, and the exhibits are admitted; the objections to 38 are sustained.

Public comment also was received during the consolidated hearing. Sworn oral public comment was received from about 60 individuals during a portion of the final hearing devoted to that purpose on November 30 and December 1, 1995. Additionally, written comments were received from numerous members of the general public.

At the end of the hearing, the parties were given until January 17, 1996, to file proposed recommended orders (PRO's) with findings of fact and conclusions of law. While it was recognized that the subject matter of the PSD cases would be addressed in the certification case PRO's, PRO's were allowed to be filed in both the certification case and the PSD cases.

Twenty-one volumes of consolidated hearing transcripts (totaling 2,403 pages) and two volumes of public hearing testimony were filed on December 19, 1995.

A joint PRO was filed by FPL and DEP in support of the PSD permit stipulated by them, Pinellas County and EPC. Manasota-88 and MCSOBA filed a single joint PRO opposing both certification in Case No. 94-5675EPP and the PSD permit in these cases. (On January 30, 1996, Manasota-88 and MCSOBA gave notice of certain corrections to their PRO.)

The parties also were allowed until January 29, 1996, in which to file responses to PRO's. Joint responses were filed by Manasota-88 and MCSOBA and by FPL, DEP, and SWFWMD. DEP also filed its own separate response adopting the joint response by FPL, DEP, and SWFWMD. Due to word processing malfunctions, the FPL/DEP/SWFWMD joint response was filed a day late. On January 30, 1996, Manasota-88 and MCSOBA gave notice of certain corrections to their response.

The joint response filed by Manasota-88 and MCSOBA was directed both to the PRO filed by FPL, DEP, and SWFWMD in the certification case and to the PRO filed by FPL and DEP in the PSD cases. The response included a motion to strike the latter PRO on the grounds (1) that a separate PRO for these PSD cases allegedly was not authorized and (2) that a separate PRO gave FPL and DEP the allegedly

unfair advantage of having separate rulings on proposed findings of fact filed in these PSD cases. The motion to strike acknowledged that most of the proposed findings in the separate PRO filed in the PSD cases duplicated proposed findings in the certification case PRO. In addition, nothing prevents rulings being made in these PSD cases on the proposed findings of fact contained in the single PRO filed by Manasota-88 and MCSOBA for both cases. For these reasons, the motion to strike is denied.

The response filed by Manasota-88 and MCSOBA also renewed their earlier motion to dismiss FPL's petition in DOAH Case No. 95-5598. FPL filed a response in opposition to the renewed motion. The renewed motion also is denied.

On February 6, 1996, Manasota-88 and MCSOBA moved for leave to file an additional response or, in the alternative, to strike the response to their PRO on the ground that it was a day late and that it allegedly was too long. FPL filed a response in opposition to the motion on February 9, 1996. Based on the arguments in the filings, the Manasota-88/MCSOBA motion was denied. See Recommended Order, DOAH Case No. 94-5675EPP.

Also on February 6, 1996, both FPL and Manasota-88 and MCSOBA filed motions to take official recognition of additional documents. FPL filed a response in opposition to the Manasota-88/MCSOBA motion. Based on the motions and the response in opposition, the FPL motion was granted, and the Manasota-88/MCSOBA motion was denied. See Recommended Order, DOAH Case No. 94-5675EPP.

As required by the construction of Section 120.59(2), F.S., in Harbor Island Beach Club, Ltd., v. Dept. of Natural Resources, 476 So. 2d 1350 (Fla. 1st DCA 1985), explicit rulings on each of the proposed findings of fact contained in the parties' proposed recommended orders may be found in the attached Appendix to Recommended Order. These include rulings on the proposed findings of fact contained in the joint PRO filed by Manasota-88 and MCSOBA, eliminating any claim to unfair advantage to FPL and DEP from having separate rulings on the proposed findings of fact contained in their PRO.

FINDINGS OF FACT

General Project Description

1. FPL proposes to convert its existing 1600 megawatt (MW) power plant in Manatee County, Florida (the Plant), to the use of Orimulsion. The existing Plant currently operates only on relatively expensive low-sulfur fuel oil. The conversion of the Plant to the use of Orimulsion will realize significant savings in fuel costs to FPL's customers because Orimulsion will be supplied at prices much lower than the current costs for the fuel oil burned at the Plant. As a result, the Project will allow FPL to increase the average annual capacity factor of the Plant from its historical level of 30 percent up to 87 percent.

2. Orimulsion is a mixture of bitumen, a heavy hydrocarbon, and water. Orimulsion is produced in Venezuela and will be supplied to FPL under a 20-year contract with Bitor America Corporation (Bitor). The new fuel will be shipped by Bitor America to Tampa Bay, unloaded by FPL at an existing FPL fuel terminal at Port Manatee, and sent to the Plant via an existing pipeline.

3. The Project will involve installation of new pollution control equipment, new combustion controls, and efficiency enhancements to the existing boilers. The air pollution control equipment will be designed and constructed by Pure Air, a partnership of Air Products and Chemicals Inc. and Mitsubishi

Heavy Industries America Inc. Pure Air of Manatee, a subsidiary of Air Products and Chemicals, will operate the pollution control equipment. Other than this equipment and ancillary facilities, few changes to the existing plant itself will be required.

Project Site and Vicinity

4. The site of the Project is within the existing 9,500-acre Plant site. This site is located in the unincorporated, north-central area of Manatee County, Florida. The site is approximately 15 miles northeast of Bradenton and 25 miles southeast of Tampa. The site is located north of State Road 62 and approximately 5 miles east of both the community of Parrish and U.S. 301. Saffold Road marks the eastern boundary of the 9,500-acre site while an FPL-owned railroad line is along the western boundary of the site. The Little Manatee River flows through the northern boundary of the Plant site.

Existing Plant and Facilities

5. The Plant currently consists of two oil-fired generating units of 800 MW each, for a total generating capacity of 1600 MW. The first unit went into service in October 1976, and the second unit in December, 1977.

6. Electricity is generated in the existing units by combusting fuel in the boilers. The heat of combustion converts water in the boiler tubes to high pressure steam. This steam drives a large steam turbine which is connected to an electrical generator. Electricity then flows out to the existing switchyard and out of the site over the existing transmission lines.

7. The Plant currently burns low-sulfur No. 6 fuel oil with a sulfur content no greater than 1 percent. No. 6 fuel oil is principally the residue of operations in which light and medium crude oils are fractionally distilled and processed to produce gasoline, diesel fuel, and other products. As the "bottom of the barrel," No. 6 fuel oil is a heavy viscous material from which higher value products can no longer be economically recovered. The Plant is also currently permitted to burn No. 2 fuel oil, natural gas, and on-specification used oil from FPL operations.

8. Existing controls for air emissions include several combustion techniques within the boiler to minimize formation of nitrogen oxides (NOx). Particulate matter (PM) from fuel combustion is controlled using mechanical dust collectors that use centrifugal force to remove PM from the flue gas. Emissions of sulfur compounds, such as sulfur dioxide (SO2), are controlled only by limiting the sulfur content of the fuel oil.

Orimulsion Conversion Project Modified and New Facilities

9. Conversion to Orimulsion will involve changes to several of the existing facilities and the installation of new equipment, principally for the control of air emissions. Enhancements to heat transfer surfaces within the existing boilers will allow them to operate more effectively and efficiently with the firing of Orimulsion.

10. Orimulsion is an emulsion composed of approximately 70 percent bitumen and 30 percent water, with less than 0.65 percent additives, including a nonylphenol polyethoxylate surfactant.

11. The surfactant in Orimulsion comprises approximately .17 percent (+/- .02 percent) by weight of Orimulsion, and may be increased in the future to as much as .2 percent (+/- .02 percent), for a maximum of .22 percent.

12. Orimulsion is currently used as a boiler fuel in 6 power plants in England, Denmark, Japan and Canada.

13. After conversion, FPL may use high-sulfur fuel oil (HSFO) with maximum sulfur content of 3.0 percent, as an alternative fuel at the Plant if Orimulsion is not available. Low-sulfur fuel oil will also be an alternative fuel. No. 2 fuel oil, natural gas and/or propane may be fired during unit startup. On-specification used oil from FPL operations may also be fired.

14. Within the boilers, the existing fuel burners will be replaced with new low-NOx burners that will control the formation of NOx during combustion. Reburn technology also will be installed in both boilers to stage the combustion process and further minimize the formation of NOx. The new low-NOx burners and reburn fuel injectors will replace the existing NOx controls for the Plant.

15. Two electrostatic precipitators (ESPs) will be installed for each generating unit to control particulate matter (PM) resulting from fuel combustion. The ESPs remove PM by passing it through an electrical field. A negative charge is placed on the PM, causing it to migrate toward positively charged plates in the ESP. The PM collects on the surface of the plates and is periodically removed by rapping the plates, causing the layer of collected dust to shake loose and fall to compartments at the bottom of the ESP as flyash. Approximately 90 percent of the PM entering the ESP will be removed. The ESPs also will remove toxic substances from the flue gas.

16. Following the ESPs, a flue gas desulfurization (FGD) unit, or scrubber, will remove SO2 and other sulfur compounds from the flue gas. Flue gas enters the scrubber where it meets a limestone/water slurry mixture and the limestone reacts with the SO2, forming calcium sulfate or gypsum. The water and gypsum fall into a tank at the bottom of the scrubber. The clean flue gas then passes through a mist eliminator, which recovers some of the water vapor in the flue gas. The clean flue gas then exits the Plant via the existing chimneys or stacks. The scrubber will remove 95 percent of the SO2 formed during combustion. ESPs and scrubbers are well-proven technologies that have been in use for more than 30 years.

17. Limestone used in the scrubber will be delivered by truck to the site. It will be transferred to a receiving hopper and then into on-site limestone storage silos, which will provide three days of storage. A backup limestone storage pile, providing 30 days of supply, will also be established to insure limestone availability if deliveries are interrupted. The limestone will be processed in a ball mill, combining it with water and grinding it to a fine consistency to create the limestone slurry used in the scrubber system.

18. Measures will be taken during delivery and transfer of limestone to control emissions of PM and fugitive dust that might be generated. These measures include covered trucks, paving of on-site roadways and use of covered transfer conveyors. The limestone will be moist when received and therefore will not be dusty. However, water sprays will be used on the open storage pile if it gets dusty from prolonged dry periods.

Project Construction and Schedule

19. Construction of the Project will require approximately two years. Following permit approval, construction would commence with the relocation of existing equipment and the installation of foundations for the new pollution control equipment. During initial construction, the Plant would still be operated. For the last 90 days of construction the Plant would cease operation and FPL would undertake the boiler enhancements. This would involve installation of the new low-NOx burners and tie-in of the pollution control equipment. Pure Air will design and install the new pollution control equipment while FPL will be responsible for construction of the boiler modifications and alterations to the fuel delivery system.

20. Construction impacts to natural areas are expected to be minor since much of the construction will be undertaken within the existing developed area of the Plant and only localized excavation, grading and levelling will be necessary. Temporary dewatering of groundwater may be necessary during construction of foundations for the pollution control equipment. Fugitive dust generated from construction traffic and excavation will be minimized by water sprinkling. Other open areas will be either paved or vegetated to reduce fugitive dust and wind erosion.

21. Under the arrangement between FPL and Pure Air, of the total capital cost of approximately $263.54 million, approximately $83.5 million will be paid for by FPL, and $180 million, including pollution control facilities, will be paid for by Pure Air.

Air Emissions, Controls, and Impacts
Existing and Proposed Emissions

22. FPL received air construction permits for the Plant units from the Florida Department of Air and Water Pollution Control (DWPC) in 1972 and air operation permits from the Florida Department of Environmental Regulation (DER) in 1977 and 1978. FPL currently utilizes fuel quality and combustion controls to achieve existing permitted emission limits for SO2, NOx, PM, and visible emissions. The existing emission limits for SO2 and NOx are more stringent than emission limits for most power plants in Florida.

23. Although the Plant units currently are permitted to operate at a 100 percent capacity factor (i.e., utilization rate), the units historically have operated at an average annual capacity factor of approximately 30 percent, due in large part to fuel oil costs. As a result of the conversion to Orimulsion, the Plant units are expected to operate at an annual average capacity factor of 87 percent. Despite the increase in Plant utilization, total short-term (hourly) and total annual (tons per year or "tpy") air emissions are expected to decrease in comparison to both permitted and historical levels. With installation of FGD, actual emissions of SO2 will decrease by approximately 13,000 tpy or 45 percent from historical levels. Similarly, with installation of ESPs, annual emissions of PM and toxic substances also will decrease, and visible emissions will be limited to 20 percent opacity instead of the 40 percent level authorized under existing permits. Although low-NOx burners and reburn technology will be installed on both units to achieve a reduction from the existing short-term NOx emission rate, annual emissions will increase by approximately 6,000 tpy due to increased Plant operation. Likewise, short-term emissions of carbon monoxide (CO) will decrease; but annual emissions will increase by approximately 3,500 tpy.

24. Because the converted Plant is expected to displace other plants in FPL's generating system, it is expected that the Project also will affect air emissions on a system-wide basis. Based on an analysis of projected fuel usage and emission rates for the various units in FPL's system through the year 1999, the Project will result in system-wide reductions in air emissions of all pollutants except CO. In the first year of Project operation, for example, system-wide emissions of CO are predicted to increase by 2,607 tons; but there will be significant reductions in all other pollutants, including PM (-2,252 tons), SO2 (-48,626 tons), NOx (-10,425 tons), volatile organic compounds or "VOCs" (-109 tons), and toxics (-181 tons). The analysis made appropriate assumptions concerning other FPL permits, power purchase contracts and changes in power demand from population growth and other factors.

Best Available Control Technology for NOx

25. DEP has determined that conversion of the Plant units to fire Orimulsion constitutes a "modification" subject to review under DEP's Prevention of Significant Deterioration (PSD) regulations in Chapter 62-212, F.A.C. For modifications of existing sources, these regulations require a determination of Best Available Control Technology (BACT) for all air pollutants which will experience emission increases in excess of applicable significant emission rates. Rule 62-212.400(1)(f), F.A.C. Because NOx and CO emission increases exceed applicable significant emission rates as a result of the conversion to Orimulsion, BACT is required for those pollutants.

26. DEP rules define "Best Available Control Technology" or "BACT" as:

> An emissions limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

Rule 62-212.200(16), F.A.C. In determining BACT, DEP must give consideration to prior BACT determinations of the U.S. Environmental Protection Agency (EPA) and any other state, all available scientific and technical material and information, and the social and economic impacts of application of such technology. Rule 62-212.410(1), F.A.C.

27. DEP has no rule on making BACT determinations. In making BACT determinations, DEP attempts to follow EPA guidelines. Unfortunately, EPA also has not promulgated the guidelines as rules; they consist of a 1990 draft entitled EPA New Source Review Manual. To make matters worse, one reason why the EPA draft guidelines have not been adopted as rules may be that they are so complicated and confusing. It was noted by one expert practitioner in the field that it is with good reason that the design of the cover of the EPA draft guidelines is a jigsaw puzzle and, notwithstanding their official title, practitioners commonly refer to the guidelines as "the puzzle book."

28. In accordance with EPA requirements, DEP currently uses a "top down" approach in determining BACT. Under the "top down" approach, alternative

control technologies are ranked in terms of stringency. An emission limit reflecting the most stringent control alternative generally is selected as BACT unless rejected as technically or economically infeasible.

29. Under the "top down" BACT approach, the most stringent NOx emission limit for sources similar to the Plant units is 0.17 lbs/mmBtu (pounds per million British thermal units) of heat input, using selective catalytic reduction (SCR) and combustion controls.

30. SCR involves the injection of ammonia into the flue gas in the presence of a catalyst. The ammonia reacts with NOx on the surface of the catalyst, thereby transforming NOx into nitrogen and water.

31. The SCR is not entirely selective; it also results in undesired reactions, including the conversion of SO2 to SO3 and the creation of ammonium sulfate and bisulfate.

32. SCR systems require a flue gas temperature in the range of 600 to 750 degrees (F) which for some applications can be achieved between the boiler and the air preheater upstream of the ESP and FGD system. This configuration is referred to as a "front-end" SCR system. With fuels such as Orimulsion and high sulfur fuel oil which contain relatively high amounts of sulfur and vanadium, however, a front-end SCR can lead to significant problems because the vanadium in the fuel deposits on the SCR catalyst and results in an ever-increasing SO2 to SO3 conversion rate. Despite an extensive research program conducted jointly by European and American corporations involved in SCR manufacture, design, and operation, there are no available means of avoiding the ever-increasing SO2 to SO3 conversion rate when a front-end SCR is used with high-sulfur and high-vanadium fuels on utility units operated at base-load (i.e., operated continuously).

33. Excessive SO3 created by a front-end SCR can plug the air preheater, which is a large piece of equipment approximately 45 feet in diameter. In addition, the SO3 condenses into sulfuric acid which corrodes the air preheater and ESP. There are no available means of protecting the air preheater from the excessive SO3 created by a front-end SCR system. Additional ammonia can be injected after the air preheater to neutralize the increased SO3 and thereby protect the ESP. However, additional ammonia injection causes more operational problems including ammonia slip, which can contaminate the water in the FGD and partially leave the stack as an emission, as well as an additional ash stream which would result in either higher particulate emissions or the need for a larger ESP. For these reasons, a front-end SCR system is technically infeasible for the converted Plant units, which are expected to operate base-loaded while firing Orimulsion.

34. There was some testimony that a front-end SCR has been used on a unit which apparently has fired Orimulsion in Japan for approximately one year. However, that was a small peaking unit that could be shut down for maintenance when needed. In contrast, FPL's plans for the converted Manatee Plant units is to operate them as base-loaded units. Unlike peaking units which operate sporadically, base-loaded units operate continuously and are not out of service enough to allow for the performance of the additional maintenance required for a front-end SCR system. For that reason, a front-end SCR is not technically feasible for base-loaded units firing Orimulsion.

35. Under a "back-end" design in which the SCR system is located downstream of the air preheater, ESP and FGD, the operational problems

associated with the front-end system are avoided because the ESP removes vanadium, and the FGD removes sulfur from the flue gas. However, there are significant energy, environmental, and economic disadvantages to a back-end system. A back-end system would require installation of additional fans to overcome significant pressure loss and either duct burners or steam heat exchangers to reheat the flue gas to achieve the temperature necessary for the catalytic reaction. Approximately 6.72 percent of the energy generated by the boilers would have to be used to power this additional equipment--the approximate equivalent of the electrical use of 30,000 homes. In addition to higher energy consumption, a back-end system would result in secondary emissions from the burning of additional fuel and increased capital and operating costs.

36. The EPA guidelines seem to say that both average and incremental cost effectiveness should be used to evaluate particular control options. Average cost compares the total amount of pollutant reduction from a combination of technologies to the cost of those technologies. Incremental cost effectiveness assesses the cost of adding a technology to emissions already controlled to some extent by other technologies. Of the two analyses, DEP believes that incremental cost effectiveness is the better accepted engineering practice, and there is a larger incremental cost database that can be used for making project-to-project comparisons. For these reasons, DEP relies more on the incremental cost effectiveness analysis.

37. In prior BACT determinations for NOx emissions, DEP has viewed incremental costs in the range of $4,000 per ton of NOx removed as economically viable. By comparison, DEP has considered incremental costs in the range of $5,000 per ton of NOx removed to be unacceptable in determining BACT for NOx.

38. The total capital costs of a back-end SCR system are on the order of $80 million to $100 million per unit. When capital costs are considered with operational costs and annualized over time, the total per-unit cost of a back-end SCR system ranges from $27 to 29 million per year.

39. Unlike SCR, which reduces NOx that has already formed in the boiler, low-NOx burners minimize the formation of NOx by reducing the temperature and amount of time that nitrogen and oxygen have to react in the boiler. For the converted Plant units, low-NOx burners are capable of achieving a NOx emission rate of 0.27 lbs/mmBtu or lower at a total capital cost of approximately $5 million per unit. Operating costs are low, and the incremental cost effectiveness of low NOx burners used to achieve a .27 lbs/mmBtu emissions rate is only about $670 per ton removed.

40. When compared to use of low-NOx burners at a 0.27 lbs/mmBtu NOx emissions rate, the incremental cost of adding a back-end SCR to achieve a 0.17 lbs/mmBtu rate is in the range of $8,000 to $9,000 per ton of NOx removed, which is well in excess of costs previously found to be too high in prior BACT determinations.

41. Shortly before the start of the final hearing, FPL agreed to add reburn, another combustion control technology, on one unit as a test to ascertain if it could further reduce NOx emissions during the generating process; if so, FPL agreed to add the technology to the other unit as well. However, FPL still maintained that the BACT emissions limit should be set at .27 lbs/mmBtu. By the end of the hearing, a stipulation was entered into among FPL, DEP, EPC and Pinellas County that reburn technology also will be installed on both units to achieve a NOx emissions limit of no greater than 0.23 lbs/mmBtu (30-day rolling average) while firing Orimulsion. In addition, it was

stipulated by those parties that DEP may modify the NOx emissions limit if it is determined that a rate lower than 0.23 lbs/mmBtu can be practicably and consistently achieved based upon the results of a six-month test program to be developed by a NOx Emissions Reduction Team consisting of representatives from FPL, the low-NOx burner supplier, FPL's reburn technology consultant, DEP, Pinellas County, Manatee County and EPC.

42. The evidence was somewhat confusing as to the capital and operating costs of the reburn technology. It appears that the capital cost would be approximately an additional $8 million per unit, making the total capital cost of the combination of low NOx burners and the reburn technology approximately $13 million per unit. The evidence did not specify the operating costs. However, the evidence was that incremental evaluation of the addition of back-end SCR using the lower .23 lbs/mmBtu emissions limit would result in SCR being even less cost-effective--more on the order of $15,000 per ton of NOx removed.

43. There is some indication that, while BACT emission limits for SCR systems have been set at .17 lbs/mmBtu, the technology actually might be capable of achieving emission reductions on the order of .10 lbs/mmBtu. If the lower emissions rate is assumed, SCR would look more cost effective. However, no calculations were made based on the lower emissions rate, and there was no competent evidence on which a finding could be made that, for purposes of determining BACT, the cost-effectiveness of back-end SCR should be assessed based on the lower emissions limit. The evidence was that the .10 lbs/mmBtu was a design emissions rate for certain SCR equipment; the evidence called into question the ability of SCR to achieve a continuous emission rate of .10 lbs/mmBtu.

44. Although DEP has declined to give much weight to consideration of the average cost of NOx removal, some evidence was introduced at hearing on the average cost of reducing NOx emissions at the converted Manatee Plant using a combination of low NOx burners and back-end SCR. Under an average cost effectiveness analysis, the emissions limit determined to be achievable by a combination of control technologies is compared to what EPA calls the "realistic upper bound" uncontrolled emissions rate.

45. Using an "upper bound" emissions rate of .58 lbs/mmBtu, and an emissions limit of .17 lbs/mmBtu, one witness found the average cost of reducing NOx emissions at the converted Manatee Plant using a combination of low NOx burners and back-end SCR to be on the order of just $2,000 per ton removed. But the use of .58 lbs/mmBtu as the "upper bound" number was based on incomplete and to some extent inaccurate information.

46. FPL and DEP presented evidence that the actual average cost per ton of NOx removed is more on the order of $4,300. These analyses used .395 (or .4) lbs/mmBtu as the "upper bound" starting point. This starting point was based on more complete and more accurate information, but there seems to be room for argument as to the most suitable starting point.

47. There also was evidence of an earlier FPL calculation that average cost per ton of NOx removed is approximately $2,900. However, the evidence was not clear as to the assumptions used in this calculation.

48. Although DEP has declined to give much weight to consideration of the average cost of NOx removal, there was some indication that other states do. Pennsylvania was said to use average cost of $4,000 per ton of NOx removed as a benchmark for determining the economic feasibility of BACT emissions limits, and

Wisconsin was said to use $6,000. However, the evidence was not clear as to how those states make BACT determinations for NOx emissions.

49. In light of the excessive incremental costs of SCR for the converted Plant units, imposition of SCR is not warranted. Although concerns have been raised about the potential effect of NOx emissions on ozone levels and nitrogen deposition in the Tampa Bay area, as discussed infra, NOx emissions from the converted Plant units are not expected to have a significant impact on either ozone levels or water quality. Moreover, the evidence was not clear that such environmental impacts would be significantly different whether or not SCR is installed on the converted Plant units.

50. Based upon a case-by-case consideration of the energy, environmental, economic, and other factors discussed above, a NOx emission rate of 0.23 lbs/mmBtu based upon use of low-NOx burners and reburn technology constitutes BACT for the converted Plant units when firing Orimulsion.

51. For CO emissions from the converted Plant units, BACT is an emissions limit of 0.325 lbs/mmBtu based upon use of combustion controls. Other than combustion controls, there are no feasible means of controlling CO emissions from fossil fuel- fired steam electric generating units.

Air Quality Impact Analysis

52. Ambient air quality impact analyses demonstrate that emissions resulting from maximum operation of the converted Plant will comply with applicable ambient air quality standards and PSD increments for CO and NO2. Because the NO2 analyses were based upon a NOx emissions rate of 0.3 lbs/mmBtu, actual impacts on ambient NO2 concentrations are expected to be lower in light of the subsequently agreed-upon NOx emissions rate of 0.23 lbs/mmBtu. Although ambient impact analyses are not required for SO2 and PM because emissions will be below significant emission rates, FPL also performed air dispersion modeling demonstrating compliance with ambient air quality standards for those pollutants. Additional impact analyses demonstrate that projected emissions of SO2, NOx, and CO will have no adverse impact on soils, vegetation, wildlife, or visibility in the vicinity of the Plant. Likewise, the results of air dispersion modeling demonstrate that projected emissions will not adversely impact air quality related values (AQRVs), such as vegetation, soils, wildlife, and visibility, in the Chassahowitzka National Wilderness Area which is the PSD Class I area closest to the Plant.

Effect of Proposed NOx Emissions on Ozone Levels

53. Ambient air quality analyses for ozone typically are not required for sources, such as the Plant, which are located in areas that are in attainment of the ozone standard. However, because the Plant is located within a mile of the Hillsborough County/Manatee County line, and not far from Pinellas County, and because Hillsborough County and Pinellas County are in the process of being redesignated from nonattainment to attainment for ozone, concerns have been raised regarding the potential effect of proposed NOx emissions on ozone levels.

54. Ozone formation is a complex process involving precursor pollutants such as NOx and VOCs (volatile organic compounds). There is no direct relationship between increased NOx or VOC emissions and increased ozone levels. Depending upon conditions in the particular area in question, NOx reductions may or may not benefit ambient ozone levels. The impact of a NOx emissions point source, such as the Manatee Plant, on ozone levels is difficult to predict.

55. There are no EPA-recommended models to analyze the effect of NOx emissions from a particular source on ozone concentrations, but other models and tools that are available can be used to try to assess whether a particular source may have a significant impact on ozone formation in a particular urban area. FPL used the models suggested by DEP.

56. To assess the impact of projected NOx emissions on ozone formation, FPL first utilized the Empirical Kinetics Modeling Approach (EKMA), which DEP used in support of the ozone redesignation request submitted to EPA for the Tampa Bay area. The EKMA model is not a dispersion model designed for use in predicting ozone impact of a NOx emissions point source, such as the Manatee Plant. It essentially evenly distributes NOx and VOC's within a certain volume of air, such as the air over the Hillsborough/Pinellas nonattainment zone, and models the totality of what occurs within the airshed. It also does not account for either other additions from outside the zone being modeled or components of the air mass leaving the zone being modeled. FPL essentially adjusted the model by adding the NOx emissions from the converted Manatee Plant. It is a relatively crude model used primarily for screening purposes.

57. Because of the difficulty in predicting the impact of the converted Manatee Plant, and the limitations of the EKMA model, DEP requested that FPL also use the Reactive Plume Model (RPM) to further assess the effect of the projected emissions on ozone concentrations in Hillsborough and Pinellas counties.

58. The RPM model also has its limitations and is not approved by the EPA for predicting ozone concentrations resulting from a point source.

59. The RPM models ozone precursor reactions resulting from the point source being studied that occur within the plume. It is clear that, as a result of the complex nature of the ozone precursor reactions, significant ozone formation also will occur "off-plume." RPM attempts to account for this ozone formation as well. In any event, it is not clear how "off-plume" reactions would be affected by the point source being evaluated.

60. Like the EKMA model, the RPM model used by FPL also did not account for either additions from outside the zone being modeled or components of the air mass leaving the zone being modeled.

61. FPL did not attempt to predict future additional sources of ozone precursors and run either the EKMA model or the RPM model assuming impacts from those additional sources. The evidence was that this exercise would have been difficult if not impossible to undertake. It is not clear whether, with new air pollution regulations, NOx levels will increase or decrease, and it is difficult to predict where new source will originate. (The same probably could be said for VOC's.) For these reasons, such an exercise, if undertaken, would have been of questionable predictive value.

62. Despite its limitations, the RPM model does provide additional useful information in attempting to assess the impact of the converted Manatee Plant on ozone formation, and it is the only other reasonably available tool. Better models or "observation-based approaches" that might be effective for purposes of point source permitting have not been developed yet. An Urban Air Shed Model (UASM) would provide useful additional information, but UASM's are extremely complex and typically are conducted by a consortium of governments and universities for entire metropolitan areas. UASM's take years to complete and

cost hundreds of thousands of dollars. It is not reasonable to require FPL to finance and conduct such a study in this case.

63. Although there are limitations to the EKMA and RPM models, FPL has done more to analyze potential impacts of NOx emissions, using the reasonably available tools, than any other applicant in the history of Florida's air permitting program. The EKMA and RPM modeling indicate that NOx emissions from the converted Plant will not have a significant impact on ozone levels in the Tampa Bay area. Based on these modeling analyses, FPL has provided reasonable assurances that the Project will not cause or contribute to a violation of the ozone standard.

64. By notice published in the Federal Register on December 7, 1995, EPA proposed to redesignate the Hillsborough/Pinellas county area as attainment for ozone. Under the proposal, EPA would approve the redesignation request and maintenance plan jointly submitted by DEP, Pinellas County, and Hillsborough County.

65. The Orimulsion Conversion Project itself will not trigger any specific action under the maintenance plan because the Manatee Plant is located outside of Hillsborough and Pinellas counties. There are two "triggers" for a response under the maintenance plan. The first would be a violation of the ozone ambient air quality standards in the two-county area, i.e., the fourth maximum daily value greater than .12 parts per million (ppm). The only recorded exceedances since 1990 occurred on June 10, 1995. The second "trigger" has two conditions: the first is an increase in the inventory of NOx or VOC emissions in the inventory update years 1994, 1997 or 2000 exceeding 5 percent over the levels recorded in 1990, a year in which there were no ozone violations; the second would be the a design value for the update year of greater than .114 ppm (compared to the ambient air standard of .12 ppm). While the 1994 inventory of NOx emissions was between 7 and 8 percent over the 1990 inventory, no maximum concentrations over the "design value" have been recorded. (The 1995 inventory was not available at the time of the hearing.)

66. Recognizing the limitations of the EKMA and RPM modeling, it nonetheless is not expected that emissions from the Project will trigger any action under the maintenance plan. If an ozone violation or other specific contingencies occur in the future, however, the maintenance plan would require the state to undertake rulemaking to implement corrective action. Such corrective action could include imposition of Reasonably Available Control Technology (RACT) for existing sources of NOx in the region and expansion of NOx and/or VOC control strategies to adjacent counties.

67. FPL also has agreed to further minimize NOx emissions during the "ozone season," which generally lasts from May 15 through September 15. Under the stipulation between FPL, DEP, EPC and Pinellas County, daily NOx emissions from the Plant shall not exceed 42.23 tons during the ozone season when Orimulsion is fired. This daily cap is more restrictive than a 30-day rolling average. As incentive to further reduce NOx emissions, FPL will pay annually, to a trust fund jointly administered by Manatee, Pinellas, and Hillsborough Counties to benefit air quality in the region, $200 per ton of NOx emitted from both Plant units, on a daily basis, in excess of 38.6 tons per day during the ozone season.

Effect of Proposed NOx Emissions on Water Quality

68. The Plant is located within the watershed of Tampa Bay, a large estuary comprised of four major segments including Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, and Lower Tampa Bay, and other embayments including Cockroach Bay and Little Cockroach Bay in the Cockroach Bay Aquatic Preserve, which is designated as an Outstanding Florida Water (OFW). The Little Manatee River, another OFW, also is part of the Tampa Bay watershed.

69. Because Tampa Bay is located in a phosphate-rich area, phosphorus levels in the bay are extremely high. Due to high phosphorus levels, nitrogen is considered the limiting nutrient in Tampa Bay. Major sources of nitrogen to Tampa Bay include nonpoint runoff (i.e., materials that run off the land surface and are carried through riverine systems into the bay), atmospheric deposition both on the surface of the bay and within the watershed, point sources (e.g., discharges from wastewater treatment systems and industrial facilities), and internal sources within the bay itself. Although there are ongoing studies, including the Tampa Bay Atmospheric Deposition Study, to better quantify actual deposition in the Tampa Bay area, available analyses indicate that atmospheric deposition is an important source of nitrogen loading to Tampa Bay.

70. The water quality of Tampa Bay varies from "good" in Lower Tampa Bay to "fair" in portions of Hillsborough Bay which historically have had water quality problems such as high levels of chlorophyll a. The water quality of Cockroach Bay reflects the water quality in adjacent Middle Tampa Bay, which has been characterized as "poor" during certain times of the year due to relatively high chlorophyll a levels. Due to nutrient inputs and other factors such as dredge and fill activities, prop-scarring from motor boats, and other physical activities, portions of Tampa Bay, including Cockroach Bay, have experienced significant losses in historical seagrass coverage. In recent years, however, seagrass coverage has increased in Tampa Bay overall.

71. Lake Manatee is another water body of potential concern located near the Plant within the Tampa Bay watershed. Lake Manatee is a man-made lake which supplies drinking water to Manatee County, Sarasota County, and various municipalities. Based upon its trophic state index of 50 to 60 for the past few years, Lake Manatee has water quality in the upper end of the "good" range. However, Manatee County treats Lake Manatee with copper sulfate to prevent blooms of blue-green algae which can create taste and odor problems in the water. Studies have determined that nitrogen is the limiting nutrient of Lake Manatee and that nitrogen levels have increased. Due to high color levels and other factors, however, Lake Manatee appears to be a dystrophic system in which primary nutrients, such as phosphorus and nitrogen, are not responsible for most of the plant growth. In fact, the most recent study of Lake Manatee water quality indicates that algal growth there has a stronger correlation to temperature and specific conductance than to total nitrogen. In addition, the blue-green algae associated with taste and odor problems in lake water have the ability to "fix" nitrogen from the atmosphere and, therefore, have a competitive advantage over other algae in the absence of external nitrogen inputs.

72. To assess potential impacts of the Project on water quality in the Tampa Bay area, the effect of proposed NOx emissions on nitrogen deposition in the Tampa Bay watershed was calculated using the best tools reasonably available. Assuming a NOx emissions rate of 0.23 lbs/mmBtu following the conversion to Orimulsion as proposed with the stipulated conditions of certification, the Plant's contribution will be 1.25 percent of the total nitrogen deposition in the watershed. Based upon consideration of background

deposition in more pristine locations in Florida and local deposition within the Tampa Bay area, as well as a comparison of current and projected emissions from the Plant with regional NOx emissions, NOx emissions from the converted Plant will result in a less than 0.8 percent increase in nitrogen deposition throughout the Tampa Bay watershed.

73. Additionally, the estimated increase in nitrogen deposition was apportioned among the various segments of the watershed based upon the results of dispersion modeling. Atmospheric nitrogen can reach Tampa Bay and other water bodies through direct deposition on the water surface as well as "indirect deposition" and subsequent runoff from land surfaces within the various segments of the watershed. Due to soil absorption and plant uptake, however, not all atmospheric nitrogen deposited within the watershed ultimately reaches Tampa Bay. Using the Project's calculated impact on nitrogen deposition and conservative runoff coefficients for the "indirect deposition" component, nitrogen loading budgets were calculated for Tampa Bay and its various segments, as well as Lake Manatee. Existing nitrogen loadings are on the order of 3,000 metric tpy for Tampa Bay and 300 metric tpy for Lake Manatee. In comparison, the increase in nitrogen loadings attributable to the Project is on the order of 21 metric tpy (or 0.69 percent) for Tampa Bay and 1.2 metric tpy (or 0.39 percent) for Lake Manatee. In light of the existing loading to these systems, the predicted increases attributable to the Project are insignificant. Because these loading analyses are based upon a NOx emissions rate of 0.27 lbs/mmBtu, actual impacts on nitrogen loading are expected to be less in light of the lower 0.23 lbs/mmBtu emissions rate subsequently agreed upon in the stipulation between FPL, DEP, Pinellas County and EPC.

74. Although nitrogen within the water column will deposit in the sediments, increased nitrogen loadings will not have an extended cumulative effect over time because the amount of nitrogen available to the system ultimately reaches equilibrium as a result of a continual burial process. Additionally, other processes, such as denitrification, decrease the amount of nitrogen in the sediments. Accordingly, marginal increases in atmospheric deposition of nitrogen have only marginal effects on sedimentary nitrogen concentrations and internal loadings.

75. To assess the Project's impact on biological activity in surface waters in the vicinity of the Plant, laboratory tests were performed on water samples collected within the Lower Tampa Bay, Lake Manatee, Cockroach Bay, the Little Manatee River, the Manatee River, and Lake Manatee utilizing the algal assay procedure (AAP). AAP is a procedure developed and recommended by EPA to determine the effect of increased nitrogen loadings on algal growth within receiving marine or freshwater systems. Under the AAP, water samples taken from the field are spiked with varying levels of nitrogen as well as algae with a given growth potential. After the spiked samples are set aside for five to seven days, algal growth is measured and comparisons between the spiked and control samples are made to determine the effect of the nitrogen additions. In each of the AAPs performed, no statistically significant increase in algal growth was noted with nitrogen additions up to 10 times the amount anticipated from the Project.

76. FPL provided reasonable assurances that nitrogen loadings attributable to the converted Plant will not have a significant adverse impact on water quality or biological activity in any marine, estuarine, or aquatic systems in the Tampa Bay area. The evidence indicates that the impact is likely to be so small that it will be difficult to measure and distinguish from natural fluctuation in nitrogen levels. For the same reason, FPL has provided

reasonable assurances that, when considered in conjunction with nitrogen loadings of the same order from other NOx emission sources which have been permitted but have not begun operation in the Tampa Bay area, the Project will not cause or contribute to an imbalance in natural populations of aquatic flora and fauna or a dominance of nuisance species in Tampa Bay, including Cockroach Bay. Likewise, because nitrogen loadings from the Plant are not expected to have a significant adverse impact on algal growth, such loadings are not expected to impact other flora, other trophic levels, such as seagrasses or fisheries production, or transparency levels in Tampa Bay.

77. In their case, Manasota-88 and MCSOBA presented two expert witnesses who generally opined that 20 tons of additional nitrogen would be detrimental to Tampa Bay, would cause an imbalance of aquatic flora and fauna in violation of DEP's nutrient rule, as well as violations of DEP's transparency and nuisance rules, and that nitrogen loading to Tampa Bay has the potential to be a cumulative problem.

78. The expert witnesses presented by Manasota-88 and MCSOBA did not perform or make reference to any studies or other analyses that contradict the analyses performed by FPL's expert witnesses related to nitrogen deposition impacts. Theirs was more of a qualitative evaluation. Clearly, seagrass coverage in Tampa Bay and Cockroach Bay has declined due in large part to shading from algal growth resulting from nitrogen. It follows logically, in their opinion, that adding 21 tons of nitrogen a year to current and future levels cannot help, but can only hurt, even if the impact is too small to measure. They urge that DEP should prohibit any increases in nitrogen loading to Tampa Bay, in accordance with the recommendations resulting from the federally-funded National Estuaries Program (NEP) study of Tampa Bay, including any increases from atmospheric deposition.

79. Regulatory links between air emissions and water quality criteria are developing through the policy of management. But DEP historically has not regulated atmospheric deposition of nitrogen to surface waters, and ecosystem management has not yet matured to the point where DEP is ready to begin regulating atmospheric deposition of nitrogen as a surface water discharge subject to surface water quality permit review. If it does, it is possible that some recommendations of the NEP Tampa Bay study on nitrogen loading to Tampa Bay could be achieved through new surface water quality permit review of nitrogen loading through atmospheric deposition. Such regulation may result higher power generating costs from stricter NOx emissions limits, but it may be determined that those costs would be lower than the costs of trying to rehabilitate water bodies after nitrogen has been deposited and loaded into them.

80. In the absence of such regulation, however, FPL nonetheless has provided reasonable assurances that nitrogen deposition resulting from NOx emissions from the converted Plant will not have any meaningful or measurable impact on water quality, biological activity, or transparency in any marine, estuarine, or aquatic system in the Tampa Bay area.

Human Health Risks Associated with Proposed Air Emissions

81. Despite increased plant utilization, there will be no increase in either short term or annual emissions of any hazardous air pollutants (HAPs) or other "air toxics" as a result of the conversion to Orimulsion. To assess potential health-related impacts of Project emissions, air dispersion modeling was conducted to predict ambient concentrations of HAPs and other air toxics. The predicted ambient concentrations for all HAPs and air toxics except vanadium

are below ambient reference concentrations (ARCs), which are conservative screening values established for various air toxics in DEP guidelines. Predicted concentrations of vanadium exceed the ARC for the 24-hour averaging period at the maximum point of impact within the plant site, but the exceedance is very small (i.e., at the third decimal place), and the ARC is between 100 and 1000 times lower than any exposure level shown to cause effects in humans. Moreover, vanadium is not bioaccumulative and does not have any interactive effect with other substances. Accordingly, the proposed level of vanadium emissions does not pose a significant threat to human health.

82. Although there is no regulatory requirement for a formal risk assessment, a multi-pathway risk assessment was performed to evaluate potential human health impacts of air emissions from the converted Plant. Whereas the ARCs established by DEP address only the inhalation pathway of exposure, the multi-pathway risk assessment considered the cumulative effect of oral and dermal exposure in addition to inhalation exposure to all pollutants emitted from the converted Plant. Utilizing conservative assumptions, the multi-pathway risk assessment analyzed potential exposures to residential and occupational populations, including potentially sensitive populations such as children and persons who live and work near the Plant. Based upon the results of the multi-pathway risk assessment and other analyses, the health risks from operation of the Plant while firing either oil or Orimulsion are negligible. Compared to historical operation with No. 6 fuel oil, future operations following conversion to Orimulsion would provide a benefit from a toxicological and risk assessment standpoint.

CONCLUSIONS OF LAW

83. The Division of Administrative Hearings has jurisdiction over the parties to and subject matter of this proceeding. Section 120.57(1), F.S. (1995).

84. In the prehearing stipulation, all parties agreed that Manasota-88 and MCSOBA have standing to participate in this proceeding. By further stipulation, FPL also agreed not to object to the standing of Pinellas County or the EPC in this proceeding.

85. Pursuant to Section 403.509(3), F.S., the Department's action on a federally required PSD permit that is part of an electric power plant site certification proceeding "shall be based on the record and recommended order of the certification proceeding and of any other proceeding held in connection with the application for a new source review or prevention of significant deterioration permit, on timely comments received with respect to the application or preliminary determination for such permit, and on the provisions of the state implementation plan."

86. As defined by DEP, the state implementation plan or "SIP" is "[t]he EPA approved plan which Section 110 of the [federal Clean Air] Act requires a state to submit to the Administrator [of EPA]." F.A.C. Rule 62-212.200(64). At 40 C.F.R. s. 52.520, EPA's regulations identify the specific components of the SIP.

87. Like any other formal administrative proceeding under Section 120.57(1), F.S., the purpose of this proceeding is "to formulate final agency action, not to review action taken earlier and preliminarily." McDonald v. Florida Dept. of Banking & Finance, 346 So.2d 569, 584 (Fla. 1st DCA 1979). On the basis of the facts found and record made at the consolidated

certification/PSD hearing, DEP decides any disputes among parties as to whether reasonable assurances have been given and as to whether FPL is entitled to a PSD permit.

Burden of Proof

88. As the applicant for a PSD permit, FPL "carries the 'ultimate burden of persuasion' of entitlement through all proceedings, of whatever nature, until such time as final action has been taken by the agency." Florida Dept. of Transp. v. J.W.C. Co., Inc., 396 So.2d 778, 787 (Fla. 1st DCA 1981). However, those who oppose an application "must identify the areas of controversy and allege a factual basis for the contention that the facts relied upon fall short of carrying the 'reasonable assurances' burden cast upon the applicant." Id. at 789. Any additional information necessary to provide reasonable assurances may be provided at the hearing. Hamilton County Bd. of County Comm'rs v. Florida Dept. of Environmental Reg., 587 So.2d 1378, 1387 (Fla. 1st DCA 1991). Once the applicant has presented its evidence and made a preliminary showing of reasonable assurances, the challenger must present "contrary evidence of equivalent quality" to that presented by the permit applicant. J.W.C., 396 So.2d at 789.

BACT Review

89. DEP has determined that conversion of the Plant units to fire Orimulsion constitutes a "modification" subject to review under DEP's Prevention of Significant Deterioration (PSD) regulations in F.A.C. Rule Chapter 62-212. For modifications of existing sources, these regulations require a determination of Best Available Control Technology (BACT) for all air pollutants which will experience emission increases in excess of applicable significant emission rates. F.A.C. Rule 62-212.400(1)(f). Because NOx (and CO) emission increases exceed applicable significant emission rates as a result of the conversion to Orimulsion, BACT is required for those pollutants.

90. DEP rules define "Best Available Control Technology" or "BACT" as:

> An emissions limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

F.A.C. Rule 62-212.200(16). In determining BACT, DEP must give consideration to prior BACT determinations of the U.S. Environmental Protection Agency (EPA) and any other state, all available scientific and technical material and information, and the social and economic impact of application of such technology. F.A.C. Rule 62-212.410(1).

91. The evidence was that, in this case, DEP properly applied its BACT rule and determined that the BACT emissions limitation for NOx is .23 lbs/mmBtu. This emissions limitation contemplates the use of low NOx burners and reburn technology. Additionally, FPL will comply with BACT requirements for CO emissions.

92. The evidence was that a combination of low NOx burners and SCR could achieve an emissions limitation of .17 lbs/mmBtu. However, the evidence was that front-end SCR is technically infeasible for the Manatee Plant application. Back-end SCR, on the other hand, is technically feasible. However, while the average cost of adding back-end SCR to low NOx burners is not prohibitive (approximately $4,000 per ton of NOx removed), the incremental cost of adding back-end SCR to low NOx burners is approximately $9,000 per ton of additional NOx removed. This means that a major part of the NOx removal achieved by the combined technologies is achieved by the less expensive low NOx burners. The incremental cost of adding back-end SCR to the combined low NOx burner/reburn technologies would be even higher--more like $15,500 per additional ton of NOx removed--meaning that even less NOx removal is achieved by adding the expensive back-end SCR. In addition to costing more money, back-end SCR consumes a significant amount of additional energy to operate. Consistent with DEP policy, the additional costs of adding back-end SCR are not warranted.

93. Based upon dispersion modeling and other analyses, FPL has provided reasonable assurances that emissions from construction and operation of the converted Manatee Plant will not cause or contribute to any violations of applicable ambient air quality standards (including ozone) in F.A.C. Rule 62-275.300 or PSD increments in F.A.C. Rule 62-272.500. Additionally, in accordance with F.A.C. Rule 62-212.400(5)(e), FPL has performed additional impact analyses which demonstrate that emissions from the converted Manatee Plant will not adversely affect visibility, soils, vegetation, or recreational values in the vicinity of the Manatee Plant, or air quality related values in the PSD Class I areas.

94. Although not required by any specific DEP regulations, FPL also has demonstrated that emissions from the converted Manatee Plant do not pose a significant threat to human health and that the Project will result in a benefit from a risk assessment standpoint.

Secondary Impacts

95. Manasota-88 and MCSOBA have raised a number of disputed issues in these PSD permit cases relating to alleged "secondary" impacts. In essence, they seem to contend that FPL has not provided reasonable assurances that these secondary impacts will comply with surface water quality standards and policies, groundwater quality standards, and consumptive use permitting rules of the Southwest Florida Water Management District (SWFWMD). Additionally, they seem to question whether DEP can issue a water quality certification under Section 404 of the federal Clean Water Act if NOx emissions from the proposed project will cause or contribute to a violation of either state water quality standards or ambient air quality standards.

96. The First District Court of Appeal held in Council of the Lower Keys v. Charley Toppino & Sons, Inc., 429 So.2d 67, 68 (Fla. 3rd DCA 1983), that the Department's issuance of an air permit "must be based solely on compliance with applicable pollution control standards and rules." Neither Florida's EPA-approved SIP nor any other air pollution standards or rules of the Department contain provisions pertaining to non-air-quality-related aspects of the Project.

Non-air-quality-related environmental permitting standards have not been submitted by DEP or approved by EPA as part of the SIP.

97. In their PRO, Manasota-88 and MCSOBA list the Project's alleged secondary impacts and the permitting programs which they assert authorize and require some kind of secondary impact review for each impact. Such review is proposed under PSD permitting for: nitrogen deposition resulting from NOx (air) emissions; ozone formation resulting from NOx (air) emissions; saltwater intrusion with alleged "groundwater pollution" resulting from groundwater withdrawals; cooling pond discharges to groundwater; and truck traffic and its impacts to residents of Parrish. Not only are these theories hard to follow, it is not clear what kind of secondary impacts review Manasota-88 and MCSOBA have in mind, except that they apparently are trying to use a theory of secondary impacts review as away of requiring FPL's air emissions to undergo additional state surface water quality permitting review.

98. Secondary impacts review in Florida grew out of the concern of the DEP's predecessor agency, the Department of Environmental Regulation (DER) that some environmental effects within its specific jurisdiction would otherwise not be reviewed, or would be reviewed separately (and too late) in the future. For example, because DER concluded that the environmental impacts from septic tanks would not be reviewed by the Department of Health and Rehabilitative Services (DHRS), which focused on "public health" in its permitting of septic tanks, it decided to review them as "secondary impacts" in dredge and fill permitting cases. See, e.g., Environmental Confederation of Southwest Florida v. Cape Cave ("Cape Cave I"), 8 FALR 317 (Oct. 16, 1985); Kyle Brothers Land Company, Inc. v. Department of Environmental Regulation ("DER"), 4 FALR 832-A (March, 1982); Dougherty v. DER, 4 FALR 1079-A (March, 1982). In J.T. McCormick v. City of Jacksonville, 12 FALR 960, 980-981 (Jan. 22, 1990), DER decided to review the impacts to listed wildlife from a landfill, which were not reviewed during the landfill permitting process, as "secondary impacts" during dredge and fill permitting of an access road required for operation of the landfill. In Conservancy, Inc. v. A. Vernon Allen Builder, 580 So.2d 772 (Fla. 1st DCA 1991), rev. den., 591 So.2d 631 (Fla. 1991), the Court required DER to consider secondary impacts of 75 homes a builder intended to build in the future during the dredge and fill permitting of a sewer line that would serve them.

99. Before secondary impact review is undertaken, there must be a close causal connection between the regulated activity and the alleged secondary impact. If the impact under consideration is too remote in distance or conceptual relationship from the regulated activity, secondary impact review has not been approved. It also must be determined that the impact under consideration is within the purview of the permit authority. Cf. J.T. McCormick, supra, at 980-981 (DER declined to review impacts to isolated wetlands which were not within its jurisdiction and would be reviewed by the water management district).

100. Although not applicable to this grandfathered proceeding, the new ERP permit program adopted by the DEP and the water management districts in 1995 codified that "de minimis or remotely related secondary impacts are not considered" and provided some examples of secondary impacts. Basis of Review for Environmental Permit Applications within the Southwest Florida Water Management District, December 26, 1995, Section 3.2.7.(a)., hereinafter, "ERP Basis of Review," incorporated by reference in F.A.C. Rule 40D-4.091(1). The examples provided in the ERP Basis of Review are directly related to the regulated activity and to the permit criteria of Section 373.414(1), F.S., (boats from regulated docks colliding with manatees, impacts to wildlife from

roads in wetlands, water quality impacts from septic tanks, boat propeller dredging, and fueling and solid waste disposal from boats).

101. In this case, essentially all of the alleged secondary impacts have received extensive review, as appropriate, either as direct impacts under the various applicable permit criteria or under the certification criteria of Section 403.5175(4)(b)-(d), F.S.

Nitrogen Deposition and Ozone Formation

102. FPL's proposed NOx emissions were properly and fully considered under the PPSA certification process and the PSD permitting program. As the Legislature explicitly recognized in Section 403.509(3), F.S., DEP's action on the PSD permit for a PPSA facility must be based on the record of the PPSA/PSD proceeding and the provisions of the state implementation plan (SIP). Among other things, the SIP includes ambient air quality standards developed by EPA, including standards for nitrogen dioxide (NO_2). The standards are designed to protect human health and welfare, which includes effects on water. See In re: Petitions by Environmental Defense Fund, Inc., Dec. Ruling 17-04 (NYDEC 1983). Nothing in the SIP or other DEP regulations requires any additional review of air emissions as a secondary impact to water quality.

103. The federally-funded National Estuaries Program (NEP) study of Tampa Bay includes recommendations concerning nitrogen loading to Tampa Bay. If DEP's ecosystem management policies mature to the point where DEP is ready to begin regulating atmospheric deposition of nitrogen as a surface water discharge subject to surface water quality permit review, it is possible that some recommendations of the NEP Tampa Bay study on nitrogen loading to Tampa Bay could be achieved in this way. Such regulation may result higher power generating costs due to stricter NOx emissions limits, but it may be determined that those costs would be lower than the costs of trying to rehabilitate water bodies after nitrogen has been deposited and loaded into them.

104. Although not required under PSD air permitting, FPL fully analyzed the potential effects of NOx emissions on nitrogen loadings to surface waters as part of its case addressing the certification criteria under Section 403.5175(4)(b)-(d), F.S. Algal assays conducted by FPL on water samples from Tampa Bay and Lake Manatee conclusively demonstrate that neither the increase in nitrogen loadings attributable to the Project nor the total nitrogen loadings attributable to Plant operation following conversion will have any discernible or measurable effect on algal growth.

105. FPL has provided reasonable assurances that FPL's emissions will not cause or contribute to violations of any arguably applicable water quality criteria. See F.A.C. Rules 62-302.500(1)(c) and 62-302.530(47), (48), and (68). FPL gave reasonable assurances that there will be no discernible or measurable impact on water quality or biological activity. Likewise, FPL gave reasonable assurances that proposed NOx emissions will not impact ozone levels in the area. Moreover, FPL did so assuming NOx emissions of .27 lbs/mmBtu. At .23 lbs/mmBtu, the impacts would be even less.

Saltwater intrusion and associated groundwater "pollution"

106. These potential impacts from groundwater wells need not be re-reviewed as secondary impacts of air emissions. Groundwater withdrawals have been specifically reviewed under SWFWMD's groundwater withdrawal permitting program, which extensively addresses "saline water intrusion" and "inducement of

pollution," and have been shown to cause no advancement of saltwater intrusion. F.A.C. Rule 40D-2.301(1)(f); SWFWMD Basis of Review for Water Use Permit Applications, April 11, 1994, 4.4 and 4.5, hereinafter "Water Use Basis of Review" (incorporated by reference in F.A.C. Rule 40D-2.091.) Because groundwater withdrawals are reviewed under F.A.C. Rule Chapter 40D-2, SWFWMD has explicitly recognized that they are not to be considered "secondary impacts" of dredge and fill. SWFWMD ERP Basis of Review, 3.2.7.(a).

Groundwater discharges from cooling pond

107. Cooling pond discharges currently occur and are not closely linked or causally related to the Project's conversion to burning of Orimulsion. Moreover, groundwater discharges from the cooling pond have been fully reviewed as "primary" impacts during the PPSA proceeding under the DEP's groundwater discharge permitting rules pursuant to F.A.C. Rule Chapters 62-520 and 62-522 and have been shown to result in no violations of groundwater or surface water standards.

Impacts to residents from truck traffic

108. Manasota-88 and MCSOBA have not indicated which impacts of truck traffic may be of concern. In any case, truck traffic impacts are not related closely enough to the regulated air emissions activity to be considered secondary impacts under the PSD permit. Moreover, the impacts of truck traffic have also been carefully assessed as part of the certification process and shown to have no significant adverse effects. Evidence established that all applicable traffic standards would be met and that FPL would undertake a number of traffic improvements that would minimize traffic-related impacts and enhance movement of traffic in the vicinity of the Project site.

109. It is concluded that no further "secondary impact" review is necessary or appropriate in these PSD permit cases.

Cumulative Impacts

110. Manasota-88 and MCSOBA also argue that proper review of cumulative impacts would prevent certification of the Orimulsion Conversion Project.

111. Like secondary impacts, the concept of cumulative impacts derives from dredge-and-fill case law dating back to the early 1980's. Concern had arisen that the accumulated effects of an applicant's docks or canals or roads along with existing or very foreseeable similar facilities in the same water body would cause unacceptable overall impact to that body. See, e.g., Walton v. Fla. Dept. of Environmental Regulation, 3 F.A.L.R. 1273-A (DER 1981); Hodges v. Fla. Dept. of Environmental Regulation, 4 F.A.L.R. 40-A (DER 1981); Rossetter v. DER, 5 FALR 1195-A (May, 1983). This concept was codified as "Equitable Distribution" in the Henderson Wetlands Act in 1984. Section 404.919, F.S. (1992). It also has been applied in the context of stormwater management permitting. See Cape Cave I, supra, 8 FALR at 369-370, 383.

112. Generally, in cumulative impacts review, consideration is given to the effects of the regulated activity, combined with the same effects from similar projects (other than the proposed project) and future projects on the same resource. See, e.g., Caloosa Property Owners Ass'n, Inc., v. Dept. of Environmental Reg., 462 So.2d 523, 526 (Fla. 1st DCA 1985); Rossetter, supra, 5 FALR at 1196-A. Although not applicable to this proceedings, recent ERP regulations of DEP and the water management districts have codified limiting

cumulative impacts consideration to the "regulated activity" itself. See, e.g., Section 3.2.8 of the ERP Basis of Review. "Regulated activity" is generally defined as the construction, operation, maintenance, etc., of the stormwater/surface water management system. ERP Basis of Review, Section 1.7.32 and Section 40D-4.021(5), F.A.C. Furthermore, the federal cited provision more severely limits the cumulative impacts review to the "collective effect of a number of individual [discharges of dredged or fill material]." 40 CFR s. 230.11(g). [Emphasis added.]

113. Moreover, a cumulative impacts dredge and fill analysis may be limited to the same water body and does not require consideration of every wetland, stream and water body in a drainage basin. For example, cumulative impacts consideration has been limited to linear facilities within the same wetland type within the drainage basin. Florida Power Corp. v. DER, 14 FALR 1749, 1755 (Order of Remand, April, 1992).

114. In their PRO, Manasota-88 and MCSOBA have listed allegedly "present and foreseeable" impacts that allegedly should be subjected to further review as cumulative impacts, together with the permitting programs which it asserts authorize such reviews for each impact. Such review is proposed under PSD air permitting, for: all present and future nitrogen deposition from all sources to Tampa Bay, the LMR, and Lake Manatee; all present and future NOx and all present and future ozone formation resulting from those NOx emissions; and all saltwater intrusion resulting from all present and future groundwater withdrawals also is proposed. None of the authorities cited by Manasota-88 and MCSOBA indicate that such an expansive view of "cumulative impacts" is appropriate.

115. Manasota-88 and MCSOBA contend that DEP's evolving policies of ecosystem management authorize and require an expansion of the traditional view of cumulative impacts. But ecosystem management has not required such expansive reviews. To date, DEP's ecosystem management policies have not developed to the point that such a review should be required of FPL in this case.

116. It is concluded that in this case all of the truly foreseeable cumulative impacts have received appropriate review. To the extent possible, given the complicated nature of ozone formation and the uncertainty of future NOx and VOC levels, FPL has given reasonable assurances that the Project will not cause or contribute to future ozone violations. In addition, FPL has considered nitrogen deposition impacts in all relevant water bodies and has given reasonable assurances that additional nitrogen deposition from the Project will not violate water quality standards, when cumulated with past nitrogen deposition and considering future likely loadings from reasonably foreseeable sources. It is concluded that no review of cumulative impacts on saltwater intrusion from groundwater wells is appropriate in these PSD permit cases.

RECOMMENDATION

Based upon the foregoing Findings of Fact and Conclusions of Law, it is recommended that the Florida Department of Environmental Protection enter a final order granting FPL's application for a Prevention of Significant Deterioration (PSD) permit for the Manatee Orimulsion Conversion Project with the conditions included in the December 5, 1995, Draft Permit that was filed on January 17, 1996.

DONE AND ENTERED in Tallahassee, Leon County, Florida, this 28th day of February, 1996.

J. LAWRENCE JOHNSTON, Hearing Officer
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-1550
(904) 488-9675

Filed with the Clerk of the
Division of Administrative Hearings
this 28th day of February, 1996.

APPENDIX TO RECOMMENDED ORDER

To comply with the requirements of Section 120.59(2), F.S. (1995), as construed by the decision in Harbor Island Beach Club, Ltd., v. Dept. of Natural Resources, 476 So. 2d 1350 (Fla. 1st DCA 1985), the following rulings are made on the parties' proposed findings of fact:

FPL/DEP Proposed Findings of Fact.

All of the proposed findings of fact proposed by these parties have been reviewed. This review reveals that most of the proposed findings of these parties were proven by a preponderance of the evidence and, except as follows, they have been accepted.

3. Last sentence clarified to reflect that, while there will be few other changes to the plant itself, there will be severally significant changes to the project area as a result of conversion to Orimulsion.

23. Last sentence rejected as irrelevant; otherwise, accepted.

25.-26. In part, conclusions of law; otherwise, accepted.

27. Fourth sentence, rejected as contrary to the evidence in that both analyses should be conducted; otherwise, accepted.

42. Rejected as contrary to the evidence to the extent that it implies that the Preserve is an embayment; otherwise, accepted.

43. Last sentence, rejected as contrary to the evidence to the extent that it implies that the recent increase is uniform throughout the bay, as opposed to in parts of the bay and overall; otherwise, accepted.

47. Rejected as not proven that there will be no cumulative effect over time; otherwise, accepted and accepted in its entirety if it means only that an equilibrium will be reached at some point in time.

49. "Will not," in first two sentences, rejected as not proven; otherwise, accepted and accepted that reasonable assurances were provided.

51. "Demonstrated," in second sentence, rejected as not proven; otherwise, accepted and accepted that reasonable assurances were provided.

Manasota-88/MCSOBA Proposed Findings of Fact.

Much of what is proposed by Manasota-88 and MCSOBA as findings of fact actually are conclusions of law. Proposed findings of fact numbered 4 through 203 actually are labeled "Findings Concerning Applicable Laws; most of these propose conclusions of law (although a few proposed findings of fact, mostly related to agency policy, are included.) Many of the other proposed findings of

fact numbered 204 through 435 also actually propose conclusions of law. Even as construed by the decision in Harbor Island Beach Club, supra, Section 120.59(2), does not require rulings on proposed conclusions of law.

In addition, it should be noted that much of was has been proposed in the single joint PRO Manasota-88 and MCSOBA filed for both the certification case and the PSD permit cases is relevant only to the certification case, and not to the PSD cases. For example, 3.a., 4-20, 26-159, 204-375, and 432-435 do not seem to be relevant to the PSD cases. Nonetheless, to preclude any argument that Manasota-88 and MCSOBA will be prejudiced by their decision to file a single joint PRO, and because of their expansive secondary and cumulative impacts theories, rulings on all of their proposed findings are repeated here.

1.-2. Accepted.
3. Subordinate and unnecessary. (94-5675EPP covers all permits, etc., from all agencies, except for the PSD and NPDES permits.)
4. Conclusion of law.
5.-6. Accepted. Subordinate and unnecessary.
7.-18. Conclusions of law.
19. Irrelevant and unnecessary.
20. Rejected as not supported by any evidence. Also, irrelevant and unnecessary.
21.-24. Conclusions of law.
25. Accepted that DEP attempts to follow the guidelines, but they are not clear and are susceptible to different interpretations.
26.-48. Conclusions of law.
49. Accepted but irrelevant or argument.
50.-58. Conclusions of law.
59.-60. In part, conclusion of law; otherwise, accepted but conclusion of law, and either irrelevant or argument.
61. Conclusion of law.
62.-63. Accepted.
64. Accepted but irrelevant because it is not regulated as a discharge.
65. In part, conclusion of law; to the extent that it seeks to establish agency policy, rejected as contrary to the greater weight of evidence; otherwise, accepted.
66.-68. Conclusion of law; to the extent that it seeks to establish agency policy, rejected as contrary to the evidence.
69.-70. Conclusion of law.
71.-72. In part, conclusion of law; otherwise, accepted.
73.-77. Conclusions of law.
78.-79. Conclusion of law; to the extent that it seeks to establish agency policy, rejected as contrary to the greater weight of evidence.
80. Conclusion of law.
81. In part, conclusion of law; otherwise, rejected as contrary to the greater weight of evidence.
82.-86. Conclusions of law.
87. Accepted (but DEP does not issue such permits per se.
88.-90. Conclusions of law.
91. In part, conclusion of law; to the extent that it refers to agency policy, accepted.
92.-96. Conclusions of law.
97.-98. Accepted.
99.-114. Conclusions of law.
115. Rejected as contrary to the evidence.
116.-120. Conclusions of law.
121.-123. Accepted.

124.-126. Rejected as contrary to the evidence.

127. In part, conclusion of law; otherwise, ejected as contrary to the evidence.

128.-131. Accepted.

132. Rejected as contrary to the evidence (as to "any other form of record evidence").

133. Conclusion of law.

134. Last sentence, accepted; otherwise, conclusion of law.

135. Rejected as contrary to the greater weight of evidence (that DEP uses "two different non-rule policy interpretations.)

136. First sentence, rejected as contrary to the greater weight of evidence; second, conclusion of law.

137.-142. Conclusions of law.

143. Rejected as contrary to the greater weight of evidence.

144.-145. Subparagraphs, accepted; rest, conclusions of law.

146. Conclusion of law.

147. Accepted.

148.-150. Conclusions of law.

151.-153. Accepted (but as to 153, only sodium is a primary standard.)

154. Rejected as not clear from the evidence what is "common regulatory practice."

155.-157. Conclusions of law.

158.-159. Rejected as contrary to the greater weight of the evidence (that DEP was "deviating from the common regulatory practice.")

160.-168. Conclusions of law.

169. Rejected as contrary to the greater weight of the evidence.

170.-172. Conclusions of law.

173. In part, conclusion of law; otherwise, rejected as contrary to the greater weight of the evidence (that salt water intrusion results).

174.-179. Conclusions of law.

180.-181. Accepted.

182.-190. Conclusions of law.

191. Accepted.

192.-193. Conclusions of law.

194. Rejected as contrary to the greater weight of the evidence.

195. Accepted.

196.-203. Conclusions of law.

204. "Very sensitive" rejected as argument not supported by evidence; otherwise, accepted.

205.-211. Accepted.

212.-213. Rejected as contrary to the evidence that excessive nitrogen is the only cause; otherwise, accepted.

214.-216. Accepted.

217. Rejected as contrary to the greater weight of the evidence as to all of Tampa Bay; accepted as to parts of the bay.

218. "At least 10 percent," rejected as contrary to the evidence; also, the TBNEP proposal is not clear from the evidence in the record. (Cf. Garrity, T. 2110-2111.)

219. Rejected as contrary to the greater weight of the evidence. (The estimate was calculated using a .27 lbs/mmBtu emission rate.)

220.-221. Accepted. (Variation primarily is driven by rainfall.)

222. Rejected as contrary to the greater weight of the evidence. (The witness's estimate, which was very rough, was referring to atmospheric deposition, not nitrogen loading; the two are different, and the percentage increase of the former actually is higher than the actual percentage increase in the former resulting from the Orimulsion conversion project.)

223. First clause (the premise), accepted; second (the conclusion), rejected as contrary to the greater weight of the evidence. (Ozone may affect "dry deposition"; but much more atmospheric deposition is "wet deposition," which can vary by an order of magnitude depending on rainfall.)

224.-225. Rejected as contrary to the greater weight of the evidence. (The witness was referring to atmospheric deposition, not total nitrogen loading. See 222., above.)

226. Rejected as contrary to the greater weight of the evidence.

227. Accepted. (However, while there might be some longer term impacts from sedimentation, those affects will be marginal, first because the impacts themselves are marginal, and second because nitrogen entering the sediments also will be subject to denitrification through biological and chemical processes and to burial over time.)

228.-229. Conclusions of law; also, subpara. c., rejected as contrary to the greater weight of the evidence.

230. Accepted in the general sense that it is 21 tons in the wrong direction. However, the "detrimental effect" was not measurable.

231. Accepted. (It is not clear what "water quality levels" are meant. F.A.C. Rule 62-302.530(48)(b) speaks for itself. Presumably, "water quality levels" refers to nitrogen loadings.)

232. To the extent not conclusion of law, rejected as contrary to the greater weight of the evidence.

233. Conclusion of law whether the rule applies. In any event, rejected as contrary to the greater weight of the evidence that "no evidence" was presented.

234. Rejected. First, conclusion of law whether air emissions are a "proposed discharge," and whether the "clearly in the public" test applies. Second, assuming that the test applies, and that it raises a mixed question of law and fact (not a pure question of law), neither of the witnesses cited were in a position to give competent testimony on the issue.

235. Accepted. (There was no evidence as to where in the bay the violations occur.)

236. Conclusion of law; also, subparagraphs a. and d., rejected as contrary to the greater weight of the evidence.

237. Conclusion of law; also, subpara. c., rejected as contrary to the greater weight of the evidence.

238. Accepted. (It is not clear what "ambient water quality levels" are meant. F.A.C. Rule 62-302.530(48)(b) speaks for itself. Presumably, "ambient water quality levels" refers to nitrogen loadings.)

239. To the extent not conclusion of law, rejected as contrary to the greater weight of the evidence.

240.-241. Rejected as contrary to the greater weight of the evidence. (There was no indication of what the witness meant by "nuisance condition." Compare testimony to F.A.C. Rules 62-302.500(1)(c) and 62-302.530(47).

242. Accepted (assuming reference is being made to atmospheric deposition. See 222., above.)

243. Rejected as contrary to the greater weight of the evidence. (TBNEP projection was hearsay.)

244.-245. Rejected as contrary to the greater weight of the evidence.

246.-249. Accepted.

250. Rejected as contrary to the greater weight of the evidence. ("Trophic," not "tropic," state index.)

251.-253. Accepted.

254.-255. Rejected as contrary to the greater weight of the evidence.

256. Accepted. (It is not clear what "water quality levels" are meant, or what "nuisance standard" is meant. In any event, both F.A.C. Rules 62-

302.500(1)(c) and 62-302.530(47) speak for themselves. Presumably, "water quality levels" refers to nitrogen loadings.)

257. To the extent not conclusion of law, rejected as contrary to the greater weight of the evidence.

258. Rejected as contrary to the greater weight of the evidence. (The rule was judged not to apply.)

259. Rejected as contrary to the greater weight of the evidence. (Other parameters were "reviewed" in the sense that they were considered along with salinity, but only salinity was studied in detail.)

260.-262 Accepted (but, as to 261., the extent of "further degradation" of water quality required to degrade biological productivity is not specified, so fact is not useful.)

263. Accepted, but a conclusion of law whether it is "foreseeable" for purposes of "cumulative effects."

264. Rejected as contrary to the greater weight of the evidence. (The evidence was 5 percent of the months.)

265. Rejected as contrary to the greater weight of the evidence. (The option was considered and rejected.) Otherwise, accepted.

266. Rejected as contrary to the greater weight of the evidence.

267. Rejected as contrary to the greater weight of the evidence. (The evidence was it was 6, but it is changing.)

268. Accepted but so general and speculative as not to be useful.

269.-270. Rejected as contrary to the greater weight of the evidence.

271. Rejected as contrary to the greater weight of the evidence. (While absolute certainty does not appear to be possible at this time, DEP seems to have made this determination based on the best information available.)

272. Rejected as contrary to the greater weight of the evidence.

273. Accepted.

274. Rejected as to RPM; accepted as to EKMA.

275.-278. Accepted.

279. Rejected as contrary to the greater weight of the evidence.

280. Accepted.

281. Rejected as contrary to the greater weight of the evidence. (While absolute certainty does not appear to be possible at this time, it is believed based on the best information available that the Tampa Bay airshed is VOC-limited.)

282. Conclusion of law.

283.-284. Accepted.

285. Rejected as contrary to the greater weight of the evidence.

286. Accepted.

287. Rejected as contrary to the greater weight of the evidence.

288.-289. To the extent not conclusion of law, rejected as contrary to the greater weight of the evidence.

290. Rejected as contrary to the greater weight of the evidence.

291. Accepted.

292. The evidence is not clear that the expansion is "foreseeable."

293.-296. Accepted.

297. Rejected as contrary to the greater weight of the evidence. (42.23 is an absolute maximum per day; there also is a maximum 30-day rolling average.)

298.-299. Rejected as inaccurate calculation.

300.-301. Accepted.

302. Rejected as contrary to the greater weight of the evidence. (Emissions from the Manatee Plant were not part of the Hillsborough/Pinellas inventory of stationary sources.)

303.-304. Accepted.

305. Rejected as contrary to the greater weight of the evidence. See 298.-299. and 302., above.

306.-307. Accepted.

308.-309. Rejected as contrary to the greater weight of the evidence. See 302., above.

310. Accepted.

311. Rejected as contrary to the greater weight of the evidence. (There was circumstantial evidence, but a "correlation" was not determined.)

312. Rejected as contrary to the greater weight of the evidence.

313. Not clear from the evidence, especially without a corresponding VOC reduction. Also, so general as to be of little usefulness.

314.-315. Accepted.

316. Rejected as contrary to the greater weight of the evidence. (The evidence was that, at the time of the hearing, the SWUCA was a proposed rule and that the proposed withdrawals are in the Eastern Tampa Bay WUCA.)

317.-318. See 316., above; otherwise, accepted.

319. The Floridan was not specified; otherwise, accepted.

320. Accepted, assuming "sources" and "uses" mean the same thing.

321. See 316., above.

322. Accepted.

323. Accepted (although specific reference only was to the former FPL wells.)

324. Rejected as not supported by evidence on which a finding of fact could be made.

325.-326. Rejected. (These appear to be conclusions of law, although the intended legal significance of "straight transfer" is not made clear.)

327. Conclusion of law.

328.-329. Rejected as contrary to the greater weight of the evidence.

330. See 316., above.

331.-332. Rejected as contrary to the greater weight of the evidence.

333. See 316., above.

334. Rejected as contrary to the greater weight of the evidence. (The explanation was that the SWFWMD regulations allow it.)

335.-337. Rejected as contrary to the greater weight of the evidence.

338. Accepted. (That is why the ZOD was expanded vertically.)

339.-341. Rejected as contrary to the greater weight of the evidence.

342. Cumulative.

343.-344. Rejected as contrary to the greater weight of the evidence.

345. Unintelligible.

346. Rejected as contrary to the greater weight of the evidence.

347. Accepted.

348. Rejected as contrary to the greater weight of the evidence. See 346., above.

349. Rejected as contrary to the greater weight of the evidence.

350. Rejected as not supported by any evidence.

351. Rejected. Not a legal requirement.

352.-353. Cumulative.

354. Rejected as not supported by any evidence.

354.(Number 2) Not clear what is meant by "water communities." An oil spill will affect the surface and shore more; Orimulsion would affect the water column and bottom more, especially in deeper water.

355.-356. Accepted.

357. Rejected as contrary to the greater weight of the evidence.

358. Rejected as not clear from the evidence what the impact on property values will be. Also, not subject to determination in this case.

359. Rejected. F.A.C. Rule 60Q-2.031(3).

360. Not subject to determination in this case.

361. Rejected. Subpara. a., rejected as contrary to the greater weight of the evidence. Subpara. c., unclear what is being referenced. Also, effect on

government jurisdictions other than Manatee County not subject to determination in this case.

362. Rejected as not supported by any evidence.

363. Rejected as contrary to the greater weight of the evidence. (As to c., no evidence as to what is meant or how it would help.)

364. Rejected as contrary to the greater weight of the evidence. (However, as proposed, Bitor is the responsible party.)

365. Rejected as contrary to the greater weight of the evidence that these methods are "reasonable." (As to d., the rule does not apply.)

366. Rejected as not supported by any evidence that this alternative is "reasonable."

367.-368. Rejected as contrary to the greater weight of the evidence.

369. Unintelligible.

370. Conclusion of law.

371. Accepted.

372.-377. Conclusions of law.

378.-379. Accepted.

380.-383. Conclusions of law.

384. Accepted.

385.-386. Conclusions of law.

387. Accepted.

388.-389. Conclusion of law.

390. Accepted.

391. Rejected as not supported by any evidence.

392.-395. Conclusions of law.

396. Rejected as contrary to the greater weight of the evidence.

397.-398. To the extent not conclusion of law, rejected as contrary to the greater weight of the evidence as to "foreseeable cumulative" impacts; also no evidence that foreseeable cumulative impacts "justify higher than normal BACT."

399. Conclusion of law.

400. Rejected as contrary to the greater weight of the evidence. (DEP tries to follow it, but it is complicated and difficult to apply.)

401. Rejected as not supported by the evidence. (The only evidence was that EPA suggested that DEP give proper consideration to the claims of some SCR manufacturers that their technology achieves .10 lbs/mmBtu.)

402. Accepted.

403.-404. Accepted (assuming reference is made to average costs.)

405. Accepted.

406. Rejected as contrary to the greater weight of the evidence. (There also were other factors.)

407. Accepted. (However, the initial application has been modified in many respects during the course of these proceedings.)

408. Accepted.

409. Rejected as contrary to the greater weight of the evidence.

410. Rejected as contrary to the greater weight of the evidence that it is BACT or that it was the only calculation making those emissions rate assumptions.

411. Accepted. (Incremental cost calculations also are recommended.)

412.-414. Conclusions of law.

415. Accepted.

416.-418. Rejected as not supported by facts on which findings of fact can be made.

419. Accepted. (However, that was just one of several calculations and not FPL's final calculation.)

420. Rejected as not clear from the evidence that both calculations used .395 lbs/mmBtu.

421.-422. Accepted.

423.-426. Rejected as contrary to the greater weight of the evidence. (As to 425., it is not technically feasible for this application, so it cannot be economically feasible; where technically feasible, it has been shown to be economically feasible as well.)

427. Accepted (although it varies from year to year.)

428. Rejected as not supported by any evidence.

429. Accepted (but vanadium content is not high enough to create problems of technical feasibility.)

430.-435. Cumulative. Conclusions of law.

To the extent that accepted proposed findings are not contained in the Findings of Fact, they were considered to be subordinate, irrelevant or otherwise unnecessary.

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NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit to the Department of Environmental Protection written exceptions to this Recommended Order. All agencies allow each party at least ten days in which to submit written exceptions. Some agencies allow a larger period within which to submit written exceptions. You should consult with the Department of Environmental Protection concerning its rules on the deadline for filing exceptions to this Recommended Order.