

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: FLORIDA POWER & LIGHT)
COMPANY, MANATEE ORIMULSION) CASE NO. 94-5675EPP
PROJECT, APPLICATION NO. 94-35)
_____)

RECOMMENDED ORDER

A formal certification hearing was held in this case 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
For the Florida Department of Environmental Protection (DEP):	Charles T. "Chip" Collette, Esquire Twin Tower Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400
For Manatee County:	H. Hamilton Rice, Esquire Mark P. Barnebey, Esquire Jeffrey N. Steinsnyder, Esquire Post Office Box 1000 Bradenton, Florida 34206
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 2951 61st Avenue South St. Petersburg, Florida 33712

The Tampa Bay Regional Planning Council (TBRPC), the Game and Fresh Water Fish Commission (GFC), and the Department of Community Affairs (DCA) did not appear at the certification hearing.

STATEMENT OF THE ISSUES

This proceeding was conducted pursuant to the Florida Electrical Power Plant Siting Act, Section 403, Part II, Florida Statutes (F.S.), to determine whether final certification should be granted for FPL's Manatee Orimulsion Conversion Project (Project), and if certification is granted, what conditions of certification should be imposed.

PRELIMINARY STATEMENT

Pursuant to Section 403.5175, F.S., FPL submitted an application for site certification of the Project to the DEP on September 30, 1994. DEP referred the application to the Division of Administrative Hearings (DOAH) on October 7, 1994. Timely notices of intent to be parties were filed by Manasota-88, Inc., Manatee County, DCA, Manatee County Save Our Bays (MCSOBA), and GFC. Manasota-88 and MCSOBA were granted leave to intervene by orders dated December 16, 1994, and January 6, 1995, respectively. The certification application for the Project was determined to be sufficient by DEP on May 11, 1995.

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).

On September 29, 1995, the EPC filed a motion to intervene and notice of intent to be a party in the certification proceeding. EPC's motion to intervene was denied as untimely.

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 and DEP final order will be issued in the PSD cases.

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 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 application. Through this negotiation process, the applicant ultimately agreed to modify its application to accommodate 102 pages of conditions of certification required by the government agencies, and the government agencies agreed that, having been modified by the conditions of certification, FPL's application met all of the nonprocedural requirements of the laws and rules administered by those government agencies. (The stipulated conditions of certification provide that they shall be automatically modified to conform to any separately-issued PSD or National Pollution Discharge Elimination System (NPDES) permit for the project.) Included is a condition of certification that Up-to-date Conditions of Certification stipulated by all parties but Manasota-88 and MCSOBA were filed on January 17, 1996. In essence, the application under consideration is modified and defined by the stipulated Conditions of Certification.

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.

Twenty-one volumes of consolidated hearing transcripts (totaling 2,403 pages) and two volumes of public hearing testimony were filed on December 19, 1995, making the statutory deadline for submitting the recommended order in this case February 19, 1996.

A joint PRO was filed by FPL, DEP and the SWFWMD in support of certification; Manatee County filed a separate PRO which supported in part the PRO filed by the other government agencies but which was limited to the areas of the County's jurisdiction. Manasota-88 and MCSOBA filed a joint PRO opposing certification.

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. Due to word processing malfunctions, the FPL/DEP/SWFWMD joint response was filed a day late.

Also on January 30, 1996, Manasota-88 and MCSOBA gave notice of certain corrections to their PRO. 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 676 proposed findings of fact contained in the parties' proposed recommended orders (as corrected by Manasota-88 and MCSOBA) may be found in the Appendix to Recommended Order, Case No. 94-5675EPP.

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 reply to the motion on February 9, 1996. Based on the arguments in the filings, the Manasota-88/MCSOBA motion is denied.

Finally, 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 is granted, and the Manasota-88/MCSOBA motion is denied.

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.

Economic Benefits and Cost Savings from Project

Fuel Cost Savings from Conversion to Orimulsion

4. The conversion of the Plant to burn Orimulsion is the best way that FPL has found to reduce the cost of the electricity it produces and to reduce FPL's dependency on any single type of fuel.

5. The conversion is projected to result in approximately \$4.0 billion (or \$1.5 billion net present value in 1998 dollars) of savings to FPL's customers over 20 years under FPL's base case, or most likely fuel price forecast. These savings represent the net amount by which FPL's savings in fuel costs (\$4.4 billion) and SO₂ emission allowance costs (\$169 million)

are projected to exceed FPL's revenue requirements for the Plant modifications over 20 years (\$180 million) and increased operation and maintenance costs (\$382 million).

6. FPL sought advance approval from the Florida Public Service Commission (FPSC) of the method for recovering the costs of the Project and the method of passing through to its customers the Project's net savings. In Order No. PSC-94-1106-FOF-EI, issued September 7, 1994, the FPSC found that "FPL's plan to convert its two Manatee units to burn Orimulsion is reasonable and prudent." Under that order, the net savings from the Project will be passed on directly to FPL's customers through reduced charges in the fuel cost recovery clause portion of customers' monthly bills.

7. These fuel savings result because Orimulsion is priced by contract equivalent to the price of coal delivered to the St. Johns River Power Park plant in Jacksonville. The price of that coal is much lower than the price of oil or natural gas that FPL purchases, and coal prices are forecast to remain low and stable in the future.

8. It is expected that the Plant's reduced fuel cost will cause the Plant to run more often under the principle of economic dispatch by which FPL operates its generating system. Orimulsion burned at the Plant will also displace the burning of higher-priced fuels elsewhere on FPL's system, to the extent not required as a result of population growth or changes in arrangements for the purchase of power, as other units using higher-priced fuels are operated less frequently.

9. To determine whether the Project would provide savings under extreme conditions, FPL performed what it called an "acid test" analysis which assumed that future prices of oil and gas would not continue to diverge from the price of coal and Orimulsion. Under this conservative (though unlikely) scenario, the Project would still produce approximately \$655 million (\$261 million net present value in 1998 dollars) of savings to FPL's customers over 20 years.

10. The Project is a continuation of the effort that FPL began in the late 1970's to obtain a balanced fuel mix, so that future volatility in the price of oil, and events such as the oil shocks of the 1970's, would not affect the cost of electricity to FPL's customers. FPL has reduced the amount of oil-fired generation in its fuel mix from 56 percent in 1981 to 31 percent in 1994 by the addition of nuclear and coal plants to its system, as well as by obtaining firm supplies of natural gas. With the conversion of the Plant to Orimulsion, oil generation would be reduced to 9 percent of FPL's energy mix by 1999.

11. From an economic perspective, the Plant is the best site for an Orimulsion conversion. Because of economies of scale in converting a large plant to a new fuel, and because the Plant currently burns one of the most expensive grades of fuel oil on FPL's system, conversion of the Plant maximizes the Project savings. The Plant has port access and a pipeline which facilitates the safe and economic delivery of Orimulsion. As one of the newest plants in the FPL system, the Plant will have a long time in service following conversion.

12. It is reasonable to expect that Orimulsion will be a stable fuel source. Bitor America Corporation is a wholly-owned subsidiary of Bitor S.A., which in turn is a wholly-owned subsidiary of Petroleos de Venezuela, the national energy company of Venezuela and the fourth largest energy company in the world. Petroleos de Venezuela companies have an excellent record of contract performance. The recoverable reserves of bitumen from which Orimulsion is made exceed 40 billion metric tons, comparable to the amount of crude oil in Saudi Arabia. Fuel production facilities planned and in place in Venezuela are more than adequate to meet the needs of the Plant.

13. The conversion of the Plant to natural gas is not a viable alternative. Such a conversion would not reduce electricity costs to FPL's customers, but instead would increase them by approximately \$233 million over 20 years due to the relatively higher cost of natural gas compared to the No. 6 fuel oil currently used at the Plant.

Socioeconomic Impacts and Benefits of the Project

14. The Project will have a positive impact on the economy of Manatee and Hillsborough Counties. Construction employment will average 347 direct employees over the two-year construction period, for a direct payroll ranging from \$12.5 to \$17.5 million in 1996, \$19.0 to \$24 million in 1997, and over \$2 million in the first quarter of 1998. An average of 333 indirect jobs also will be created during construction by increased expenditures of construction employees, for average indirect wages of \$6.4 million a year.

15. Operation of the Project will result in 190 new jobs with an annual payroll of about \$4.5 million. This includes 40 direct permanent jobs at the Plant with an annual payroll of \$1.5 to \$2.0 million, and 69 additional indirect jobs with a \$1.3 million annual payroll. Trucking of limestone, gypsum and fly-ash will create another 45 direct jobs and 36 indirect jobs, with a combined annual payroll of \$1.5 million.

16. FPL's property taxes paid to Manatee County government will increase by \$700,000 per year and port charges paid by FPL to Port Manatee for fuel shipments through that port will more than triple, to about \$2.2 million per year.

17. Assuming that the new operations employees will be new residents to the area, the increased employment will result in approximately \$203,000 of additional costs to Manatee County for community services. This compares to additional tax revenues to Manatee County from those families and the Plant of about \$2,530,000 per year, for a net positive governmental revenue impact of about \$2.3 million per year. Additional annual tax revenues of \$108,000 to Hillsborough County are within 10 percent of the additional annual cost of services of about \$119,000 per year for employees expected to reside in that County.

18. Fuel savings from the Project will have a significant positive impact on economic activity in the state. The \$4.0 billion in net savings over 20 years will generate an average of \$136 million a year in increased sales or business activity in the state, \$41 million a year in increased earnings, and an average of 2,056 new jobs, in addition to the local economic impacts of construction and operation of the Plant.

19. Overall electric bill savings to tax-supported governmental customers of FPL will range from \$1.75 million to \$22.83 million a year, even assuming that these customers' electric consumption does not increase from 1994-95 levels. This money will be available either to fund additional governmental services, or to reduce or offset tax increases.

20. The Project will enable FPL to be a more competitive electric utility by substantially reducing its fuel costs, which are about 99 percent of the variable costs of generation, about two-thirds of the total cost of generation, and about one-quarter of the retail price of electricity. Conversion will make the Plant cost competitive with coal-fired plants in adjacent and nearby states, with which FPL will have to compete if and when retail wheeling -- the ability of customers to choose their supplier of electric generation -- becomes a reality in Florida.

21. In the long run, by allowing FPL to remain a low-cost provider of electricity, the Project will help keep electric generating business activity in Florida, with the associated jobs, tax revenues, and economic activity. This creates a win-win-win situation for FPL's customers, FPL's investors, and the citizens of Florida.

Project Site and Vicinity

22. 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.

23. Principal access to the Plant site is provided from State Road 62 which intersects with U.S. Highway 301 to the west. The FPL-owned rail line that serves the site connects to the Palmetto area, southeast of the Plant. An existing FPL fuel pipeline connects the Plant site to Port Manatee, approximately 14 miles to the northwest. Existing electrical transmission lines run east and west from the Plant site.

24. The Project will be undertaken within a 470-acre parcel which encompasses the existing Plant and other existing facilities, including two 500,000-barrel fuel storage tanks, wastewater treatment areas, switchyards, and other buildings. The Project site also includes areas that are currently used for agriculture that may be used for storage and disposal of by-products from the new pollution control equipment.

25. The existing 9,500-acre site includes a 4,000-acre cooling pond which provides cooling water to the power plant. A makeup water pumping station located on the Little Manatee River provides makeup water to the cooling pond. A spillway structure for emergency releases during high water levels in the pond is also located along the Little Manatee River. Other on-site facilities include various maintenance buildings, an existing electrical switchyard and an on-site rail spur. The other areas of the Plant site are used for various agricultural, cattle or timber operations.

26. Existing land uses within 5 miles of the Plant site consist mainly of agricultural and pasture lands, interspersed with low-density residential areas and undeveloped vegetative areas. Individual residences are located on one of the two outparcels that are located within the boundaries of the Plant site, as well as along State Road 62 at the southern perimeter of the site and along Saffold Road to the northeast.

27. FPL also owns and operates an existing fuel terminal along the eastern edge of Tampa Bay as an associated facility for the Plant. The 55-acre fuel terminal is located at Port Manatee, approximately 14 miles northwest of the Plant in the

unincorporated area of northwestern Manatee County. Light and heavy industrial uses are located in the immediate area surrounding the terminal.

Land Use and Comprehensive Plan Consistency

28. The site is an appropriate location for the Project from a land use planning perspective and will not cause any adverse impact on land use. The Project involves installation of pollution control equipment at an existing power plant site that has been used for power generation since the 1970s. The area in which the Project will be undertaken is located some distance from adjacent to surrounding properties. A 350-foot landscaped buffer will be established adjacent to the nearest property west of the Project area. A landscaped buffer will also be established to screen the site from residences located to the south along State Road 62.

29. The Project also will comply with the development standards contained in the Manatee County Land Development Code, with the exception of one aspect of the landscape standards for which FPL is seeking a variance. The Manatee County Code, Section 715.6.5, allows the County Planning Director to approve relocation of up to 30 percent of the required landscaping to another portion of the site. The requested variance would allow 100 percent of the landscaping materials normally installed as foundation plantings for new buildings and parking lots to be placed instead within the designated landscape buffers near the boundaries of the site. The variance would allow landscaping to be done where it would benefit the most people. The Project will comply with all other applicable ordinances and regulations of Manatee County, including the County noise ordinance and building codes, if the 53 conditions recommended by Manatee County are included in the certification order.

30. The Project, if approved with the conditions proposed by Manatee County, is consistent with the goals, objectives and policies of the adopted Manatee County Comprehensive Plan with one exception relating to the wetland mitigation ratios contained in the Comprehensive Plan. The site is designated for power plant use under the Manatee County Future Land Use Map under both the agricultural rural classification and the Public/Semi-Public I uses. Objective 3.2.1 of the County's plan is to maintain and enhance water quality and quantity of Lake Manatee; the Project is consistent with the septic tank use and other policies through which the objective is to be achieved under the plan. The Project will comply with Manatee County zoning standards. The Project site also is consistent with the goals and objectives of the State Comprehensive Plan and the Comprehensive Regional Policy Plan of the Tampa Bay Regional Planning Council.

Existing Plant and Facilities

31. 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.

32. 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.

33. 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.

34. 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.

35. Cooling water is continuously pumped from the cooling pond through the Plant condensers and heat exchangers that absorb the rejected energy from the steam turbine. Heated water from the condensers is discharged back into the cooling pond where the energy is dissipated to the atmosphere through evaporation. Ultimately, the cooling water circulates through the pond back to the Plant intake structure and is recirculated through the Plant condensers and heat exchangers. Water loss is continually experienced in the cooling pond as a result of evaporation. Water losses from the pond also occur due to seepage through the pond embankment and bottom and as a result of other Plant water consumptive uses. Makeup water is therefore required to maintain the pond at its design operational level. Makeup water is currently provided through a combination of rainfall and water diverted from the Little Manatee River. A system of toe drains

around the perimeter of the pond also captures the seepage through the embankments and returns that water to the pond.

36. Service water, including process water for current operation of the Plant, is primarily obtained from the cooling pond, with three existing on-site wells used as a backup source. Service water is used for various processes in the Plant, such as soot blowing from boiler surfaces and for fire protection. The Plant process water system also provides ultra-pure water for the Plant, such as for makeup to the steam and water cycles in the power generating process.

37. The existing wastewater treatment facility for the Plant includes two lined neutralization basins, two lined solids settling basins, a drying basin, and a lined stormwater basin for collection of runoff from equipment areas. Such stormwater runoff is stored in the stormwater basin, drained through an oil/water separator and recycled to the cooling pond. Industrial wastewaters are treated either in the neutralization basins or in the solid settling basins and recycled to the cooling pond. Collected solids are periodically transferred to a drying basin where they are stored and dried prior to off-site disposal in a licensed facility.

38. FPL receives No. 6 fuel oil for the Plant at Port Manatee, to the northwest. Fuel is stored at the existing fuel terminal near Port Manatee, transferred to the Plant via a 14-mile-long buried pipeline, and then stored in storage facilities at the Plant.

39. At Port Manatee, vessels are moored at the port berth and unloaded through dockside unloading hoses. Fuel unloading is monitored continuously by personnel at the dock as well as operators at the terminal. Fuel is transferred from the port berth to the FPL Port Manatee terminal via a 1.7-mile, 30-inch diameter pipeline which is cathodically protected against corrosion and hydrostatically tested annually to insure its continued integrity.

40. At the Port Manatee terminal, fuel is stored in two 500,000-barrel fuel storage tanks that are contained within earthen berms to provide secondary containment in the event of an overflow or loss of a storage tank. The four fuel storage tanks at Port Manatee and at the Plant are equipped with safety shutdowns to prevent overflowing of the tanks. The four storage tanks are cathodically protected against corrosion.

41. Fuel is transferred from the Port Manatee terminal to two 500,000-barrel fuel storage tanks at the Plant via a 14-mile-long, 16-inch-diameter steel pipeline. The pipeline is jacketed

and coated to provide corrosion resistance and also is cathodically protected by an impressed electrical current to dampen corrosion of the pipeline. The pipeline is equipped with a midpoint block valve as well as valves at the terminal and at the Plant ends of the pipeline. Both pipeline facilities are patrolled at least 26 times a year by FPL and are enrolled in the State's "One-Call" locating system to advise FPL in the event that excavation occurs near the pipelines. During all transfers of fuel, continuous monitoring of the transfers is conducted by monitoring the volumes of fuel transferred across the pipeline.

Orimulsion Conversion Project Modified and New Facilities

42. 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.

Fuels and Fuel Delivery, Storage and Transportation

43. 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.

44. 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.

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

46. 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.

47. Orimulsion will be transported from Venezuela to Port Manatee by Bitor America Corporation. Ownership of the Orimulsion will transfer to FPL when the fuel passes the flange between the vessel and offloading hose at Port Manatee.

48. Following the conversion of the Plant to Orimulsion, there will be approximately 100 vessels each year delivering Orimulsion to Port Manatee, which is approximately double the number of current No. 6 fuel oil deliveries to FPL. The system

used currently for delivery of No. 6 fuel oil from Port Manatee to the Plant will be used in the future for deliveries of Orimulsion.

49. Prior to the conversion of the Plant to Orimulsion, new unloading hoses will be installed at Port Manatee and pressure tested to insure their structural integrity. All four fuel oil storage tanks will be inspected and improved through the installation of internal fiberglass liners. The 14-mile fuel delivery pipeline will be electronically inspected using a "smart pig" that will survey the wall thickness of the entire circumference of the pipeline. Following conversion, a "smart pigging" inspection program will be implemented for the 14-mile pipeline with the first inspection within 30 months and then conducted every five years. The monitoring system for the 14-mile fuel pipeline will be upgraded to incorporate a computer-based monitoring system that will be tied into FPL's leak detection system for the pipeline. This new leak detection system will lower the detection limit for the pipeline down to 25 barrels. In addition, FPL will continue to perform tank-to-tank mass balances and end-of-batch inventory reconciliation to track fuel leaving the terminal and arriving at the Plant. These measures will allow FPL to detect a leak as small as 1/64th of an inch in the pipeline. These fuel storage and transportation facilities will continue to be operated in accordance with all applicable regulations.

50. Over the past 17 years, FPL has experienced no leaks or breaks in these pipelines. In the event a future leak or break occurs, operation of the pipeline involved will be halted immediately upon detection and the pipeline will be surveyed to locate evidence of fuel outside the pipeline. FPL would then conduct appropriate cleanup and remediation, using techniques similar to those used to clean up fuel oil spills on land.

Air Emission Controls

51. 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.

52. 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.

53. 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.

54. 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.

55. 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.

Water Uses and Treatment

56. The conversion to Orimulsion will increase service and process water uses within the Plant. The principal increase in such water use will be for the new pollution control equipment. Water from the groundwater wells will be used directly in the scrubber with a membrane softener system added, if needed, to treat hardness in the well water. Additional process water treatment systems will be installed, consisting primarily of an upgrade of an existing reverse osmosis plant to provide up to 500 gallons per minute of process water for use in the boiler makeup water system and in soot blowing.

57. The existing industrial wastewater treatment system will continue to handle wastewaters produced by the converted Plant with a new wastewater treatment plant added to treat rinse and wash waters from the existing solids settling basin. Treated wastewaters from both the wastewater treatment system and the water treatment systems will be recycled to the cooling pond to the maximum extent practicable.

58. The existing potable water treatment system and domestic wastewater treatment system will not require any changes as a result of the conversion except to extend distribution lines and service lines, respectively, to the new buildings.

By-Product Reuse and Disposal

59. Gypsum recovered from the scrubber will be dewatered, filtered, and rinsed to produce high-quality gypsum usable as the primary ingredient in wallboard or dry wall. Pure Air of Manatee has a 20-year contract for National Gypsum to use the scrubber gypsum to produce wallboard at its Tampa production plant. Use of scrubber gypsum to manufacture wallboard has occurred for many years, including use by National Gypsum. In addition to this major off-site use of gypsum, Pure Air has contracts to supply local cement manufacturers with gypsum for use in the manufacture of Portland cement. The combined capacity of the contracts is greater than the converted Plant's annual gypsum production.

60. Flyash will be collected in the ESPs and conveyed by pneumatic conveyor system to totally enclosed silos. The flyash will then be fed into a processing facility to make commercial by-products for shipment to off-site users. Pure Air has developed several potential commercial uses for flyash with the primary market expected to be the asphalt products industry. Pure Air is seeking to sell all of the flyash to that industry. In addition, flyash may be sold for use in Portland cement manufacturing. These environmentally sound uses of flyash would add value to the ultimate products produced. The volume of flyash to be produced at the Plant could be used entirely by three cement manufacturers within the Manatee County/Hillsborough County area.

61. A 15-acre temporary storage area for the gypsum by-product will be constructed west of the existing Plant. The purpose of this temporary by-product storage area is to stockpile gypsum so that it can be supplied to the off-site users when the Plant is shut down for maintenance or to store it during periods when the wallboard manufacturer or cement plants may not be in operation. Normally, one to two months of gypsum will be stored in this area, which will have capacity for up to six months of

gypsum production. Gypsum will be trucked to the on-site temporary by-product storage area over internal roads. It will be reclaimed as needed and transported to the various manufacturing facilities.

62. While there are no specific agency regulations or design standards that apply to the design and operation of the temporary by-product storage area, FPL has committed that the storage area will be lined with a composite gypsum/synthetic liner designed in accordance with DEP's liner requirements for phosphogypsum management under Rule 62-673, F.A.C. The design of the storage area will comply with all of the design criteria of DEP Rule 62-673, F.A.C. Use of these design standards as a guide will insure that surface water and groundwater will be adequately protected from any impacts associated with the temporary by-product storage area. The temporary by-product storage area is outside the 100-year flood plain, is not located within 200 feet of any natural or artificial surface water body that might receive untreated surface discharges, and is not within 500 feet of an existing or approved drinking water supply. Any rainfall that contacts the stored gypsum will be collected and used as makeup water in the pollution control system and not discharged off-site. The storage area will be bermed to contain rainfall from a 100-year/24-hour storm event. Groundwater monitoring wells will be installed around the temporary by-product storage area and sampled semiannually to monitor for any possible groundwater contamination from the storage area.

63. To insure long term operation of the converted Plant, the Project design has included a 158-acre on-site disposal area for gypsum and flyash. The long-term disposal area will only be constructed if it becomes infeasible, impracticable, or uneconomical to continue to sell the by-products or to use off-site disposal facilities. The backup by-product disposal area would be located west of the existing units and is sized to hold 100 percent of the by-products generated over a 20-year period.

64. While no specific agency regulations or design standards apply to the backup by-product disposal area, it would be designed in accordance with the requirements of Rule 62-701, F.A.C., which establishes design standards for Class I landfills. The gypsum disposal area, designed for a full 20 years of by-product, would be approximately 100 acres with a maximum height of 115 feet above ground surface. The separate flyash disposal area would be approximately 20 acres with a maximum height of 45 feet. The other 38 acres would be used for stormwater and leachate ponds and perimeter berms and roads. The disposal areas would be divided into ten phases or cells, each holding approximately two years of ash or gypsum production from the Plant. This phasing would minimize the required construction

which further minimizes environmental damage, including impacts to wetlands. A 350-foot-wide vegetated buffer would be maintained between the western edge of the disposal area and the FPL property line along the nearest outparcel.

65. The by-product disposal area will be constructed with a double liner system to prevent impacts to groundwater. The bottom liner will be above the seasonal high groundwater table. The disposal area will have a primary leachate collection system above the upper liner and a secondary leachate collection system between the upper and lower liners. The leachate will drain to sumps in the leachate collection system and then will be pumped to two double-lined leachate ponds capable of containing a 25-year/24-hour storm event with three feet of freeboard. Any leachate collected in the ponds will be pumped for use in the pollution control equipment and not be discharged off-site. Once a disposal cell is filled, it will be closed and capped with a synthetic geomembrane and protected by about two feet of soil to prevent rainfall from leaching in and contacting the gypsum or flyash. The soil will be grassed to prevent erosion. Following closure of the disposal area, continuing maintenance and monitoring will be undertaken.

Rail and Road Improvements

66. FPL will construct new turn lanes and acceleration lanes at the intersection of the Plant entrance road and State Road 62. These roadway improvements will facilitate turning in and out of the Plant and reduce delays for through traffic on State Road 62. FPL will improve the existing rail line serving the Plant and install a new rail curve where the existing Plant spur intersects with the existing rail line north of the Plant. The existing rail line between the Plant and Palmetto will be repaired and maintained to American Railway Engineering Association Class I standards. This rail line will be used for delivery of materials during construction and maintenance of the existing units and in the future, if feasible opportunities or needs develop, to transport limestone to the site and remove gypsum and flyash from the site.

Surface Water Management Systems

67. Construction and operation of the Project will involve treatment, storage and management of surface water runoff resulting from rainfall on the Project site. A surface water management system and associated facilities, consisting of a series of swales, culverts, and treatment ponds, already exist within much of the Project site. During Project construction, the existing stormwater treatment areas will provide management of stormwater runoff and will meet the applicable regulations of

SWFWMD, Manatee County and other agencies. During operation, rainfall that falls within areas that could potentially be contaminated by fuels are treated as industrial wastewater and treated in the Plant's industrial wastewater treatment system prior to discharge to the cooling pond. As part of the Project, new drainage areas with stormwater runoff that may potentially contact Orimulsion will be isolated from the existing runoff collection system and processed through a new, lined stormwater basin and a new bitumen/water separator.

68. A new stormwater detention pond will be constructed south of the power block to capture and treat runoff from new roadways. A perimeter swale system will be constructed to serve the new railroad curve between the existing main rail line and the existing Plant spur. Rainfall within the area around the three new wells adjacent to the west bank of the cooling pond will be captured in a closed system designed to hold a 100-year/24-hour storm.

69. At the Plant fuel terminal, the existing surface water management system will be modified to incorporate a new bitumen/water separator, in addition to the existing oil/water separator. The water will be discharged within the embankment area around the fuel storage tanks, which has the capacity to hold the rainfall from a 100-year/24-hour storm.

70. For the 15-acre temporary gypsum storage area, a perimeter berm will contain a 100-year/24-hour rainfall within the storage area. This rainfall will be isolated from the watershed and pumped to the pollution control equipment for use as makeup water. For the 158-acre backup by-product disposal area for gypsum and flyash, rainfall that may come in contact with by-products in open cells will be pumped to a separate stormwater and leachate pond and recycled as makeup water to the pollution control equipment. Runoff from closed portions of the disposal area will be routed to new stormwater ponds, treated and pumped to the cooling pond.

71. All of these stormwater management facilities will comply with the criteria for water quality treatment and water quantity retention prior to discharge, as established by the SWFWMD, Manatee County, the DEP and the Steam Electric Guidelines under 40 CFR Part 423.

Project Construction and Schedule

72. 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.

73. 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.

74. 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.

Transportation

75. FPL conducted traffic analyses to determine if the existing roadways in the area would operate within established levels of service based upon increased volumes of traffic associated both with construction and operation at the site. During construction, the magnitude of traffic impacts will be directly related to the number of construction employees. While peak construction employment is expected to reach 577 employees, for purposes of the traffic impact analysis it was assumed that construction employment would peak at 640 employees, representing a worst case assumption. During Plant operations, 40 new employees are expected to work at the Plant. In addition, trucks will be used to deliver limestone and remove gypsum and flyash from the site. The maximum number of trucks used for this purpose would represent 202 round trips per day, in and out of the Plant site. However, it is expected that the same trucks used to remove gypsum from the site will be used to backhaul limestone into the site. Backhauling would reduce the number of trucks for delivery of limestone and gypsum to about 60 percent of the maximum level.

76. Existing roadways and intersections in the site vicinity are currently operating at acceptable levels of service as adopted by county and state transportation agencies. A

traffic impact analysis, using conservative methodologies and assumptions, demonstrated that with the additional Project traffic, the area roadway network and intersections will continue to operate acceptably in accordance with agency standards and levels of service. All of the roadways in Manatee County and Hillsborough County that would be used for truck traffic are designated by functional classifications for truck traffic. All of these roadway segments are currently serving through traffic and truck traffic today.

77. While Project-related traffic will comply with applicable agency standards, FPL has committed to several roadway improvements to enhance traffic-related movements in the area. FPL will construct a left-turn lane from State Road 62 into the Plant entrance, as well as a west-bound acceleration lane along State Road 62 leaving the site. These improvements will reduce delay for traffic travelling along State Road 62 past the FPL site. FPL will fund installation of a traffic signal at the intersection of State Road 62 and U.S. 301 west of the Plant site, if the Florida Department of Transportation decides that traffic signal is warranted. Project truck traffic for delivery of limestone and removal of gypsum will be limited during morning hours when school buses would be operating along the trucking haul route. In addition, FPL will install school bus stop signs and school bus shelters along the primary haul route. FPL will pay its fair share of the cost of any deterioration of area roadway surfaces caused by the Project's trucks. These improvements are beyond what would be required to comply with applicable agency standards as all of the roadway facilities are operating within agency standards.

78. Rail delivery of limestone and removal of gypsum was considered during the original development of the Project. However, rail shipments of these products was deemed not to be feasible currently for several reasons. Investigations showed that both the gypsum that would be produced at the Plant and the limestone and limerock likely to be delivered to the Plant cannot be unloaded from conventional rail cars, based on testing of available rail car types. Several of the limestone quarries that may be used to supply limestone do not have rail access or rail facilities. Also, National Gypsum does not have rail facilities for unloading gypsum at its existing plant. Moreover, if use of rail shipments were feasible, trains hauling gypsum to the Tampa wallboard manufacturing plant would pass through 150 at-grade crossings in Manatee and Hillsborough counties and the rail route would go through downtown Tampa.

Noise Impacts

79. Noise impacts from the Project will not exceed applicable noise standards.

Archaeological and Historic Sites

80. The Project will not affect any known archaeological or historical sites. Appropriate Conditions of Certification have been proposed to protect such resources if discovered later.

Air Emissions, Controls, and Impacts

Existing and Proposed Emissions

81. 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, NO_x, PM, and visible emissions. The existing emission limits for SO₂ and NO_x are more stringent than emission limits for most power plants in Florida.

82. 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-NO_x burners and reburn technology will be installed on both units to achieve a reduction from the existing short-term NO_x 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.

83. 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), NO_x (-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 NO_x

84. 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 NO_x and CO emission increases exceed applicable significant emission rates as a result of the conversion to Orimulsion, BACT is required for those pollutants.

85. 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.

86. 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."

87. 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.

88. 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.

89. 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.

90. 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.

91. 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).

92. 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.

93. 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.

94. 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.

95. 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.

96. 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.

97. 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.

98. 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.

99. 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.

100. 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.

101. 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.

102. 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.

103. 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.

104. 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.

105. 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.

106. 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.

107. 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.

108. 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.

109. 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.

110. 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

111. 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 NO_x 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 NO_x 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, NO_x, 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 NO_x Emissions on Ozone Levels

112. 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 NO_x emissions on ozone levels.

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

114. There are no EPA-recommended models to analyze the effect of NO_x 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.

115. To assess the impact of projected NO_x 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.

116. 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.

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

118. 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.

119. 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.

120. 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.

121. 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.

122. 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.

123. 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.

124. 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.)

125. 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.

126. 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

127. 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.

128. 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.

129. 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.

130. 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.

131. To assess potential impacts of the Project on water quality in the Tampa Bay area, the effect of proposed NO_x emissions on nitrogen deposition in the Tampa Bay watershed was calculated using the best tools reasonably available. Assuming a NO_x 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 NO_x emissions, NO_x emissions from the converted Plant will result in a less than 0.8 percent increase in nitrogen deposition throughout the Tampa Bay watershed.

132. 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 NO_x 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.

133. 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.

134. 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.

135. 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.

136. 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.

137. 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.

138. 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.

139. 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

140. 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.

141. 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.

Plant Water Supply and Use

Water Supply

142. FPL is currently withdrawing water from the Little Manatee River under a valid Permit Agreement entered with the SWFWMD in 1973 and amended in 1975. As part of the Project, FPL will significantly reduce the amount of water it is allowed to withdraw from the Little Manatee River. Maximum allowed withdrawals for the 16-year period 1978-1993 could have been up to an average of 28.4 million gallons per day (MGD) under the Permit Agreement. By way of comparison, if the stipulated Conditions of Certification had been in effect during the same 16-year period, withdrawals would have been approximately 9.4 MGD (average) if FPL had used the full 10 percent maximum allowable withdrawals.

143. Following the conversion to Orimulsion, the Plant will have similar requirements for cooling and process water but at increased quantities over historical levels of use. The existing Permit Agreement between FPL and the SWFWMD would allow FPL to obtain sufficient water for all its Project needs under its currently authorized withdrawals from the Little Manatee River. Rather than obtaining all the needed water from the Little Manatee River, however, the additional 9.5 MGD of water needed for the Project above historical levels will be supplied through the use of 5 million gallons per day of reclaimed water from local wastewater treatment facilities, or equivalent sources of water, and 4.36 MGD of groundwater from existing permitted sources. The order of priority for meeting the Plant's water needs following conversion to Orimulsion will be: (1) 5 MGD of reclaimed treated wastewater delivered to the cooling pond; (2) existing permitted groundwater withdrawals of 4.36 MGD for use in either the cooling pond or directly in the plant's process water systems; and (3) the use of withdrawals from the Little Manatee River, up to 10 percent of the daily flow, to meet the remaining water needs of the plant. Predicted diversions from the Little Manatee River would average approximately 8.3 MGD. This is approximately the same as historical diversions from the River since 1974 (including the "big gulp" to fill the cooling pond initially), compared to the approximately 6.4 MGD withdrawn during the 16-year period 1978-1993.

144. The stipulated Conditions of Certification provide for reclaimed water to be used following conversion to Orimulsion will be treated wastewater supplied by the Manatee Agricultural Reuse Supply (MARS) system or other reclaimed water source. (At the time of the final hearing, negotiation of the terms of FPL's use of MARS reuse water had not yet been completed.) FPL will be able to take this treated wastewater during periods of time when farmers will not need such water for agricultural uses. Thus, deliveries to FPL could range between 2 MGD and 14 MGD. FPL's use of reclaimed water from MARS would allow the County to expand that program by providing a baseload amount of water to be taken by FPL from that system. This would allow Manatee County to avoid having to build other storage facilities for treated wastewater.

145. FPL will install three new groundwater wells west of the cooling pond to obtain 4.36 million gallons per day of groundwater from the Floridan aquifer for use in the Plant following conversion to Orimulsion. These new wells will be constructed to meet current SWFWMD well construction standards and replace older wells that do not meet current standards. The new wells would lessen the existing impacts on the upper aquifers by preventing the exchange of contaminants between the aquifers. This quantity of water represents amounts already permitted for use both at the Plant site for plant use and on-site agricultural operations and at adjacent agricultural operations. An additional 2.7 MGD of reclaimed water will be supplied to the adjacent agricultural operations to replace the existing, permitted, off-site groundwater withdrawals that are being transferred to FPL's use.

146. Withdrawals from the Little Manatee River will be made using the computerized withdrawal system operated by FPL under a diversion schedule that allows increased withdrawals as river flow increases. This system is controlled by using river stage height as an indicator of river flow rate. This system allows FPL to respond quickly to changes in river elevation when making withdrawals. This system will be reprogrammed to the new diversion curves to prevent withdrawals above 10 percent of the river flow on a daily basis.

147. Withdrawals from the Little Manatee River under the proposed Conditions of Certification would not occur when the flow in the Little Manatee River is below 40 cubic feet per second (cfs). Forty (40) cfs is the minimum flow level established by the SWFWMD to protect the ecology of the Little Manatee River. The pumps can withdraw no more than 190 cfs.

148. If the water level in the cooling pond falls below 62 feet above mean sea level (msl), FPL is authorized by the

proposed Conditions of Certification to request approval from SWFWMD to increase withdrawals above 10 percent of stream flow from the Little Manatee River to restore the pond water level to 63 feet above msl. Such withdrawals would be made in accordance with three "emergency diversion curves" that limit withdrawals from the River on a seasonal basis with higher withdrawals during the wet season.

149. The three sources of water to be used by the Plant following conversion to Orimulsion represent the lowest overall quality of water suitable for operation of the Plant. Withdrawals of groundwater and surface water from the Little Manatee River are regulated by Chapter 373, F.S., and Chapter 40D-2, F.A.C. The proposed withdrawals do not interfere with existing legal users, are reasonable-beneficial uses, are in the public interest, and otherwise comply with all applicable requirements of those chapters.

Cooling Pond

150. FPL performed analyses of the cooling pond's thermal performance and predictions of future water quality in the cooling pond, following conversion to Orimulsion and increased utilization of the Plant. A computer-based energy balance model demonstrated that the pond would operate within the desired temperature limits, and maximum water levels. Water quality in the cooling pond following 20 years of operation was also predicted using several computer models. Water quality concentrations after 20 years were predicted with a mass balance model simulating various water inflows to the pond and evaporation rates from the pond. These results were then evaluated using a metal speciation model called MINTEQ which predicted precipitation of various chemical constituents and predicted final water quality in the pond. These results were used to evaluate impacts to groundwaters.

151. Currently, the Plant site has three existing, permitted surface water discharges to the Little Manatee River: (1) cooling pond discharges resulting from excessive rain events; (2) discharges which occur during spillway gate tests performed as part of FPL's cooling pond embankment safety program; and (3) overflows which may occur during loss of power or malfunction in the sump pumps in the toe drain system of the pond.

152. Following conversion to Orimulsion, several of these permitted discharges to the Little Manatee River will be eliminated. First, the cooling pond will be operated to contain significant rain events up to a 100-year/24-hour storm event. To accomplish this, the cooling pond level will be maintained at a lower elevation below the spillway crest to allow sufficient

freeboard to hold such a storm. While FPL will continue to conduct annual spillway gate tests as part of its safety program for the cooling pond, the gate tests will be conducted in a manner to insure that there will be no discharges to the Little Manatee River. New power sources will be provided to the sump pumps in the toe drain system to increase the reliability of power and to minimize overflows from those sumps.

Impacts of Groundwater Withdrawals and Discharges

153. The Project may result in impacts to groundwater resources as a result of discharges from the cooling pond and from groundwater withdrawals. FPL evaluated the potential impacts of these activities on groundwater levels and quality.

154. To serve the Project, FPL proposes to install three new groundwater wells to replace existing permitted wells that serve adjacent agricultural operations. The 4.36 MGD of authorized withdrawals from the existing agricultural wells will be reallocated to the new FPL wells, and the agricultural water use will be met using treated wastewater. FPL conducted modeling of the withdrawals from the three proposed wells to identify the drawdown of groundwater levels in the area. FPL utilized a computer model known as MODFLO to evaluate withdrawals for a period of 20 years. Water levels in the three aquifers underlying the Plant site and in nearby existing wells will not be significantly impacted by the relocation of the withdrawals, effects on surface water bodies such as wetlands that are in and connected to the surficial aquifer will be insignificant, and the proposed pumping will not cause a drawdown of more than one foot below any wetland at or near the Plant site.

155. Although it is not clear exactly how much of permitted capacity is being withdrawn from the existing wells that would be replaced by the three new wells proposed by FPL, FPL gave reasonable assurances that the net impact of the three replacement wells will be negligible and will not cause movement of the saltwater interface in the area around the Project.

156. Groundwater at the site is classified as G-II groundwater. Based on the water quality modeling of the cooling pond, six constituents present in the cooling pond and in the seepage from the pond in the surficial aquifer would be above FDEP's groundwater standards. Only one of these constituents - sodium - would exceed primary drinking water standards; the other five constituents are all secondary standards.

157. The cooling pond is an "existing installation" for purposes of groundwater discharges under Rule 62-522.200, F.A.C., because FPL had a completed application for a discharge permit on

file with DEP as of January 1, 1983, and because the cooling pond was reasonably expected to release contaminants into the groundwater on or before July 1, 1982.

158. Groundwater discharges from the cooling pond and other existing installations must meet primary drinking water standards at the boundary of the zone of discharge (ZOD) and are exempt from meeting secondary groundwater standards. (Rule 62-520.520, F.A.C.) Under Rule 62-520.200(23), F.A.C., ZODs are allowed to provide an "opportunity for the treatment, mixture or dispersion of wastes into groundwaters" both vertically and horizontally under the installation. Under the stipulated Conditions of Certification, the existing cooling pond will have a ZOD "horizontally to FPL's property line, and vertically to the bottom of an aquifer within the Arcadia Formation, the top of which aquifer is not higher than 50 feet below the surficial aquifer, and not lower than the top of the Tampa Member of the Hawthorne Group as defined in [Florida Geological Series] Bulletin No. 59" (which is a point vertically within the confining unit underlying the surficial aquifer and above the intermediate aquifer). The final compliance point for the vertical depth of the ZOD will be determined during the DEP's review of the groundwater monitoring plan submitted following certification.

159. This ZOD represents a vertical expansion of the ZOD granted under current FDEP permits. The current ZOD extends to the base of the surficial aquifer; the expanded ZOD would extend into, but not through, the confining unit below the surficial aquifer. The reason for the expanded ZOD is the change in water quality in the cooling pond resulting from the use of reclaimed water as a source of makeup water for the cooling pond. The expanded ZOD will not extend beyond FPL's property boundaries.

160. ZOD's normally are not set within a confining layer. However, some confining layers contain aquifer units that are large enough for ground water monitoring purposes. Properly located and installed, a groundwater monitoring well tapping a suitable aquifer unit within a confining layer will not constitute a risk of contamination of the underlying aquifer units.

161. FPL analyzed impacts of groundwater discharges from the cooling pond on groundwater in the vicinity of the Plant site laterally and vertically. Based on these evaluations, there will be no exceedance of either primary or secondary groundwater quality standards at the lateral edge of the ZOD at FPL's property line for the 20-year life of the Project. There also will be no violation of groundwater quality standards at the bottom edge of the ZOD. The groundwater discharge will not

significantly impair any designated use of receiving groundwater or any surface water nor will it result in a violation of any applicable groundwater standard outside the ZOD. At the edge of the Little Manatee River, there will be no exceedance of either primary or secondary maximum contaminant levels. Discharges to groundwater from the cooling pond will comply with Class G-II groundwater standards and with applicable surface water standards at the edge of the proposed ZOD.

162. The ZODs for other existing on-site facilities, including the solids settling basin, the neutralization basin, and the sanitary drainfield, will extend horizontally to FPL's property line and vertically to the base of the surficial aquifer underlying those facilities.

163. Other sources of potential discharge to groundwater are two former locations of underground fuel tanks, since removed, that are currently in the process of assessment and clean up. The contamination is not migrating and does not represent a threat to groundwater resources at, or beyond the boundaries of, the Plant site.

Wetland Impacts and Mitigation

164. Jurisdictional wetlands in the Project area, rail curve construction area and the by-product storage and disposal areas were delineated under a binding jurisdictional declaratory statement issued by the DEP on May 10, 1995.

165. For the total Project, approximately 18.18 acres of State jurisdictional wetlands will be impacted, of which approximately 16.5 are jurisdictional to SWFWMD. Construction at the Plant site, temporary by-product storage area and the rail curve will impact approximately 0.68 acre of jurisdictional wetlands, which are primarily ditches. Construction of the backup by-product disposal area will impact approximately 17.5 acres of mostly highly disturbed, low-quality wetlands located in tomato fields adjacent to the Plant site.

166. The Project has been designed and sited to avoid and minimize wetland impacts. Proposed wetland activities will have minimal adverse ecological or other effects.

167. Using an ecosystems approach to mitigation, FPL has proposed the preservation, enhancement and restoration of a 129.6-acre area located on the northern site boundary. The mitigation area contains seven high-quality upland and wetland ecological communities, including over one-third mile of the Little Manatee River. The mitigation area is located within an extensive corridor of lands considered to have important

ecological resource values and targeted by SWFWMD and Hillsborough County for potential acquisition. FPL's activities within the mitigation area will include, among other things, removal of exotic species, planting of native species in disturbed and eroded areas, and protection and management of the site as a wildlife habitat area. Based on a habitat function evaluation, the estimated value of the mitigation area compared to the impacted wetlands is 15 to 1. The proposed mitigation will provide environmental benefits beyond required mitigation and will be more than sufficient to offset all adverse effects caused by the wetland activities.

168. Although the backup by-product disposal area is unlikely to be constructed, the stipulated Conditions of Certification require FPL to provide mitigation for the impacts at that site regardless of whether the backup by-product disposal area is ever constructed.

169. In addition to the 129.6-acre area provided as mitigation for wetland and other impacts, FPL will preserve an environmentally sensitive area near Tampa Bay and 30-foot upland buffers adjacent to the Little Manatee River. FPL has also offered to convey to SWFWMD additional lands along the Little Manatee River within the Save Our Rivers Program area.

170. The Project complies with all applicable requirements for permitting wetlands impacts, including sufficient mitigation for such impacts, provided in Chapters 403 and 373, F.S., and Chapters 62-312, 62-340, and 40D-4, F.A.C.

171. Wetland activities are in compliance with the Manatee County Comprehensive Plan and Land Development Code, so long as the County's recommended variance from strict replacement mitigation required in the Plan and Code is included in the certification. The variance would allow the quality of the existing wetlands and uplands to be enhanced, and there would be assured preservation of wetlands to a greater degree than would normally be required. Creation of wetlands to replace impacted wetlands on strict numerical ratios and exact type-for-type basis may not always be successful. FPL's proposed enhancement and preservation of a large portion of riverine and uplands ecosystem is the preferred approach.

Impacts to Flora and Fauna including Listed Species

172. There will be no significant impacts to wildlife or plants, including listed species, from the Project. The mitigation proposed by FPL will more than compensate for any minimal effects on wildlife and plants, including listed species. Extensive ecological surveys were conducted on foot from early

1994 until September 1995 to determine wildlife and plant usage. Ninety percent of FPL's entire property was surveyed and the Project area was surveyed in detail along transects. In addition, scientific literature was reviewed to determine the likelihood of occurrence of species listed by the GFC and the U.S. Fish and Wildlife Service (USFWS). Only one listed wildlife species, the American alligator, which occasionally uses portions of the site, was observed. The alligator is given the lowest protection level, that of species of special concern, by the GFC and is listed as threatened by USFWS because of similarity to another protected species. Given the low habitat value resulting from the agricultural and industrial uses in the Project area, no other listed wildlife species was determined to have a high probability of occurrence. As requested by the GFC, prior to construction FPL will again conduct wildlife surveys for listed species and provide the results to the GFC.

Impacts of Water Withdrawals on Little Manatee River and Tampa Bay

173. The Little Manatee River is one of the most studied rivers in Florida, and extensive scientific literature is available on the River. The River is subject to tidal influence and is an estuarine system for approximately 10 miles from its mouth. In addition, the River is very responsive to rainfall and its freshwater flows vary greatly during the year and between years, ranging from very low flow to flows of thousands of cubic feet per second (cfs). This flow pattern results in extreme fluctuations in salinity in the estuary. The flora and fauna of the estuarine zone of the River are well adapted to the fluctuations in flow and salinity. In fact, many saltwater animal species rely on their tolerance to extreme conditions to use the low salinity estuarine habitat of the River, which is rich in food sources and low in predators, as a nursery.

174. The Plant's existing withdrawals from the Little Manatee River have not caused adverse impacts to the ecology of the Little Manatee River or Tampa Bay.

175. SWFWMD permitting requirements contain a presumption that withdrawals of up to 10 percent of daily flow from a stream will not cause unacceptable environmental impacts. See Chapter 40D-2, F.A.C., Part B, Basis of Review for Water Use Permit Applications, 4.2.C.2. FPL and SWFWMD provided unrebutted expert testimony and evidence that the proposed withdrawals of water from the Little Manatee River, including the emergency withdrawals which may exceed 10 percent of flow, will have no adverse impacts on the flora and fauna and water quality of the River and Tampa Bay.

176. Using extensive environmental data collected by SWFWMD and other agencies, salinity in the River was modeled and extensively analyzed for three withdrawal scenarios for the 16-year period, 1978-1993: historical (existing) FPL withdrawals; proposed withdrawals following conversion; and river flows as if no withdrawals had ever taken place. For the three withdrawal scenarios, these analyses included the frequency of occurrence and the duration, of various salinity concentrations for a number of locations along the River.

177. Following the conversion of the Plant to Orimulsion, minimal, temporary changes in salinity will occur only in areas which naturally experience extreme fluctuations in salinity. Because withdrawals will be prohibited when River flow is below 40 cfs, when salinity moves farthest upstream, the withdrawals of freshwater will not cause saltwater to move upstream into areas of the River which have always been fresh.

178. Estuarine organisms thrive within two interrelated habitats: (1) a dynamic salinity- concentration habitat which shifts up- and downstream with tides and freshwater flows; and (2) a static physical habitat containing vegetation preferred by estuarine organisms. Productivity is highest for organisms during periods when their preferred dynamic salinity habitat overlaps their preferred vegetative habitat.

179. Salinity of ten parts per thousand (10 ppt) is generally considered to be a significant boundary of the estuarine low salinity nursery habitat; it includes the part of the river where salinity is sometimes but not always less than 10 ppt. The proposed withdrawals will not affect the location of the dynamic salinity habitat. In fact, salinity areas of less than the 10 ppt salinity boundary of concern will be affected less under the proposed withdrawals than they have been under the historical withdrawals.

180. Static vegetative habitats in the estuarine portions of the Little Manatee River generally fall into three zones comprised of plants whose success depends upon prevailing salinity concentrations. The first, most-saline zone, nearest the River's mouth, is dominated by mangroves. The second zone, which generally comprises the low-salinity nursery, is dominated by juncus (black needlerush) and the third is dominated by tidal freshwater species. Because the durations of salinity concentrations in the River will not be significantly altered by the proposed withdrawals, the boundaries of these static vegetative habitats will not be affected.

181. Modelling and analyses were also undertaken to predict the relationship between salinity and location of maximum

population abundance ("AMAX") for four representative fish species found in the Little Manatee River. Results showed that the minimal changes in salinity caused by the proposed withdrawals, including emergency withdrawals, may cause minimal, temporary population shifts but will not result in movement of fishes outside the ranges where they presently commonly occur. Moreover, since the fisheries within the River are not affected, the withdrawals will not affect the productivity of the regional fisheries in the River or Tampa Bay.

182. The Little Manatee River contributes a small fraction (10.7 percent) of total annual freshwater flows into Tampa Bay. These annual average freshwater flows may be reduced by .003 percent by the proposed withdrawals, based on analysis of data for the 20-year period 1973-1993. The proposed withdrawals will have an insignificant effect on freshwater inputs to Tampa Bay. Moreover, any impacts on salinity levels in Tampa Bay from the proposed withdrawals will be limited to the area around the mouth of the River and will not affect biological resources in Cockroach Bay or the rest of Tampa Bay.

183. FPL also analyzed the potential effect on riverine vegetation from any lowering of water levels in the Little Manatee River due to the proposed withdrawals. Vegetation and its water sources and needs were analyzed at representative cross sections of the upper and lower River. Results showed that the proposed withdrawals will have no effect on riverine vegetation due to changes in water levels.

184. Riverine plants in the upper, narrow channelized freshwater portion of the River, where the withdrawals are made, are very tolerant of extremes in water availability, from drought to floods. As an example of the most extreme predicted effect from the proposed withdrawals, the water in the vicinity of the USGA gauging station at U.S. Highway 301 near the Manatee Plant would not reach the lowest river bank level (scarp), on average, five more days during the year (i.e., 91.34 percent of the days in the year) than without any withdrawals (when it would be below the first scarp 89.9 percent of the days in the year), difference of just 1.44 percent. Differences would be only 0.48 percent for the next scarp and even less for the remaining three scarps. This difference in water level would have no effect on riverine plants because they are naturally adapted to endure many weeks of drought. Similarly, there will be no impacts on vegetation in the lower portion of the River. This area is tidally influenced and the cross section analyzed was 700 feet wide compared to the 90-foot-wide channelized upper River cross section. Thus, given the huge volume of water in the lower River, the impact of the proposed withdrawals on water levels in this area would be too

small to measure and too insignificant to have any effect on the vegetation.

185. Due to their high tolerance, the estuarine flora and fauna in the River will not be affected by minimal additional fluctuations in salinity and flow. The proposed withdrawals from the Little Manatee River will result in flow and salinity fluctuations which are within existing natural ranges.

Potential Impacts of Fuel Spills

186. FPL adopted a three-pronged approach in addressing the potential for Orimulsion spills in Tampa Bay, i.e., spill prevention, spill mitigation, and understanding the ecological effects of any Orimulsion which may be released into the environment.

Spill Prevention

187. FPL and Bitor America Corporation, the fuel supplier, have put significant effort into preventing an Orimulsion spill.

188. In the United States, there is presently a risk of a 1,000-barrel or larger fuel spill for every 10,000 port calls. The two major causes of major spills are groundings and collisions.

189. Bitor America Corporation has committed to numerous management practices which constitute safety measures in excess of regulatory requirements to minimize the potential for spills. These additional safety measures include:

a. All vessels and vessel owners used to transport Orimulsion from Venezuela to Port Manatee will be screened using a vetting system to eliminate the possibility of substandard ships and crews being used to transport Orimulsion into Port Manatee. Criteria to be used in screening vessels and vessel owners include limiting vessel age to no more than 10 years, requiring pumps and equipment on board to be specifically designed for Orimulsion, requiring vessels to be classified and crews to be licensed by the best classification societies, ensuring the vessels have in excess of \$500 million insurance to cover accidents with a financially capable insurance company (this is in addition to the \$250 million insurance Bitor America carries on the fuel for spills), limiting the crew to two languages, and requiring the vessel to have a proven safety record and adequate operational and safety management procedures.

b. All vessels will be required to have double hulls with average compartment sizes no larger than 40,000 barrels. Use of double-hulled vessels will reduce the risk of a spill from a grounding by about 90 percent and from a collision by about 29 percent. Use of compartmentalized vessels will prevent the entire cargo from being released to the environment in the event of a rupture.

c. All vessels will be required to have 20,000 barrels of empty cargo capacity on board. This would allow the transfer of Orimulsion from one compartment to another in case of an accident.

d. Each vessel will have on board a Vessel Information Positioning System (VIPS) for Tampa Bay which will show where the vessel is in relation to other vessels and to the shipping channel during its transit of Tampa Bay. While VIPS is not yet in place, it is expected to be in operation by 1998. VIPS will

be funded by users, and Bitor America Corporation has committed to being a user of the system once it is in place.

e. All vessels will be required to maintain a course at least 10 miles off the Florida coast prior to turning into Tampa Bay, rather than the 3-mile clearance required by the U.S. Coast Guard. This requirement will keep vessels away from shallow water, thus reducing the risk of groundings.

f. Prior to turning into the Egmont Key Channel and entering Tampa Bay, the vessels will be required to have at least three miles of visibility.

g. Just west of Egmont Key, the vessel's emergency tow lines will be deployed for use by a tugboat, if necessary.

h. Each vessel's entrance into the channel will be timed so it reaches the Turning Point into the Port Manatee channel at high tide and slack water. This requirement will provide maximum water depth and minimum current influence for the vessel when making the turn from the Tampa Bay channel into the Port Manatee channel.

i. From Mullet Key to Port Manatee, a floating safety zone will be observed for all vessels carrying Orimulsion to the Plant. The floating safety zone, which will be enforced by the U. S. Coast Guard, will prevent other vessels from being within 1,000 yards of the front or rear of the vessel carrying Orimulsion and from being within 200 yards on either side of the vessel. This will effectively make the shipping channel a one-way channel for Orimulsion-carrying vessels.

j. As vessels pass Egmont Key, they will take on two 4,000 horsepower escort tractor-type tugs which will escort the vessel through the channel using the floating safety zone. The U. S. Coast Guard has determined that escort tugs are an effective means of minimizing the chance of a grounding as a result of the vessel's loss of steering or power. At the Turning Point from the Tampa Bay channel to the Port Manatee channel, the vessel will become attached to the escort tugs through its deployed tow lines and will be assisted into the docking area.

190. A weakness of FPL's SCA is that it is not clear to what extent Bitor's commitments are enforceable by the Siting Board. Bitor is not a co-applicant. None of Bitor's commitments are made part of the conditions of certification, and many of them are neither in the SCA nor in the sufficiency responses. To be made enforceable at least against FPL, they should be made part of the conditions of certification.

191. FPL will also exceed regulatory requirements during offloading of Orimulsion by utilizing a secondary hose containment sleeve, or its equivalent, for its offloading hoses to minimize the probability and volume of any spills during offloading at Port Manatee. This secondary containment should effectively contain any Orimulsion that may be released as a result of a leak from connections in the offloading hose or a burst offloading hose.

192. With the management practices to which Bitor America Corporation and FPL have committed for the transport and offloading of Orimulsion, the risk of a 1,000-barrel or larger spill occurring has been reduced to once every 77,000 port calls.

193. Although the number of port calls for fuel delivery to the Plant will approximately double after the conversion to Orimulsion, the risk of a spill occurring in any given year will nevertheless be reduced to about one-fourth the present risk.

Spill Mitigation

194. While offloading Orimulsion from vessels at Port Manatee, FPL will comply with all applicable federal, state and local regulatory requirements. For example, FPL will provide booming at the dock on either side of the offloading hose, either in the form of a booming gate system or a deep-skirted boom between the dock and the vessel.

195. The transport of Orimulsion from Venezuela to Port Manatee will also comply with all applicable requirements of the U.S. Oil Pollution Act of 1990 (OPA '90).

196. Bitor America Corporation and its sister company, PDV Marina-Venfleet, have prepared a spill contingency plan which will be used by vessels carrying Orimulsion into Tampa Bay. This plan has been approved by the U. S. Coast Guard. Bitor America Corporation also has adopted a corporate spill response plan which offers technical information on Orimulsion spills to assist its customers or vessel owners in the event of an accident. An atlas of sensitive environments in Tampa Bay has also been assembled by contractors to Bitor America Corporation which identifies strategies for responding to an Orimulsion spill in the area of each sensitive habitat in Tampa Bay. While Bitor America is satisfied with the equipment for responding to Orimulsion spills which it has identified in its spill response plans, it is constantly looking for new equipment. As new equipment is identified and demonstrated to be effective in responding to an Orimulsion spill, Bitor America Corporation will modify its plans to include the new equipment.

197. FPL has three spill response plans which would potentially have application to a spill of Orimulsion -- the FPL Port Manatee Terminal Oil Spill Response Plan, the Manatee Plant Oil Spill Response Plan, and FPL's Corporate Oil Spill Response Plan. Each of these plans has received all necessary regulatory approvals, and FPL could lawfully bring Orimulsion into Port Manatee under the current version of these plans. Nevertheless, FPL will expand its plans to include the recently developed Orimulsion-specific spill response tools and strategies before Orimulsion is delivered to Port Manatee for the Plant. Those updates will be reviewed and approved by the Coast Guard, the U.

S. Environmental Protection Agency, and the U. S. Department of Transportation to ensure the revisions meet applicable regulatory requirements.

198. The FPL Port Manatee Terminal Oil Spill Response Plan applies to the offloading hose, the transfer piping from the dock to the terminal, the on-site storage tanks at the terminal, and the transfer and piping system to the Plant. The Manatee Plant Oil Spill Response Plan applies to the on-site storage of fuel at the Plant and the piping to the Plant's boilers. FPL's Corporate Spill Response Plan is supported by a corporate response team that has been established to respond to spills that are beyond the capabilities of the local on-site team.

199. FPL has developed a 2-volume oil spill contingency planning system. Volume 1 consists of the appropriate facility's oil spill response plan, e.g., the plans for the FPL Port Manatee Terminal or the Plant; Volume 2 consists of the corporate response plan.

200. FPL's corporate response team includes approximately 40 positions, typically with two individuals trained for each position at all times. The team members participate in annual training exercises and are on-call 24 hours a day, every day of the year.

201. In the event of a spill, response is directed utilizing a unified command concept, in which decisions to guide response operations are jointly made by the FPL incident commander, the U.S. Coast Guard on-scene coordinator, and the Florida on-scene coordinator. Typically, the U. S. Coast Guard on-scene coordinator is the Captain of the Port, and the Florida on-scene coordinator is the manager for emergency response from the Department of Environmental Protection. The U. S. Coast Guard on-scene coordinator has the authority to take over the spill and direct all response operations if deemed necessary.

202. FPL's spill response methodologies which would be followed in the event of an Orimulsion spill have been successfully employed historically by FPL and the oil industry. In the event of an Orimulsion spill in the Tampa Bay area, FPL should be able to assemble its crews and equipment and begin recovery activities within four hours. This response time is achieved in FPL's annual spill response drills.

203. Orimulsion and No. 6 fuel oil react differently when released in seawater such as that found in Tampa Bay. When No. 6 fuel oil is released in seawater, a very large fraction of the mass almost immediately forms a slick and float to the surface. Underneath the slick, a relatively low fraction of the mass

dissolves in the water. By contrast, when Orimulsion is released in seawater, its components disperse in the water column almost immediately. In a shallow, dynamic system such as Tampa Bay, even at low salinity levels, Orimulsion components would be well-mixed throughout the water column.

204. Other processes which affect the fate of Orimulsion and No. 6 fuel oil in seawater such as Tampa Bay include vertical motion (buoyancy), dispersion (both lateral and vertical), dissolution, sedimentation (absorption of fuel particles onto sediments), biodegradation (including chemical and photolytic degradation), entrainment, coalescence and evaporation. All of these processes were incorporated as parameters into a 3-dimensional fates model, known as SIMAP, to predict the movement of Orimulsion and No. 6 fuel oil released in Tampa Bay.

205. SIMAP, which stands for "Spill Impact Mapping," includes a series of 2- and 3- dimensional fates models which evaluate trajectories, transport and weathering of the constituents of spilled fuels. One SIMAP model runs multiple times to provide a probable distribution of fate.

206. SIMAP has been enhanced based on the results of peer-reviewed scientific research to include algorithms for the fates processes affecting the constituents of Orimulsion so that it now has the capability of evaluating the fate of Orimulsion spills. SIMAP is capable of accurately predicting the fate of Orimulsion accidentally spilled in the Tampa Bay environment, including the concentrations of its constituents in 3- dimensional space and time.

207. Several Orimulsion-specific spill response tools and strategies have also been developed and would be used in the event a spill of Orimulsion were ever to occur in Tampa Bay, including Port Manatee.

208. The Ori-Boom, a boom with a 10-foot-deep skirt, has been developed and tested for use in responding to spills of Orimulsion. The 10-foot skirt on Ori-Boom is five layers thick, and includes an outer covering of ballistic material for strength, inner layers of geotextile, and an inner core filter which allows water but not bitumen to pass through. The ability of water, but not bitumen particles, to pass through the skirt of the Ori-Boom has been demonstrated in tests.

209. The Grizzly skimmer has also been developed and tested for use in responding to spills of Orimulsion. The ability of the Grizzly skimmer to remove coalesced bitumen from the surface of the water has been successfully demonstrated.

210. The tests of the capability of the Ori-Boom, the Grizzly skimmer, and other equipment useful in the recovery of Orimulsion were observed by numerous government officials, including representatives of the U. S. Coast Guard and the Florida Department of Environmental Protection.

211. Conventional absorbents, such as oil snares, pom-poms, or filament absorbents, have proven to be very effective in recovery of bitumen particles. These materials are typically used to "polish up" the water by removing fugitive particles after a skimmer, such as the Grizzly skimmer, has removed the bulk of the bitumen.

212. Five thousand feet of Ori-Boom and two Grizzly skimmers will be staged at Port Manatee for use in responding to spills of Orimulsion. Additionally, conventional oil spill equipment which can be used in responding to an Orimulsion spill will be staged at Port Manatee, such as 8,700 feet of conventional 18-inch skirted boom, 200 feet of 36-inch skirted boom, absorbent materials, and 3 shallow-draft boats. FPL also has a stockpile of oil spill response equipment, including approximately 6,100 feet of 36-inch skirted boom, loaded in six semi-trailers in West Palm Beach which can be delivered to any of FPL's facilities. Altogether, FPL has approximately 40,000 feet of conventional skirted boom which could be used to keep bitumen out of the sensitive habitats in Tampa Bay.

213. There is also a stockpile of oil spill response materials at each of FPL's power plants and fuel terminals.

214. Moreover, the Coast Guard, various contractors and cooperatives, and other terminal operators have conventional booms located in the Tampa Bay area which would be effective in responding to an Orimulsion spill in shallow waters.

215. All of the materials staged for use in response to fuel spills is periodically inspected and maintained in good operating condition to ensure its availability in the event of a spill, as required by OPA '90.

216. SIMAP will be incorporated into FPL's spill response plans.

217. In the event Orimulsion is ever spilled in Tampa Bay, the 3-dimensional fates model in SIMAP would be an effective tool to assist in response efforts by predicting the direction and movement of the spill plume. This information would aid the spill response managers in time-critical decisions on where it is most appropriate to deploy a containment boom around the bitumen plume and exclusion boom to protect sensitive habitats. To

obtain predictive results quickly for use in developing spill response strategies, the user of SIMAP can control several model parameters, such as the number of Lagrangian particles tracking the various fuel components, the length of the time-step between calculations, and the length of the model run.

218. In a spill event, SIMAP would be run initially using data files on hand which most closely resemble the actual environmental conditions at the scene of the spill. Such a model run could be accomplished in a few minutes. As realtime information becomes available following a spill, SIMAP would be rerun to provide more refined output on spill movement and direction.

219. As a spill response tool, SIMAP can be used to predict the movement of Orimulsion to allow the response teams to deploy protective equipment around sensitive habitats. SIMAP can also be used to direct water column sampling efforts to locate the largest concentration of the spill plume prior to deployment of the containment boom.

220. Since currents are more predictive than winds, SIMAP is more capable of predicting the movement of Orimulsion in the water column than the movement of No. 6 fuel oil as a surface slick.

221. In the event of an Orimulsion spill, deep-skirted boom (with the skirt in a furled position) could be towed to the site by two boats and placed in the path of the spill plume. The two ends of the boom would then be connected and the skirt unfurled to create a cylinder around the largest portion of the bitumen plume. Once the Ori- Boom has encircled the bitumen, it will be allowed to float and drift with the current along with the bitumen, thus keeping the large concentration of bitumen surrounded by the boom. Then shear pumps would be operated inside the cylinder to force coalescence and surfacing of the bitumen. As the bitumen surfaces, Grizzly skimmers would be used to remove the bitumen from the water.

222. Sensitive habitats which are expected to be in the path of the spill plume would be protected by placing exclusion boom in front of the habitats. It is an accepted spill response strategy to identify sensitive habitats, prioritize those habitats as to their sensitivity, and protect the most sensitive habitats first. To facilitate the protection of sensitive habitats, FPL and Bitor America Corporation would use the atlas of sensitive environments in Tampa Bay which identifies the location and type of sensitive habitats, prioritizes those habitats as to their sensitivity, and specifies the most appropriate response strategies to protect each particular

sensitive habitat. This atlas of sensitive environments in Tampa Bay will be incorporated into FPL's spill response plans.

223. Since Orimulsion spilled in Tampa Bay would move back and forth with tidal currents, rather than rapidly moving with the wind to shore as does a No. 6 fuel oil surface slick, more time would be available in the event of an Orimulsion spill to plan response strategies.

224. The spill response technologies, strategies and plans FPL and Bitor America have identified for responding to any Orimulsion spill that might occur in Tampa Bay are comparable to those which would apply to a spill of No. 6 fuel oil, the current fuel used at the Plant and brought into Port Manatee.

Ecological Effects of Orimulsion Released in Tampa Bay

225. Tampa Bay is the largest estuary system in the State of Florida. It is roughly 60 kilometers long and the typical width is on the order of 10 kilometers. Tampa Bay is a relatively shallow system, with a mean depth of about 3.7 meters. The shipping channel which traverses Tampa Bay is approximately 15 meters deep and 122 meters wide.

226. Prior to the early 1900's, Tampa Bay was dominated in its marine productivity by seagrass. Because of human activities since that time, however, the current spatial extent of seagrasses is about 15 percent of the overall Bay. Changes in bathymetry and erosional losses in Tampa Bay preclude the reestablishment of seagrasses in some of their former range absent extraordinary measures to restore former bay bottom. Tampa Bay's primary productivity now comes from phytoplankton in the system.

227. Notwithstanding the loss of seagrass, Tampa Bay is an extremely diverse estuarine system, providing habitat to approximately 250 species of fish, 1200 species of invertebrates, and 200 species of macro-algae. The mangrove systems and marsh grasses on the shoreline area, as well as the remaining seagrasses, provide part of the energetic base for the Tampa Bay system and structurally provide habitat critical as nursery grounds for many species of fish and invertebrates.

228. To gain an understanding of the ecological effects of an Orimulsion spill in Tampa Bay, FPL commissioned the University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, to coordinate a study of the comparative ecological effects from a release into the environment of Orimulsion and No. 6 fuel oil, the fuel currently used at the Plant. The study was called the "Comparative Oil/Orimulsion Spill Assessment Program" (COSAP).

229. COSAP involved independent, peer-reviewed scientific research conducted by scientists at several institutions, including the University of Miami, Florida International University, University of Massachusetts, University of North Texas and the University of South Florida.

230. FPL provided the sponsorship and defined the nature of the problem on which study was desired, but had no role in conducting the research or in the conclusions drawn from that research.

231. COSAP included research on fuel characterization, chemical and physical weathering, and toxicological studies for selected flora and fauna indigenous to Tampa Bay for both Orimulsion and No. 6 fuel oil. COSAP also included the identification of resources and ecosystems at risk, hydrodynamic modeling, and fate and transport modeling for Tampa Bay.

232. The COSAP research was integrated into a comparative ecological risk assessment (CERA) in which the existing ecological risk of No. 6 fuel oil being released in the Tampa Bay environment was compared to the ecological risk which would exist from a similar-sized spill of Orimulsion in that environment. The different reactions of Orimulsion and No. 6 fuel oil in seawater were significant in assessing the comparative ecological risks because with No. 6 fuel oil, the slick effects and the movement of the slick by wind forces had to be considered. With Orimulsion and the dissolved component of No. 6 fuel oil, the tide and currents within the waterbody largely control the movement of the components.

233. Under COSAP, toxicity tests were conducted on mangroves, seagrasses, and important fish and invertebrate species actually found in Tampa Bay, in addition to the typically- utilized surrogate laboratory species. This is a significant advancement beyond what is normally done in an ecological risk assessment.

234. Historically, fuel oil spills have had varying degrees of impact on seagrasses and mangroves. Chronic toxicity tests demonstrated that Orimulsion would not cause widespread mortality of the seagrass beds or mangrove components of Tampa Bay.

235. Toxicologically, the aromatics from No. 6 fuel oil were found to be a thousandfold more toxic to fish and invertebrate species than the components of Orimulsion at similar concentrations. In the event of a spill, however, the concentration of Orimulsion components in the water column would be approximately a thousandfold greater than the concentration of

No. 6 fuel oil aromatics. To evaluate the comparative risk of No. 6 fuel oil and Orimulsion released in Tampa Bay, one must consider both the concentrations to which organisms would be exposed and the relative toxicities.

COSAP's Comparative Ecological Risk Assessment (CERA)

236. To incorporate both exposure concentrations and relative toxicities in the COSAP CERA, the researchers used a scenario-consequence analysis. That is, hypothetical sets of conditions were defined to identify a range of conditions that might occur under different types of spill conditions in Tampa Bay. Then the fate, transport, exposure and ecological effects of both a No. 6 fuel oil spill and an Orimulsion spill for these scenarios were evaluated and compared.

237. The scenarios developed for the CERA included four locations: (1) Egmont Key, the location of a major fuel oil spill in 1993; (2) the Skyway Bridge, the location of a collision which caused a portion of the former bridge to collapse; (3) the Turning Point, the 90 degree turn from the main shipping channel into the shipping channel which leads into Port Manatee; and (4) the Port Manatee facility where offloading occurs.

238. The volume of the spills in the scenario-consequence analysis was 10,000 barrels, except for the Port Manatee facility scenarios for which the spill volume was presumed to be 1,000 barrels.

239. Scenarios covered both wet and dry seasons. For the summer scenarios (the wet season), a relatively wet year and a relatively dry year were included. For each season and location, scenarios were chosen at four different start times to represent the range of combinations of wind and tidal events. Altogether, the CERA analysis included 96 scenarios.

240. Each scenario was modeled using a hydrodynamic model developed by the National Oceanic and Atmospheric Administration (NOAA) National Ocean Survey and further calibrated by the University of Miami researchers to the Tampa Bay system. Output from this hydrodynamic model was input to the 3-dimensional fate and transport model, SIMAP.

241. For each scenario, movement of the various components of No. 6 fuel oil or Orimulsion was simulated for five different layers within Tampa Bay. Hourly concentrations were output and transferred to a Datagraphic Information System. The outputs were then integrated over time until concentrations were below the level where significant ecological effects would occur. Exposures (a combination of concentration, time, and component)

were then graphically displayed using a scaling methodology and overlaid on the distribution of species in Tampa Bay, allowing for a direct comparison of toxicological effects.

242. In assessing the comparative ecological risks of Orimulsion and No.6 fuel oil, numerous conservative design parameters and assumptions were used for the CERA. For example, the most sensitive life stages of the most sensitive species were utilized, maximum exposure times were assumed even for organisms which could swim out of the affected area after a spill, and a large spill volume was assumed.

COSAP CERA Conclusions

243. While an Orimulsion spill would have greater water column effects than a similar-sized spill of No. 6 fuel oil, the No. 6 fuel oil spill would have the added oil slick formation and associated shoreline impacts which are not anticipated from an Orimulsion spill.

244. Overall, the risk to the Tampa Bay ecosystem from a spill of Orimulsion is essentially comparable to the existing risk of a No. 6 fuel oil spill of similar size. The risks from a spill of Orimulsion would not be significantly greater than, nor significantly less than, the risks to the Tampa Bay ecosystem from a similar-sized spill of No. 6 fuel oil.

Peer Review of COSAP Research and Conclusions

245. A Science Advisory Panel provided independent scientific peer review of the COSAP research and conclusions. The Panel included leading scientists in the fields of ecological risk assessments, spills of oil in the marine environment, coastal systems, and several representatives of state and federal regulatory agencies.

246. The Science Advisory Panel was involved in a meeting at the inception of COSAP to discuss the overall research goals and objectives, the structure of the research program, and the specific protocols for the toxicological experiments. The Panel also examined the models and statistical approaches to be used for the study. The Panel specifically addressed the issue of the applicability and appropriateness of the ecological risk assessment paradigm, and participated in the development of the scenarios used in the CERA. The Panel reviewed an interim technical support document and provided detailed comments on all components of the research at that time prior to development of the CERA report. The Science Advisory Panel approved the use of the ecological risk assessment framework, the experimental

components, the experimental design, the statistical analyses, the scaling methodology, and the conclusions reached in the CERA.

Effects of Estrogenic Compounds Following a Spill

247. The Orimulsion to be used at the Plant will include no more than .22 percent nonylphenol polyethoxylate surfactant.

248. The surfactant allows the bitumen particles to remain emulsified in the water, forming a stable emulsion.

249. Hundreds of millions of pounds of nonylphenol polyethoxylate surfactants are used annually in the United States in domestic and industrial products, such as soaps and detergents. Globally, more than a half billion pounds of nonylphenol polyethoxylate surfactants are used annually.

250. Nonylphenol polyethoxylates released in an aquatic environment are broken down by actions of bacteria and sunlight. The final degradation products would be carbon dioxide and water. The warm temperature, intense sunlight and seawater in Tampa Bay would increase the speed of the surfactant's degradation process.

251. Neither the surfactant in Orimulsion nor its intermediate degradation products are expected to persist for more than 30 to 45 days in Tampa Bay, if a spill occurs.

252. Both No. 6 fuel oil and Orimulsion may result in compounds which mimic estrogen being released in the environment following a spill. The polycyclic aromatic hydrocarbons (PAHs) in No. 6 fuel oil are suspected to have such estrogenic properties. Similarly, some of the intermediate breakdown products of the nonylphenol polyethoxylate surfactant in Orimulsion are suspected to have estrogenic effects.

253. Whether there are ecological consequences of such estrogenic compounds when released in the environment has not been established.

254. To the extent marine organisms are exposed to any of the intermediate degradation products of Orimulsion's surfactant during the 30 to 45 days they may persist in Tampa Bay, once the exposure is removed the organisms are able to purge their systems of those compounds. Consequently, no long-term bioaccumulation of these compounds is expected.

255. The surfactant and any effects it may have when released in the environment should not persist for long periods of time due to rapid degradation and the ability of marine

organisms to purge their systems of the degradation products after the exposure is removed.

Summary of Comparative Spill Risks

256. Given the comparable ecological risks to Tampa Bay of Orimulsion and No. 6 fuel oil, the comparable spill response capabilities for the two fuels, and the substantially lower risk of a spill of Orimulsion than that for No. 6 fuel oil being delivered to the Plant, overall the risk to Tampa Bay will be significantly reduced after the conversion of the Plant to Orimulsion from that which currently exists from the transport of No. 6 fuel oil.

257. Moreover, the conversion of the Plant to Orimulsion will reduce the risk of transfer-related fuel spills statewide. Every time there is a transfer of fuel from one fuel-holding tank to another, whether that holding tank is on a ship or barge, or is part of a terminal or refinery, there is a risk of a transfer-related spill. Deliveries of fuel oil to FPL's plants require from one to three transfers in Florida, depending on whether the terminal at the receiving port is connected directly to the electrical generating plant by pipeline (as at the Plant) or whether fuel must be transferred from the terminal to the plant by barge. Because the conversion to Orimulsion will increase the utilization of the Plant, and reduce the utilization of other FPL plants that burn higher cost oil, it will reduce the number of deliveries and transfers of fuel oil to other FPL plants within the State. This will reduce the number of FPL's annual fuel transfer operations in Florida by 14 percent, from 635 before the conversion to 548 following the conversion. This translates directly into a reduced probability of fuel spills.

258. In addition, over 80 percent of the No. 6 fuel oil burned in Florida is refined at Gulf Coast plants. There are opportunities for transfer spills when fuel ultimately destined for FPL is delivered to and shipped from those refineries. These opportunities for Gulf Coast spills are eliminated with Orimulsion, which is transferred only once, off the coast of Venezuela, before it reaches the receiving terminal at Port Manatee.

CONCLUSIONS OF LAW

259. The Division of Administrative Hearings has jurisdiction over the parties to and subject matter of this proceeding. Section 403.508(3), F.S. (1995).

260. In the prehearing stipulation, all parties agreed that Manasota-88 and MCSOBA have standing to participate in this proceeding.

261. Applications for certification of existing electrical power plants, such as the Plant, are governed by Section 403.5175, F.S. Section 403.5175, F.S. (1995), provides in pertinent part:

(1) An electric utility that owns or operates an existing electrical power plant . . . may apply for certification of an existing power plant and its site in order to obtain all agency licenses necessary to assure compliance with federal or state environmental laws and regulations using the centrally coordinated, one-stop licensing process established by this part. Applications must be reviewed and processed in accordance with Sections 403.5064-403.5115, except that a determination of need by the Public Service Commission is not required.

* * *

(4) In considering whether an application submitted under this section should be approved in whole, approved with appropriate conditions, or denied, the [Siting Board] shall consider whether, and to the extent to which proposed changes to the electrical power plant and its continued operation under certification will:

- (a) Comply with applicable nonprocedural requirements of agencies;
- (b) Result in environmental or other benefits compared to current utilization of the site and operations of the electrical power plant if the proposed changes or alterations are undertaken;
- (c) Minimize, through the use of reasonable and available methods, the adverse effects on human health, the environment, and the ecology of the land and its wildlife and the ecology of state waters and their aquatic life; and
- (d) Serve and protect the broad interests of the public.

No further guidance is given on how to use the results of the consideration given under paragraph (a), or how to balance it against the other factors to be considered under paragraphs (b)-

(d). But, contrary to the position taken by Manasota-88 and MCSOBA, it is concluded that some balancing of considerations may be necessary.

Burden of Proof

262. As the applicant for certification, 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. On the basis of the facts found and record made at the certification hearing, the Siting Board decides any disputes among parties as to whether reasonable assurances have been given that a project will comply with specific criteria and the legislative intent of the Power Plant Siting Act (PPSA).

Summary of Conclusions

263. Based upon consideration of all evidence of record, the Project meets the criteria set forth in Section 403.5175(4), F.S. (1995), subject only to the requirement that Bitor's commitments to take extraordinary safety measures, over and above those required by state and federal regulations, to minimize the risk of fuel spills should be made part of the Conditions of Certification. See Conclusion of Law 266(a), below, and Finding of Fact 189, above. (The Conditions of Certification provide that they shall be automatically modified to conform to any separately-issued PSD or National Pollution Discharge Elimination System (NPDES) permit for the project.)

264. Through extensive scientific analyses of the impacts and/or controls of fuel spills, air emissions, water withdrawals, activities in wetlands, groundwater seepage, and other aspects of the Project, FPL has provided reasonable assurances that construction and operation of the converted Plant will comply with applicable nonprocedural requirements of the agencies, including Chapters 373 and 403, F.S., and F.A.C. Rule Chapters 62 and 40D. Construction and operation also will comply with

applicable provisions of the Manatee County Comprehensive Plan, and Manatee County Land Development Code, including zoning standards, as long as variances from provisions relating to wetland mitigation ratios and location of landscaping are granted as recommended by the County. The Project also is consistent with the State Comprehensive Plan and the Comprehensive Regional Policy Plan of the Tampa Bay Regional Planning Council.

265. Operation of the converted Plant will result in environmental and other benefits as compared to current utilization of the site and operation of the existing plant. Environmental benefits include significant reductions in total air emissions on both a plant-wide and system-wide basis, reduced human health risks from air pollutants, very substantial decreases from the currently-permitted air emission levels, reductions of permitted water withdrawals from the Little Manatee River, enhancement and preservation of wetland areas in the vicinity of the Plant, and reduced risks of fuel spills in Tampa Bay and statewide. Other benefits include significant savings to FPL's customers, the creation of jobs both during and after construction, increased governmental revenues in the form of additional taxes and port charges, and enhancement of FPL's ability to compete with coal-fired power plants in adjacent and nearby states if and when retail wheeling becomes a reality in Florida. The Project will benefit the local economies of Manatee and Hillsborough counties, as well as the statewide economy of Florida.

266. The proposed design and operation of the converted Plant will minimize, through the use of reasonable and available methods, adverse effects on human health, the environment, and the ecology of the land and its wildlife and the ecology of state waters and their aquatic life:

(a) In order to minimize the risk of fuel spills, FPL and its fuel contractor have committed to extraordinary safety measures over and above those required by state and federal regulations. However, Bitor's commitments should be made part of the Conditions of Certification.

(b) In addition to new scrubbers for control of SO₂ emissions and ESPs for control of particulate and toxic emissions, FPL will install state-of-the art low-NO_x burners and reburn technology to control NO_x emissions. FPL also has agreed to measures designed to further minimize NO_x emissions during the ozone season. It is technically feasible to reduce NO_x emissions even further, or to shut down to cap NO_x emissions, but such a certification condition would not be reasonable, especially in view the demonstration that the environmental benefit from such measures would be too small to measure.

(c) FPL will minimize surface water withdrawals from the Little Manatee River by using reclaimed water and currently-permitted groundwater sources before resorting to surface water withdrawals. Again, further reductions are possible by shutting the plant down to avoid surface water use, but such a certification condition would not be reasonable, especially in view of the demonstration that the environmental benefit from such measures would be too small to measure. Besides, FPL's currently-permitted surface water use is grandfathered under SWFWMD statutes and rules.

(d) FPL will undertake wetland mitigation measures beyond those required under applicable regulations. While no specific agency standards apply to the temporary by-product storage area or the backup by-product disposal area, the storage area will be designed and operated in accordance with DEP's standards for phosphogypsum stack systems, and the disposal area will be designed in accordance with DEP's design standards for Class I landfills.

(e) Transportation improvements will be made to local roadways, although not required for compliance with applicable transportation standards.

By these and other measures, FPL has committed to implement reasonable and available measures above and beyond those required in applicable regulations to minimize adverse impacts to human health and safety, and the environment.

267. The Project serves and protects the broad interests of the public in several ways. The Project will produce lower electrical costs to FPL's customers, including governmental entities, with resulting benefits to Florida's economy. By improving FPL's competitiveness, the Project will help insure that Florida's electric generating industry will continue to produce jobs, tax revenues, and other benefits to the State of Florida. The Project also serves and protects the public interest by reducing air emissions on both a local and statewide level, reducing health risks from air emissions, reducing the risk of fuel spills in Tampa Bay and elsewhere in Florida, and maximizing use of reclaimed water. Additionally, reasonable assurances have been given that construction and operation of the converted Plant will not adversely affect public health, safety or welfare, the conservation of fish and wildlife, fishing, water-based recreational values, or marine productivity in the vicinity of the Plant.

Inapplicable Surface Water Quality Permitting Criteria

268. Manasota-88 and MCSOBA argue various novel theories in an attempt to require the Orimulsion Conversion Project to undergo additional state surface water quality permitting review. They argue that additional surface water quality permitting review is required because: (1) air emissions of NOx result in the direct atmospheric deposition of nitrogen on surface waters, together with the indirect deposition on surface waters after initial direct deposition within the watershed of surface waters; (2) surface water will be withdrawn from the Little Manatee River for use as make-up water for the cooling pond; and (3) groundwater flows from the cooling pond to the Little Manatee. For various reasons, it is concluded that their arguments have no merit.

Statutes and Rules on Surface Water Discharges

269. Section 403.087(1), F.S. (1995), provides in pertinent part:

No stationary installation which will reasonably be expected to be a source of air or water pollution shall be operated, maintained, constructed, expanded, or modified without an appropriate and currently valid permit issued by the department

See also F.A.C. Rule 17-4.210(1). By their terms, this statute and rule require an "appropriate" permit. By themselves, neither gives guidance as to what kind of permit is "appropriate."

270. Section 403.088, F.S. (1995), deals with water pollution operation permits. It provides in pertinent part:

- (1) No person, without written authorization of the department, shall [discharge into waters within the state any waste]
- (2)(a) Any person intending to [discharge wastes into waters of the state] shall make application to the department for any appropriate permit required by this chapter.

[Emphasis added.] See also F.A.C. Rule 17-4.240(1). Both statute and rule refer the [discharge of wastes into waters of the state]. There is no reason to think that either refers to atmospheric deposition from air emissions or to withdrawals of surface water.

271. The evidence is clear that DEP never has treated either air emissions or withdrawals of surface water as "discharge of waste into waters of the state" so as to be subject to permitting review under Section 403.088 or Rule 17-4.240. Nor is there any legal precedent for such an interpretation of the statute and rule.

272. Consistent with DEP policy and practice, F.A.C. Rule 62-4.242 provides in pertinent part:

(1) Antidegradation Permitting Requirements

* * *

(b) In determining whether a [proposed discharge] which results in water quality degradation is necessary

[Emphasis added.]

273. References to the regulation of either point source "discharges" or "dredge and fill" are found throughout the statutes and rules that apply to surface water quality permitting criteria and requirements. F.A.C. Rule 17-4.244 addresses mixing zones for components of discharges. F.A.C. Rule 17-302.300(1), (2), (6) and (7) address discharges (or, in the case of (2), effluent limits.)

274. There is some language in parts of the DEP's rules on surface water quality that is broad enough to be read to apply generally to all pollution sources of any kind if taken out of context. Cf. F.A.C. Rules 62-302.200(19), 62-302.300(3)-(5), 62-302.500(1), and 62-302.530. But, when read properly and in context, it is concluded that they do not apply to atmospheric deposition resulting from air emissions or to withdrawals of surface water. If they did, all sources of air emissions and all surface water withdrawals in Florida would require wastewater permits under Chapter 403, F.S., and, conceivably, under the federal Clean Water Act (CWA). See Section 403.087, Fla.Stat.; 33 U.S.C. s. 1342(a)(1). No law has been cited that would support the conclusion that this has ever been the law in Florida or anywhere else.

Rejection of Similar Arguments in NYDEC Case

275. While Manasota-88 and MCSOBA cited no precedent supporting their argument that additional surface water quality permitting review is necessary in this case, FPL has cited In re: Petitions by Environmental Defense Fund, Inc., Dec. Ruling 17-04 (NYDEC 1983), which involved facts strikingly similar to this case. It arose out of proposals by two utilities to convert existing electric generating units from the burning of oil to the

burning of coal. An environmental organization petitioned the New York Department of Environmental Conservation (NYDEC) for a declaratory ruling that the utilities were required to obtain wastewater discharge permits conditioned upon assurances that such emissions would "not cause the violation of, or exacerbate existing violations of, state water quality standards." *Id.* In ruling on the petitions, the NYDEC assumed that "all or part" of the emissions "may reach waters of the State and the United States through dry or wet deposition." *Id.* at 3.

276. The NYDEC rejected the notion that air emissions which may eventually reach surface waters through wet or dry deposition constitute "discharges" under the Clean Water Act and analogous state provisions. In so ruling, the NYDEC recognized that broad definitions of the terms "pollutant" and "discharge" in the Clean Water Act and analogous state provisions conceivably could be read out of context to include air emissions. *Id.* at 4-5. However, the NYDEC concluded that such an expansive interpretation "cannot withstand analysis (1) when these terms are read in context, (2) when there is no legislative history or case law supporting such a construction, and (3) when the Clean Water Act is construed in *pari materia* with the Clean Air Act." *Id.* at 4. Adopting a common-sense reading of the term "discharge" as including only the direct addition of pollutants to surface waters, the NYDEC held that wastewater permits were not required for air emissions because, among other things, "smokestack emissions are emissions to the air, not the water[.]" *Id.* at 3.

277. The common-sense reasoning of the NYDEC case is equally applicable under Florida's analogous statutory and regulatory provisions. Like the NYDEC, DEP has established separate wastewater and air permitting programs based, in large part, on the requirements of federal law. For example, in the wastewater area, DEP has adopted water quality standards in accordance with 303 of the federal CWA (33 USC s. 1313) and permitting requirements for surface water discharges under the National Pollutant Discharge Elimination System (NPDES) established in s. 402 of the federal Act (33 USC s. 1342). See F.A.C. Rule Chapters 62-302 and 62-620. Likewise, DEP has adopted ambient air quality standards in accordance with s. 110 of the federal Clean Air Act (42 USC s. 7410(a)(1)) and federally enforceable construction and operation permitting programs under Titles I and IV of the federal Act. See F.A.C. Rule Chapters 62-272 (ambient air quality standards), 62-212 (major source construction permitting), and 62-213 (major source operation permitting).

278. No legislative or regulatory history supports reading the terms "discharge of pollutants" and "discharge of wastes" in

DEP's wastewater permitting rules as including air emissions. To the contrary, the record of this proceeding indicates that DEP, which is charged with implementing Florida's environmental laws, has never considered air emissions to be "discharges" under DEP's governing statutes and rules. In the absence of any legislative or regulatory history clearly indicating that the term "discharge" was meant to include air emissions, DEP's interpretation of the statutes it administers should be accepted. See *Pershing Indus., Inc. v. Florida Dep't of Banking & Finance*, 591 So.2d 991, 993 (Fla. 1st DCA 1991) ("It is axiomatic that an agency's construction of its governing statutes and rules will be upheld unless clearly erroneous.").

Outstanding Florida Waters

279. Manasota-88 and MCSOBA also argue that special rules and requirements for Outstanding Florida Waters (OFW's) apply to atmospheric deposition resulting from air emissions or to withdrawals of surface water. (They also argue that the asserted applicability of the OFW requirements also supports their argument that other surface water quality permitting review applies.)

280. F.A.C. Rule 62-302.700 designates OFW's and provides for the permitting requirements and policies that apply to them. There is language in F.A.C. Rule 62-302.700(1) that is broad enough to be read to apply generally to all pollution sources of any kind if taken out of context. But F.A.C. Rule 62-302.700(7) provides that the "policy of this section shall be implemented through the permitting process pursuant to Section 62-4.242, F.A.C."

281. F.A.C. Rule 62-4.242(2) references OFW's and provides in pertinent part:

(2) Standards Applying to Outstanding Florida Waters.

(a) No Department permit or water quality certification shall be issued for any proposed activity or discharge within an Outstanding Florida Water, or which significantly degrades, either alone or in combination with other stationary installations, any Outstanding Florida Waters, unless the applicant affirmatively demonstrates that:

* * *

2. The proposed activity or discharge is clearly in the public interest, and either
a. A department permit for the activity has been issued or an application for such

permit was complete on the effective date of the Outstanding Florida Water designation; or

b. The existing ambient water quality within the Outstanding Florida Waters will not be lowered as a result of the proposed activity or discharge.

* * *

(d) Rule 62-4.242(2) shall not apply to any [dredge or fill activity or discharge] to an Outstanding Florida Water permitted on, or for which a complete permit application was filed on, the effective date of an Outstanding Florida Water designation; nor shall it apply to any renewal of a Department permit where there is no modification of the dredge and fill activity or the discharge which would necessitate permit review.

[Emphasis added.]

282. Manasota-88 and MCSOBA attempt to read subsection (2)(a) of F.A.C. Rule 62-4.242 out of context to suggest that the term "activity" includes atmospheric deposition from air emissions and surface water withdrawals. But such a reading ignores subsection (2)(d), which clearly indicates that the rule applies only to "dredge or fill" activities and to "discharges." When subsections (2)(a) and (2)(d) are read together, the general term "activity" in (2)(a) is restricted to a sense analogous to the specific term "dredge and fill activity" in (2)(d). State ex rel. Wedgworth Farms, Inc. v. Thompson, 101 So.2d 381, 385 (Fla. 1958).

283. Such a reading not only is required by the rules of construction, it also is consistent with the fact that the "Standards Applying to Outstanding Florida Waters" were promulgated in accordance with the federal Clean Water Act, which requires permits only for surface water point source discharges to surface waters and for dredge and fill activities. See 33 U.S.C. s. 1342(a)(1) and 1344(a).

284. It is concluded that the designation of the Cockroach Bay Aquatic Preserve and the Little Manatee River as OFW's does not require state surface water quality permitting review as part of the certification of FPL's proposed Orimulsion Conversion Project.

Federal Certification

285. Manasota-88 and MCSOBA also make an argument that somehow federal water quality certification requires scrutiny of

the Project under all state surface water quality permitting criteria. This argument also is rejected as being without merit.

286. Section 401 of the CWA provides, in pertinent part:

Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate . . . that any discharge will comply with the applicable provisions of section 1311 [effluent limitations], 1312 [water quality related effluent limitations], 1313 [water quality standards and implementation plans], 1316 [national standards of performance], and 1317 [toxic and pretreatment effluent limitations] of this title.

33 U.S.C. s. 1341. (Emphasis added.) The certification must provide that there is reasonable assurance that the activity will be conducted in a manner which will not violate applicable State-adopted water quality standards. 40 C.F.R. 121.2.; 40 C.F.R. 121.1(g). As already indicated, neither Florida nor federal surface water quality statutes or rules provide for permitting provides of air emissions as discharges to surface waters.

287. In addition, certification is not an absolute requirement for issuance of a federal permit. The State may fail or refuse to act on a requested certification and it will be deemed to be waived. 33 U.S.C. s. 1341. Waiver occurs within 60 days (or less if deemed appropriate) from the State's receipt of the request on a dredge and fill permit. 33 CFR 325.2(b)(1)(ii).

Ecosystem Management

288. There was evidence that DEP is considering the utilization of an ecosystem management approach to environmental permitting that might evolve into the kind of surface water permitting review requested by Manasota-88 and MCSOBA in this case. But the evidence was clear that DEP's consideration of an ecosystem management approach has not yet matured into a permitting framework. At this time, the statutes and rules addressing the pollution of surface waters, when reviewed in context, are not designed to regulate, and should not be extended to attempt to regulate, either (1) the atmospheric deposition of nitrogen on surface waters that will result from emissions of

NOx, or (2) the withdrawal of water from the Little Manatee River.

289. 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.

Legal and Permit Agreement
Covers Surface Water Withdrawals
from the Little Manatee River

290. FPL is the holder of a Permit Agreement authorizing it to withdraw from the Little Manatee River more water than it is proposing to use if the Orimulsion Conversion Project is certified.

291. Manasota-88 and MCSOBA argue that FPL's current withdrawals from the LMR are "unpermitted and illegal." They contend that FPL has failed to obtain from SWFWMD a water use permit for those withdrawals. Based on the theory that prior withdrawals were "illegal," they argue that FPL's proposed future withdrawals under the requested certification should be evaluated under current permitting standards, including DEP's OFW criteria.

292. The Permit Agreement between SWFWMD and FPL was executed in April, 1973, and amended in 1975. It is a lawful authorization for such withdrawals as recognized by both Chapter 373, F.S. and SWFWMD rules. Thus, previous withdrawals by FPL from the LMR have been properly authorized under Chapter 373, and must be considered to be existing permitted withdrawals. Therefore, even if new proposed withdrawals from the River are subject to review under DEP's OFW criteria, FPL's continued withdrawals from the River, following conversion of the Plant, are not subject to review under OFW criteria since FPL's withdrawals were permitted at the time the River was designated an OFW by DEP in 1982.

293. The Legislature intended in Section 373.224, F.S. (1995), to validate and to continue in effect "permit agreements" entered into prior to December 31, 1976, in lieu of obtaining a

separate Chapter 373 water use permit for authorized withdrawals; Chapter 373 contains specific provisions for modification and revocation of such permit agreements which militate against any implied modification or revocation of the existing FPL permit agreement by operation of Section 373.226; and SWFWMD's own F.A.C. Rule 40D-2.051(2) specifically exempts holders of "permit agreements" entered into before July 1, 1973, from Chapter 373 consumptive use permitting requirements.

294. Section 373.224, F.S. (1995), provides:

Existing Permits.--Any permits or permit agreements for consumptive use of water executed or issued by an existing flood control, water management, or water regulatory district pursuant to chapter 373 or chapter 378 [prior to December 31, 1976, shall remain in full force and effect in accordance with their terms until otherwise modified or revoked as authorized herein]. [Emphasis added.]

295. SWFWMD's F.A.C. Rule 40D-2.051(2) exempts "permit agreements" from Chapter 373 consumptive use permitting requirements as follows:

40D-2.051 Exemptions.

* * *

(2) All holders of [permit agreements] for water use executed or issued prior to July 1, 1973, shall remain in full force and effect in accordance with its terms unless otherwise modified or revoked by the Governing Board.

[Emphasis added.]

296. Both the above statute and SWFWMD rule exempt FPL from obtaining a new consumptive use permit for the Plant in light of the April 17, 1973, water use Permit Agreement with SWFWMD. The recitations in the Permit Agreement clearly state that the Agreement was entered into pursuant to Chapter 373. The Permit Agreement was executed and issued pursuant to Chapter 373 before July 1, 1973, and December 31, 1976. Therefore, by both statute and rule, the Permit Agreement remains valid.

297. Manasota-88 and MCSOBA incorrectly assert that Section 373.226, F.S. (1995), required FPL to obtain a separate consumptive use permit for the Plant to replace the Permit Agreement. Section 373.226 provides:

Existing Uses.--

(1) All existing uses of water, unless otherwise exempted from regulation by the provisions of this chapter, may be continued after adoption of this permit system only with a permit as provided herein.

(2) The governing board or the department shall issue an initial permit for the continuation of all uses in existence before the effective date of implementation of this part if the existing use is a reasonable-beneficial use ... and is allowable under the common law of this state.

(3) Application for permit under the provisions of subsection (2) must be made within 2 years from the effective date of implementation of these regulations in an area. Failure to apply within this period shall create a conclusive presumption of abandonment of the use, and the user, if he desires to revive the use, must apply for a permit under the provisions of s. 373.229.

298. Section 373.226 only addresses water uses that existed before 1973 and were not otherwise covered by a Chapter 373

permit or permit agreement by July 1973. Such common law users were required to seek approvals within two years (or by 1975) for those water uses that existed before 1973 and that were being subjected to Florida's consumptive use permitting program for the first time. *Village of Tequesta v. Jupiter Inlet Corp.*, 371 So.2d 663, 671 (Fla. 1979) ("The holder of such a common-law water-use right was given two years to convert the common law right into a permit water right.")

299. Manasota-88 and MCSOBA have misinterpreted the Legislature's intent in enacting Section 373.224, F.S. (1995), which governs the continuing validity of "permit agreements" until revoked or modified. As part of the Florida Water Resources Act of 1972, the Legislature originally enacted Section 373.226, "Existing Uses," in 1972 to require common-law water uses to obtain a permit under the newly-enacted water use permitting program. Ch. 72-299, Part II, 4, Laws of Fla. Subsequently, in the 1973 session, the Legislature amended and reenacted the bulk of Section 373.226. Ch. 73-190, 12, Laws of Fla. At the same time, the Legislature first enacted Section 373.224, "Existing Permits", which provided that any permit or permit agreement entered into pursuant to Chapter 373 prior to July 1, 1973, would "remain in full force and effect in accordance with its terms" unless modified or revoked as authorized by law. Ch. 73-190, 11, Laws of Fla.

300. The Legislature is presumed to act with knowledge of prior existing laws. *State v. Dunmann*, 427 So. 2d 166, 168 (Fla. 1983). In this case, Section 373.226 providing for regulation of "existing uses" was in Florida Statutes at the time the Legislature adopted Section 373.224's exemption from permitting for Chapter 373 water use "permits and permit agreements." The fact that the Legislature subsequently created a separate section to address "permits and permit agreements" is a strong indication that it intended Section 373.224 to be the sole statutory section addressing the continuing validity of existing "permits and permit agreements". If Section 373.226 for "Existing Uses" and its two-year mandate to obtain a Chapter 373 water use permit applied to Chapter 373 "permit agreements" such as FPL's, the Legislature would not have created Section 373.224. It would simply have amended Section 373.226 to specifically include "permit agreements" as one of the existing uses required to obtain permits under Chapter 373. It must be concluded that the Legislature created two separate statutory sections: one addressing water uses already authorized under Chapter 373 permits and permit agreements (Section 373.224); and another section for existing common-law uses (Section 373.226), for water uses that did not have Chapter 373 authorization in 1973. FPL's Permit Agreement does not fall within the category of "existing

uses" required to obtain a Chapter 373 water use permit as FPL's water uses had already been authorized under Chapter 373.

301. SWFWMD's F.A.C. Rule 40D-2.051 interprets Section 373.224 as an exemption for existing permit agreements from obtaining a water use permit. It also is SWFWMD's opinion that the Permit Agreement will remain in place if a PPSA certification is not issued. An agency's interpretation of a statute it administers is to be accorded significant weight unless its interpretation is clearly erroneous. Florida Dep't of Insurance v. Southeast Volusia Hosp. Dist., 438 So. 2d 815, 820 (Fla. 1983). This interpretation is consistent with the Legislature's intent as previously discussed, and should be accorded significant weight concerning the validity of the 1973 Permit Agreement.

Cooling Pond Groundwater Discharges

302. DEP can grant a zone of discharge (ZOD) for existing and new installations which discharge to Class G-II groundwater in accordance with F.A.C. Rule 62-524.410. "Zone of discharge" is defined by DEP rule in pertinent part as "a volume of water underlying or surrounding the site . . . within which an opportunity for the treatment, mixture or dispersion of wastes into receiving groundwater is afforded." F.A.C. Rule 62-520.200(23).

303. The horizontal edge of the cooling pond ZOD is the FPL property line. While groundwater may exceed some of the applicable groundwater standards inside the ZOD, the evidence in this case is clear that groundwater will not exceed any of the applicable groundwater standards outside the ZOD. The evidence also is clear that DEP never has considered the discharge of groundwater that meets applicable groundwater standards to be a discharge into surface waters for purposes of surface water quality regulation.

Secondary Impacts

304. Manasota-88 and MCSOBA also argue that additional permitting review is required for virtually all aspects of the Orimulsion Conversion Project on a theory of "secondary impacts." Not only is the theory hard to follow, it is not clear exactly what Manasota-88 and MCSOBA are seeking in the way of "secondary impact" review.

305. 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 all

permitting programs (federal water quality certification, PPSA certification, PSD permitting) for: nitrogen deposition resulting from NOx (air) emissions; ozone formation resulting from NOx (air) emissions; and saltwater intrusion with alleged "groundwater pollution" resulting from groundwater withdrawals. They also propose such review under only the PSD air permit program for: cooling pond discharges to groundwater; and truck traffic and its impacts to residents of Parrish. But 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 another way of requiring FPL's air emissions to undergo additional state surface water quality permitting review.

306. 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.

307. 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).

308. 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).

309. 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).

Air emissions (nitrogen and ozone)

310. Under the Department's PSD permitting program, the pertinent regulatory criteria are found in Florida's EPA-approved State Implementation Plan and other air pollution standards of the Department. See Council of the Lower Keys v. Charley Toppino & Sons, Inc., 429 So.2d 67, 68 (Fla. 3rd DCA 1983). 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.

311. 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 (NO2). 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), supra. Nothing in the SIP or other DEP regulations requires any additional review of air emissions as a secondary impact to water quality. Moreover, as discussed above, air emissions are not "discharges" to surface waters, and are thus

not regulated under the Clean Water Act and are not subject to the Act's surface water quality compliance certification.

312. 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. Accordingly, 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.

Saltwater intrusion and associated groundwater "pollution"

313. These potential impacts from groundwater wells need not be re-reviewed as secondary impacts of any permitted activity. 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

314. Manasota-88 and MCSOBA have asserted that the groundwater discharges from the cooling pond are secondary impacts only of FPL's PSD (air) permit. 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

315. In their PRO, Manasota-88 and MCSOBA assert that a secondary impacts review of truck traffic impacts is authorized or required under the PSD permit. They 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 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.

316. It is concluded that no further "secondary impact" review is necessary or appropriate in this case.

Cumulative Impacts

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

318. 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.

319. 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.)

320. 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).

321. 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, PPSA power plant certification, and even under the federal water quality certification (Corps dredge and fill permitting) for all present and future nitrogen deposition from all sources to Tampa Bay, the LMR, and Lake Manatee. Under PSD air permitting and PPSA power plant certification, cumulative impact review of all present and future NOx and all present and future ozone formation resulting from those NOx emissions, as well as 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.

322. 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.

323. It is concluded that in this case all of the truly foreseeable cumulative impacts have received appropriate review, either as direct impacts under the various applicable permit criteria or under the certification criteria of Section 403.5175(4)(b)-(d).

324. Air emissions have received all necessary review under applicable air programs, and the PPSA require no further review under any other permit programs. 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.

325. Impacts from groundwater wells need not be re-reviewed, because these impacts have already been specifically reviewed under F.A.C. Rule Chapter 40D-2. Movement of the saltwater interface in the groundwater is not changed by FPL's proposed wells. They are a minimal relocation of existing, permitted wells and are limited to the existing wells' permitted withdrawal amounts. FPL has agreed to obtain reclaimed water to

offset the future agricultural needs which would have otherwise been met by groundwater from the existing wells.

326. Moreover, because saltwater intrusion is the result of the accumulated effects of past withdrawals on a regional level, the assessment of saltwater intrusion necessarily required a consideration of past impacts. In addition, there are no likely future withdrawals in the area to be cumulated with the FPL wells. No new withdrawals (unless they are reallocations of existing permitted withdrawals) are allowed in the Most Impacted Area of the Eastern Tampa Bay Water Use Caution Area where the FPL wells are located. Water Use Basis of Review, 7.2.8.

Groundwater Quality Standards
Vertical Extension of ZOD is Consistent with DEP Rules

327. Manasota-88 and MCSOBA argue that FPL is not entitled to obtain a vertical extension of the existing zone of discharge (ZOD) for groundwater discharges from the Plant's cooling pond. They also assert that, because FPL will begin using treated wastewater in the cooling pond, thereby changing the chemistry of the groundwater discharge, the Plant's exemption from compliance with secondary groundwater standards, and the "existing installation" status of the cooling pond must be revoked.

328. The record establishes that the FPL Manatee Plant is an "existing installation" for purposes of groundwater discharges from the pond, in accordance with F.A.C. Rule 62-520.200(1). The FPL Manatee Cooling pond was permitted for water discharges as of January 1, 1983, and was in fact an installation reasonably expected to release contaminants into groundwater on July 1, 1982. As an existing installation, it is entitled to a specified zone of discharge to the facility's property boundary and is exempt from compliance with secondary groundwater standards outside a zone of discharge. F.A.C. Rule 62-522.100(4).

329. DEP can grant zones of discharge for existing and new installations which discharge to Class G-II groundwater in accordance with F.A.C. Rule 62-522.410. Uncontroverted testimony clearly establishes that the groundwater under the FPL Manatee Site is Class G-II groundwater. "Zone of discharge" is defined by DEP rule as "a volume of water underlying or surrounding the site and extending to the base of a specifically designated aquifer or aquifers, within which an opportunity for the treatment, mixture or dispersion of wastes into receiving groundwater is afforded." F.A.C. Rule 62-520.200(23). (Emphasis added.)

330. As part of the Industrial Wastewater Permit for the Plant, DEP has previously granted FPL a zone of discharge that

extends horizontally from the existing cooling pond to FPL's property boundary and vertically to the base of the shallow water table aquifer. The DEP permit cites F.A.C. Rule 62-522.410(1) as authority for the dimensions of the ZOD. The shallow water table aquifer is an aquifer immediately below the land surface. Thus, a valid zone of discharge has been granted by DEP permit.

331. F.A.C. Rule 62-522.500 allows DEP, upon request of a permittee or by Department order, to modify an existing zone of discharge or groundwater monitoring requirements for a facility. That rule sets forth seven reasons that may be relied upon in modifying an existing zone of discharge. F.A.C. Rule 62-522.500(1)(f) sets forth the following as one of those reasons: "[a] change in the chemical, physical, or microbiological composition, or the volume or the location of the discharge, requires a change in the zone of discharge or the monitoring scheme to assure compliance." When a permit holder with a zone of discharge establishes that one of the pertinent criteria exist, under F.A.C. Rule 62-522.500(3)(b), DEP shall modify the ZOD to assure that none of the conditions in F.A.C. Rule 62-522(1)(a) through (c) will occur. These three conditions are that the discharge plume will not result in a violation of applicable water quality standards beyond the boundary of the zone of discharge; will not impair the designated use of underground sources of drinking water or the surface waters immediately affected by the groundwater; and will not result in an imminent threat to public health or the environment.

332. The evidence demonstrates that the chemical composition of the water in the cooling pond discharge will change as a result of FPL's commitment to use treated wastewater as a makeup water source. Upon making that showing, FPL is entitled to obtain a modified zone of discharge, since the three relevant criteria in F.A.C. Rule 62-522.500(1)(a)-(c) were demonstrated. There will be no exceedances of applicable groundwater standards at the edge of the ZOD, and the groundwater discharge will not impair any designated use of groundwater or surface waters. There would be no effect to any property beyond the FPL Manatee Plant site. FPL therefore established entitlement to an extension of its existing permitted ZOD.

333. In addition to demonstrating entitlement to an extended ZOD, the evidence demonstrated that the duly requested extension of the existing ZOD complies with DEP rules. Expert testimony established that aquifer units occur within the confining unit, or the Arcadia Formation, lying between the surficial and intermediate aquifers. Condition of Certification No. XVIII.G.3 provides for locating and designating this aquifer through the groundwater monitoring program to be undertaken following certification. Therefore, in accordance with the

definitions of "aquifer" and "zone of discharge" in F.A.C. Rule 63-520.200(2) and (23), extending the ZOD vertically to the bottom of an "aquifer unit" within the Arcadia Formation is consistent with DEP's rules and definitions.

334. The language of the definition of zone of discharge quoted above allows for different aquifers to be used for ZODs. Nothing in the definition of an "aquifer" limits that term solely to the surficial aquifer. While DEP's conventional policy may be to set the base of a ZOD at the base of the surficial aquifer, nothing in the definition of a ZOD or elsewhere in DEP's rules limits the vertical base of either an initial ZOD or a modified ZOD in Class G-II groundwaters to the base of the surficial aquifer. See F.A.C. Rules 62-522.400 and 62-522.500. As DEP stated in another groundwater permitting proceeding, "it is clear from the definition of zone of discharge that it extends to the base of at least the surficial aquifer, and may extend to the base of an underlying aquifer as the permit so provides." *Manasota-88, Inc. v. IMC Fertilizer, Inc.*, 12 FALR 3192, 3194 (Fla. Dept. of Env'tl. Reg. 1990) Further, a ZOD extending to the base of the Arcadia Unit underlying the surficial aquifer has been established for the Florida Power Corporation Polk Power Plant site in a previous power plant siting order. See Final Order Approving Certification, Florida Power Corp. [FPC] Polk County Site, PA92-33, DOAH Case No. 92-5308, (Siting Board, January 23, 1994)(ZOD extended to the top of the Tampa Member of the Hawthorn Group, which is located at the bottom of the Arcadia Formation of the Miocene Hawthorn Group).

335. Contrary to the arguments of *Manasota-88* and *MCSOBA*, no explanation or justification of DEP policy was required because there was no application of a non-rule policy by DEP in the proposal to vertically extend the ZOD for the FPL Manatee cooling pond.

336. Not only is this extension of the ZOD legally permissible, it results in direct environmental and other benefits as a result of the use of treated wastewater in the FPL Manatee cooling pond. First, by displacing currently permitted withdrawals of water from the Little Manatee River, use of treated wastewater in the cooling pond will reduce potential impacts to the Little Manatee River from increased withdrawals from the River. FPL's use of treated wastewater would also complement the Manatee County MARS project by allowing that system to expand since FPL will be able to take wastewater during times when that system has no other users. FPL's use of wastewater when other users cannot would allow Manatee County to avoid construction of wastewater storage facilities. This would allow the savings in capital expenditures to be used to purchase additional pipeline to supply additional MARS users.

337. Extending the ZOD vertically into the Arcadia Formation will not cause any impact beyond the boundaries of FPL's plant site. Infiltration of groundwater into the Arcadia Formation above applicable groundwater standards is limited to between 30 feet and 50 feet into the underlying confining unit. Beyond 50 feet into the confining unit, there will be no exceedances of either the primary or the secondary maximum contaminant levels.

FPL Retains Exemption from Secondary Groundwater Standards

338. Manasota-88 and MCSOBA also argue that no evidence was offered to explain why DEP purportedly departs from agency policy that changes in the chemistry of a groundwater discharge result in the loss of a facility's exemption from compliance with secondary groundwater standards. This argument is unsupported by any DEP groundwater policy, rule or precedent that is directly applicable.

339. SWFWMD policy addressing changes to discharges from surface water management systems is irrelevant to this circumstance. F.A.C. Rule 62-522.400(3) protects an existing permitted ground discharger from having to comply with more stringent groundwater standards when the underlying groundwater is reclassified to a more restrictive classification. The rule is not applicable or relevant to changes in the chemistry of a groundwater discharge when there is no change in the groundwater classification. See also *Manasota-88, Inc. v. IMC Fertilizer, Inc.*, 12 FALR 3192 (DER 1990)(expansion of an existing phosphogypsum stack did not cause the phosphate facility to lose its "existing installation" status or its exemption from compliance with secondary groundwater standards.)

340. Even though the FPL Manatee cooling pond retains its exemption from secondary standards outside the ZOD, there will in fact be no exceedance of any secondary standard at the edge of the extended zone of discharge.

BACT Review

341. 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.

342. 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 impact of application of such technology. Rule 62-212.410(1), F.A.C.

343. The evidence was that, in this case, DEP properly applied its BACT rule and determined that the BACT emissions limitation for NO_x is .23 lbs/mmBtu. This emissions limitation contemplates the use of low NO_x burners and reburn technology.

344. The evidence was that a combination of low NO_x 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 NO_x burners is not prohibitive (approximately \$4,000 per ton of NO_x removed), the incremental cost of adding back-end SCR to low NO_x burners is approximately \$9,000 per ton of additional NO_x removed. This means that a major part of the NO_x removal achieved by the combined technologies is achieved by the less expensive low NO_x burners. The incremental cost of adding back-end SCR to the combined low NO_x burner/reburn technologies would be even higher--more like \$15,500 per additional ton of NO_x removed--meaning that even less NO_x 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.

345. FPL gave reasonable assurances that, assuming NOx emissions rate of .27 lbs/mmBtu, additional NOx emissions from the Orimulsion Conversion Project would not result in significant environmental impacts from nitrogen deposition or ozone formation. At a .23 lbs/mmBtu emissions rate, the impacts will be even smaller. Finally, the difference in environmental impacts between a .17 lbs/mmBtu emissions rate and a .23 lbs/mmBtu emissions rate would not be significant.

Availability of Variances

346. Manasota-88 and MCSOBA argue that Section 403.511(2)(b), F.S. (1995), which authorizes certifications to include variances, exemptions or exceptions from nonprocedural requirements of the department or any other agency, does not apply to proceedings under Section 403.5175. But it is clear that Section 403.511 is one of the statutes in accordance with which, according to Section 403.5175(1), applications for existing site certification applications must be processed and reviewed.

347. Manasota-88 and MCSOBA also argue that FPL has waived its right to request variances because it did not give notice 120 days prior to the hearing. They base their argument on F.A.C. Rule 62-17.141(2)(e), which requires the applicant to give notice concerning variance requests at least 120 days before the certification hearing. But Section 403.511(2)(b) states:

Each party shall [notify the applicant] and other parties at least 60 days prior to the certification hearing of any nonprocedural requirements not specifically listed in the application from which a variance, exemption, exception or other relief is necessary in order for the board to certify Failure of such notification by an agency shall be treated as a waiver for nonprocedural requirements of the department or any other agency."

[Emphasis added.]

348. While the rule has not been amended since May, 1983, Section 403.511(2) was adopted in 1990. See Chapter 90-331, s. 5, Laws of Florida (1990). Therefore, the statute supersedes the rule on this subject. See *Dept. of Nat. Resources v. Wingfield Development*, 581 So.2d 193 (Fla. 1st DCA 1991); *Great American Banks, Inc. v. Div. of Admin. Hearings*, 412 So.2d 373 (Fla. 1st DCA 1981) (to the extent rules conflict in certain respects with statute, they are invalid).

349. Manasota-88 or MCSOBA should have identified any other variances they believe are necessary for this project at least 60 days prior to the certification hearing as required by 403.511(2)(b). Having failed to do so, they have waived their right to assert that FPL needs additional variances for certification or that FPL is not entitled to the two variances it seeks.

RECOMMENDATION

Based on the entire record of this proceeding and the foregoing findings of fact and conclusions of law, it is recommended that the Siting Board enter a final order that:

(1) Grants Florida Power & Light Company certification pursuant to Chapter 403, Part II, F.S., for the construction and operation of the Manatee Orimulsion Conversion Project subject to the Conditions of Certification filed on January 17, 1996, modified to add Bitor's commitments set out in Finding of Fact 189; and

(2) Grants variances from the Manatee County Comprehensive Plan and Land Development Code for wetland mitigation ratios and from the Manatee County Land Development Code for location of required landscaping.

DONE AND ENTERED in Tallahassee, Leon County, Florida, this 19th 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 19th day of February, 1996.

APPENDIX TO RECOMMENDED ORDER, CASE NO. 94-5675EPP

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/SWFWMDC Proposed Findings of Fact.

All of the proposed findings of fact proposed by these parties have been reviewed. This review has included consideration of the response to the proposed findings filed by Manasota-88 and MCSOBA. 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.

12. First sentence, rejected as only proof of a reasonable expectation is possible; otherwise, accepted.

75. Last sentence, "significantly" rejected as argument; otherwise, accepted.

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

84.-85. In part, conclusions of law; otherwise, accepted.

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

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

102. 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.

106. 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.

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

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

126. "Will not cause," in second sentence, rejected as not proven; otherwise, accepted and accepted that reasonable assurances were provided.

128.-130. In part, conclusions of law; otherwise, accepted.

145. In part, conclusions of law; otherwise, accepted.

154. "1.44 percent of the time" clarified; otherwise, accepted.

159. Rejected in part in that Bitor's commitments are not part of the stipulated Conditions of Certification; otherwise, accepted.

161. Rejected in part in that Bitor's commitments are not part of the stipulated Conditions of Certification; otherwise, accepted.

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.

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. Subpara. b., rejected as not supported by any evidence; rest, conclusions of law.

20. Rejected as not supported by any evidence.
- 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/mmBtuM 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/mmBtum.)
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/mmBtum.
- 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.

Manatee County Proposed Findings of Fact.

1.-10. Accepted.

11. Rejected as contrary to the evidence and to proposed finding 12 that it is the only required variance.

12. Accepted.

To the extent that accepted proposed findings are not contained in the Findings of Fact, there 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 Office of General Counsel of 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 see F.A.C. Rule 62-103.200 and consult with the Department of Environmental Protection concerning its rules on the deadline for filing exceptions to this Recommended Order.

TABLE OF CONTENTS

APPEARANCES	1
STATEMENT OF THE ISSUES	2
PRELIMINARY STATEMENT	2
FINDINGS OF FACT	6
General Project Description	6
Economic Benefits and Cost Savings from Project	7
Fuel Cost Savings from Conversion to Orimulsion	7
Socioeconomic Impacts and Benefits of the Project	10
Project Site and Vicinity	13
Lan Use and Comprehensive Plan Consistency	14
Existing Plant and Facilities	16
Orimulsion Conversion Project; Modified and New Facilities	20
Fuels and Fuel Delivery, Storage and Transportation	20
Air Emission Controls	22
Water Uses and Treatment	24
By-Product Reuse and Disposal	24

Rail and Road Improvements	28
Surface Water Management Systems	29
Project Construction and Schedule	30
Transportation	31
Noise Impacts	34
Archaeological and Historic Sites	34
Air Emissions, Controls, and Impacts	34
Existing and Proposed Emissions	34
Best Available Control Technology for Nox	36
Air Quality Impact Analysis	45
Effect of Proposed NOx Emissions on Ozone Levels	46
Effect of Proposed NOx Emissions on Water Quality	51
Human Health Risks Associated with Proposed Air Emissions	57
Plant Water Supply and Use	59
Water Supply	59
Cooling Pond	62
Impacts of Groundwater Withdrawals and Discharges	64
Wetland Impacts and Mitigation	68
Impacts to Flora and Fauna Including Listed Species	70
Impacts of Water Withdrawals on Little Manatee River and Tampa Bay	71
Potential Impacts of Fuel Spills	75
Spill Prevention	76
Spill Mitigation	79
Ecological Effects of Orimulsion Released in Tampa Bay	87
COSAP's Comparative Ecological Risk Assessment (CERA)	90
COSAP CERA Conclusions	92
Peer Review of COSAP Research and Conclusions	92
Effects of Estrogenic Compounds Following a Spill	93
Summary of Comparative Spill Risks	95
CONCLUSIONS OF LAW	96
Burden of Proof	97
Summary of Conclusions	98
Inapplicable Surface Water Quality Permitting Criteria	102
Statutes and Rules on Surface Water Discharges	103
Rejection of Similar Arguments in NYDEC Case	105
Outstanding Florida Waters	107
Federal Certification	110
Ecosystem Management	111
Legal and Permit Agreement Covers Surface Water Withdrawals from the Little Manatee River	112
Cooling Pond Groundwater Discharges	117
Secondary Impacts	118
Air emissions (nitrogen and ozone)	120
Salt Water intrusion and associated groundwater	

"pollution"	122
Groundwater discharges from cooling pond	123
Impacts to residents from truck traffic	123
Cumulative Impacts	124
Ground Water Quality Standards	127
Vertical Extension of ZOD is Consistent with DEP Rules	127
FPL Retains Exemption from Secondary Groundwater Standard	132
BACT Review	133
Availability of Variances	135
RECOMMENDATION	137
APPENDIX	138

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AGENCY FINAL ORDER

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STATE OF FLORIDA
SITING BOARD

IN RE: FLORIDA POWER & LIGHT
COMPANY, MANATEE ORIMULSION DOAH Case No. 94-5675EPP
PROJECT, APPLICATION NO. 94-35.

_____ /

FINAL ORDER

This cause came before the Governor and Cabinet sitting as the Siting board (the Board) on April 23, 1996, in Tallahassee, Florida, pursuant to Section 403.5175, Florida Statutes, for action on the Recommended Order rendered by the Division of Administrative Hearings in this cause on February 19, 1996, and for final action upon application No. 94-35 submitted by Florida Power and Light (FPL), to authorize the burning of orimulsion at FPL's power plant in Manatee County. The Board, in considering the application, is required by law to consider whether, and the extent to which the proposed changes to the electrical power plant and its continued operation under certification will:

(a) Comply with applicable nonprocedural requirements of agencies;

(b) Result in environmental or other benefits compared to current utilization of the site and operations of the electrical power plant if the proposed changes or alterations are undertaken;

(c) Minimize, through the use of reasonable and available methods, the adverse effects on human health, the environment, and the ecology of the land and its wildlife and the ecology of state waters and their aquatic life; and

(d) Serve and protect the broad interests of the public.
(See: Section 403.5175(4), Florida statutes.)

The Board, after consideration of the record as a whole and the application of the appropriate statutory requirements, hereby enters its final order denying the application to burn orimulsion submitted by FPL. The Board accepts the findings of fact found within the recommended order, except where those factual findings are mixed questions of law and fact as noted herein, and draws its conclusion that the application must be denied based upon the statutory elements of Section 403.5175, Florida Statutes.

FACTUAL BACKGROUND

FPL operates, an existing 1600 megawatt power plant in Manatee County at a 9700 acre site in the north central portion of the county. That plant consists of two generating units that are currently fueled by No. 6 fuel oil. FPL has made application for approval to burn orimulsion instead of No. 6 fuel oil. Orimulsion is a mixture of bitumen, which is a heavy hydrocarbon, a surfactant and water. This alternative fuel is produced in Venezuela and would be shipped to Tampa Bay under the terms of FPL's application. The orimulsion would be supplied to FPL at prices much lower than the fuel oil currently burned at the plant, and it is this cost factor which motivates FPL's application.

THE APPLICATION OF STATUTORY CONSIDERATIONS

As noted above, the Siting Board must consider four factors to determine the merits of FPL's request to burn orimulsion. One of these four standards requires that the highest elected state officials, the Governor and Cabinet, consider and weigh the benefits which may result from approval of FPL's application against the current utilization of the facility. (See: Section 40.5175(4)(b), Florida Statutes). As already stated, the current utilization involves the burning of No. 6 fuel oil to produce electricity. The record is replete with testimony, put in the record by FPL, that burning orimulsion will reduce the pollutants produced by the production of one kilowatt hour of electricity.

That evidence, while true, does not reveal that more emissions will go into Florida air if this application is approved because FPL intends to increase the amount of electricity produced by the Manatee plant. Right now, the Manatee plant each year places over 7300 tons of nitrogen oxides into our air. Under the proposal to burn orimulsion, that figure would increase to over 13,400 tons of nitrogen oxides per year; an 85% increase. Those figures come from FPL's own evidence. FPL is currently licensed to burn mare No. 6 fuel than it currently does, and arguably, if that additional capacity was realized, emissions would increase. However, the statute which governs this proceeding does not require the Siting Board to consider hypotheticals; we must look at current utilization. Under that analysis, there is no environmental benefit to burning orimulsion with its proposed increase in the amount of nitrogen oxide emissions. There is clearly an economic benefit to burning orimulsion. But there is an absence of compelling testimony demonstrating the need for this alternative fuel. In this analysis, profits do not outweigh people.

More than 400 trucks per day will be required to transport the byproducts of orimulsion. (Donatelli, Vol. 2, pg. 198) Those trucks will be additional traffic driving through communities in the Tampa Bay area. The residents who will daily cope with that additional traffic will be disadvantaged, not benefited, by the burning of orimulsion.

The next statutory criterion which must be applied concerns whether FPL's application shows that it has minimized any adverse affects on human health, the environment, and the ecology of state lands and water, and the wildlife that inhabits both. If this permit is granted, it will be the first plant in the U. S. to be fired by orimulsion, and the largest user of orimulsion in the world. (Silva, Vol. 2, pg. 119, and Phillips, Vol. 4, pg. 380) The Board must be satisfied that this product can be used safely. Since it is FPL's burden to demonstrate that they have sufficiently minimized risk, references to facts in the record will be taken completely from witnesses called by FPL in the hearing below.

If orimulsion somehow spills into the surface waters of the state, it disperses into the water column. It can remain there for a long period of time. (Harwell, Vol. 8, pg. 826) It does not form a slick on the surface like No. 6 fuel oil. Oribooms have been developed in an attempt to contain a spill if one should occur, but there is far less experience with orimulsion spills than with oil spills. In fact one test to simulate an orimulsion spill was conducted in a tank 26 feet in diameter and four feet deep. (Middleton, Vol. 4, pg 451) That kind of testing

cannot reproduce the dynamics of wind, currents and tides on the dispersion of orimulsion.

FPL's expert could neither confirm nor deny that the surfactant used to make the carboniferous material in orimulsion liquid, may break down into a toxic gender bender chemical. (Harwell, Vol. 8, pg. 881) The Hearing Officer found, in Finding of Fact No. 253: Whether there are ecological consequences of such estrogenic compounds when released in the environment has not been established. We simply do not have enough information to know what can happen to this surfactant when it breaks down.

The last of the criterion to be considered is whether the approval of the application would serve the broad interest of the public. As stated earlier, it would truly serve those who have an economic interest in the burning of a cheaper fuel for the production of electricity, but does it really serve the interest of the people of this state? To summarize the evidence, FPL provided the best available evidence to allay fears that orimulsion can pose a threat to the people who live and work in proximity to the Manatee plant. But the evidence leaves questions unanswered. Does the economic benefit to a few serve and protect the broad interests of Florida citizens in general? The statute requires the Governor and Cabinet to consider that question. After an examination of the testimony produced by FPL, it must be answered in the negative.

EXCEPTIONS FILED BY MANASOTA-88 AND MCSOBA

EXCEPTION Number 1

The crux of Exception Number 1 is whether the if appropriate Section 403.087(1) & (4) permit for FPL's air emissions of nitrogen oxide requires reasonable assurances that the atmospheric nitrogen deposition to surface waters resulting from FPL's nitrogen oxide emissions, will not cause or contribute to the continuation of any violations of surface water quality standards in Tampa Bay. This exception raises a question of law in which the Board is free to exercise its judgment and reject or modify the conclusions of law of the recommended order of the administrative hearing officer. See, Macpherson v. School Board of Monroe County, 505-So.2d 682 (Fla. 3rd DCA 1987); Siess v. Dept. of health and Rehabilitative Services, 468 So.2d 478 (Fla. 2nd DCA 1985); Alles v. Dept. of Professional Regulation, 423 So.2d 624 (Fla. 5th DCA 1982).

The Board accepts Exception Number 1 and holds that an appropriate Section 403.087(1) & (4), Florida Statutes, permit for FPL's proposed air emissions of nitrogen oxide, and the directly related atmospheric nitrogen deposition to the surface

waters of Tampa Bay, must abate or prevent pollution by complying with DEP's adopted standards. DEP's adopted standards include surface water quality standards which prohibit anyone from causing or contributing to any water quality violations. Compliance with DEP's air quality for NO2 alone does not and can not appropriately regulate atmospheric nitrogen deposition to waterbodies such as Tampa Bay. Compliance with DEP's NO2 air quality standard alone does not assure compliance with DEP's water quality standards, especially the narrative standard for nutrients such as nitrogen.

EXCEPTION Number 2

Exception Number 2 raises the legal question of whether atmospheric nitrogen deposition which is correlated to a specific air emission of nitrogen oxide is discharged to surface waters of the state for purposes of compliance with the requirements Chapter 403, Florida Statutes, and Fla. Admin. Code Chapter 62-320.

The Board rejects Exception Number 2 to the extent it contends or implies that atmospheric nitrogen deposition to surface waters of the state must apply for and obtain a water discharge permit from DEP. The Board accepts Exception 2 to the extent that atmospheric nitrogen deposition to surface waters of the state must provide reasonable assurances of compliance with the substantive review criteria in Section 403.088(2)(b), Florida Statutes, and Fla. Admin. Code Rule 62-4.242 as part of the demonstration of compliance with DEP's water quality standards. This demonstration can be as part of the air emission permit or other appropriate DEP permit for the stationary source causing the atmospheric nitrogen deposition.

EXCEPTION Number 3

Exception Number 3 raises the issue of whether atmospheric nitrogen deposition to surface waters resulting from air emissions of nitrogen oxide should be regulated as a secondary impact of the air emission of the nitrogen oxide. Because Exceptions 1 and 2 above were accepted, the water quality impacts of atmospheric nitrogen deposition to surface waters of the state are regulated as a direct impact of the air emission of nitrogen oxide. Therefore, Exception Number 3 concerning regulating atmospheric nitrogen deposition as a secondary impact of the air emission of nitrogen oxide is rendered moot.

EXCEPTION Number 4

Exception Number 4 raises the issue of whether atmospheric nitrogen deposition to surface waters resulting from air

emissions of nitrogen oxide should be required to comply with DEP's surface water quality standards due to DEP's Ecosystem Management Policy. Because Exceptions 1 and 2 above were accepted, the water quality impacts of atmospheric nitrogen deposition to surface waters of the state are regulated as a direct impact of the air emission of nitrogen oxide. Therefore, Exception Number 4 is rendered moot.

EXCEPTIONS Number 5 & 6

Exceptions Number 5 and 6 raise the issue of whether the Hearing Officer applied the wrong permitting criteria for man-induced additions of nitrogen to waterbodies which are currently out of compliance with water quality standards due to excessive nitrogen levels.

These issues are mixed question of law and fact. The Board has the authority to substitute its judgment concerning this ultimate determination of whether the Hearing Officer correctly concluded that FPL provided reasonable assurances with the applicable water quality standards. *Harloff v. City of Sarasota*, 575 So.2d 1324,1328 (Fla. 2nd DCA 1991). The Board can deviate from prior officially stated agency policy or a prior agency practice, if the deviation therefrom is explained by the Board. Section 120.68(12)(c), Florida Statutes.

The Hearing Officer used an algal assay growth test as the permitting criteria for nitrogen discharges to waterbodies such as Tampa Bay which currently violate DEP water quality standards due to excessive nitrogen levels. The Board rejects the algal assay test as the permitting criteria for further nitrogen discharges to waterbodies with excessive levels of nitrogen.

The Board finds that the introduction of additional man-induced nitrogen inputs to waterbodies which are presently out of compliance with DEP's nutrient rule due to excessive nitrogen levels, is prohibited by Section 403.088(2)(b), Florida Statutes, and Fla. Admin. Code Rules 62-302.300(3) and 62-302.300(5). Section 403.088(2)(b), Florida Statutes, and Rule 62-302.300(5) mandate the abatement of nitrogen water pollution and the enhancement of the quality of waterbodies which are out of compliance with water quality standards.

The addition of more nitrogen to Tampa Bay which is out of compliance with the nutrient standard due to excessive nitrogen levels was found by the Hearing Officer to be detrimental to Tampa Bay. (Acceptance of PF 230 by M-88/MCSOBA). The Board agrees FPL's proposed nitrogen addition to Tampa Bay would be detrimental to the bay and its restoration to compliance with the nutrient rule. Detrimental man-induced nitrogen additions to

Tampa Bay can not be permitted. The applicable permitting test for waterbodies with excessive levels of nitrogen pursuant to the nutrient rule (62-302.530(48)(b)) is that no further increase in nitrogen can be permitted.

This conclusion is consistent with the recent decision by the Administration Commission in Department of Community Affairs v. Monroe County, Case Nos. 91-1932 & 93-3371 (Admin. Comm. 1996) which conditioned the issuance of new development permits to the reduction of current nitrogen levels in surface waters of the Florida Keys.

EXCEPTION Number 7

Exception Number 7 alleges that there are conflicting findings of fact in the recommended order concerning the causes of the seagrass losses in Tampa Bay. The Board denies this exception and finds that the factual finding of paragraph 137 of the recommended order, and the adoption of proposed finding of fact 212 of Manasota-88 and MCSOBA are not mutually inconsistent.

EXCEPTION Number 8

Exception Number 8 raises the legal issue of FPL's failure to carry its burden of proof to provide reasonable assurances concerning cumulative impacts of nitrogen loading to the waters of Tampa Bay.

The obligation to provide reasonable assurances concerning cumulative impacts is a mandatory requirement upon permit applicants. Florida Dept. of transportation v. J.W.C. Company, Inc., 396 So.2d 778 (Fla. 1st DCA 1981); Brown v. State, Dept. of Environmental Regulation, 9 FALR 1871, 1877 (DER 1987)

The Board concludes that FPL failed to carry its surface water quality cumulative impact burden of proof because:

a) FPL failed to present any evidence in its direct case concerning cumulative impacts; and

b) FPL failed at any time to present any evidence concerning defining the areal scope and time period for the cumulative impacts of its atmospheric nitrogen deposition as required by DEP's cumulative impact policies. Concerned Citizens League of America, Inc. v. IMC Fertilizer, Inc., ER FALR 89:0041 (FO Pg. 11)(DER 1989) (absence of evidence to establish the baseline size of Hookers Prairie was a failure to provide reasonable assurances concerning cumulative impacts for further wetlands alteration in Hookers Prairie); Brown v. State, Department of Environmental Regulation, 9 FALR 1871, 1876-1877 (DER 1987)

EXCEPTION Number 9

Exception Number 9 deals with whether FPL failed to carry its burden of proof to provide reasonable assurances concerning the individual impacts of its nitrogen oxide air emissions on ozone levels. In this exception, Manasota-88 and MCSOBA contest FPL'S ozone computer modelling because FPL failed to produce competent substantial evidence that the computer models they used are approved by the U. S. EPA for the use in the manner FPL attempted in this case, and further objected that not all of the relevant pollution inputs were made by FPL. The exception also alleges that the results of the modelling simulations were inconclusive.

This issue is a mixed question of law and fact. The Board has the authority to substitute its judgment concerning this ultimate determination of whether the Hearing Officer correctly concluded that FPL provided reasonable assurances with the

applicable ozone air quality standards. Harloff v. City of Sarasota, 575 So.2d 1324,1328 (Fla. 2nd DCA 1991)

The Board agrees with and accepts Exception Number 9. Under the Section 120.58(1)(a), Florida Statutes, evidentiary test, competent scientific evidence is evidence of a type commonly relied upon by reasonably prudent persons in the conduct of their affairs. (e.s.) The Section 120.58(1)(a) standard of commonly relied upon by reasonably prudent persons is virtually identical to the common law standard of recognized and accepted by scientists

The Empirical Kinetics Modeling Approach (EKMA) and the Reactive Plume Model (RPM) used by FPL have not been recognized by scientists, and are not commonly relied upon by reasonably prudent persons for predicting the impact of a point source NOx emission on ozone as FPL used these models in the instant case.

Specifically:

a. The EKMA model is a crude screening device deemed by the scientific community not to be suited for predicting ozone concentrations from point source emissions of NOx. (Rogers, Vol. 20, Pgs. 2202-2203 & 2212, L 23; Holliday, Vol. 20, Pg. 2235; M-88/MCSOBA PF 273-281);

b. The EKMA model is not approved by the U. S. EPA for use in the manner FPL used the EKMA model in this proceeding. (McCann, Vol. 7, Pg. 784, L 9);

c. [Regulatory agencies) never put very much weight on any of the EKMA modeling. (Rogers, Vol. 20, Pg. 2212, L 22-24);

d. The RPM model is not approved by EPA for predicting ozone concentrations resulting from point source NOx emissions. (Rogers, Vol. 20, Pg. 2203; Holliday, Vol. 20, Pg. 2235; McCann, Vol. 7, Pg. 784, L 9);

e. The RPM model does not account for off-plume ozone precursor reactions (Vol. 20, Pg. 2205, L 11-15), and off-plume ozone precursor reactions account for a great amount of ozone formation. (Rogers, Vol. 20, Pg. 2205, L 11-14); and

f. Neither the EKMA nor the RPM model results can be used to determine whether ozone concentrations resulting from FPL's NOx emissions will be above or below the ozone standard. (Rogers, Vol. 20, Pg. 2219, L 24)

g. The EKMA model as run by FPL did not include existing nitrogen oxide and VOC emissions from sources outside Pinellas

and Hillsborough Counties even though such emissions affected ozone levels in Pinellas and Hillsborough Counties. (McCann, Vol. 7, Pg. 781, L 15 through Pg. 782, L 13);

h. The sum total of the evidence concerning the impacts of FPL's nitrogen oxide emission on ozone levels is inconclusive. (Rogers, Vol. 20, 2213, L 6-9); and

i. Neither the EKMA nor the RPM model were run to attempt to predict cumulative impacts. (Ibid, Pg. 2219, L 9-15)

The Board concludes that the results of the EKMA and RPM models are not competent scientific evidence generally accepted by the scientific community for the use FPL made of these models in this proceeding, and no findings of fact can be based upon these models. Accord, Booker Creek Preservation, Inc. v. Mobil Chemical Corp., 481 So.2d 10, 14 (Fla. 1st DCA 1986) (As a matter of law the failure to perform geologic testing under two of three proposed phosphate settling ponds was not reasonable assurances of compliance with ground water standards)

EXCEPTION Number 10

This exception is based upon the fact that FPL failed to present any ozone cumulative impact evidence, and failed to present any explanation of the absence of such evidence during its direct case prior to Manasota-88's and MCSOBA's motion for a directed verdict at the conclusion of FPL's case.

As set forth in the final order in Brown, Supra, DEP has no discretion to not require a cumulative impact analysis. In the instant case Manasota-88 and MCSOBA properly and timely raised the issue of cumulative impacts and the ozone standard. FPL had the burden of proof to move forward on this issue and it failed to do FPL could have identified the area of influence for ozone precursors in the Tampa Bay area, but it did not. FPL could have analyzed existing VOC and ozone emission trends in the identified area of influence on ozone levels, but it did not. FPL could have identified the foreseeable VOC and nitrogen oxide air emission sources in the area of influence such as increased automobile traffic miles driven, TECO's Polk County plant (all permitted and proposed phases) and Florida Power Corporation's Polk County power plant (all permitted and proposed phases), but it did not. FPL could have calculated foreseeable nitrogen oxide and VOC emissions with and without possible new EPA nitrogen oxide rules. Such information unquestionably would have had beneficial value to this proceeding and FPL can not be excused from attempting to supply such available information.

FPL's failure to provide this information is a failure to carry its burden of proof to provide reasonable assurances concerning the cumulative effect on the ozone standard.

Even if it would have been difficult to perform such a cumulative impact review, which it would not have been, that is not an excuse for failure to comply with a on-discretionary permitting requirement.

For these reasons Exception Number 10 is accepted by the Board.

EXCEPTION Number 11

Exception Number 11 deals with the issue of Best Available Control Technology (BACT) for the nitrogen oxide emissions from FPL's Manatee Plant if it burns Orimulsion.

The statute requires that the applicant minimize, through the use of reasonable and available methods, adverse effects on the ecosystem. The Hearing Officer rejected a challenge to the method proposed by FPL for the control of nitrogen oxide emissions. The Hearing Officer concluded that the selective catalytic reduction pollution control system was too costly to represent the BACT for nitrogen oxide control. We must disagree. The issue of reduction of nitrogen loading to Tampa Bay is a larger issue than simply whether the minimum air permitting standards of DEP are met. The issue is whether FPL has appropriately minimized the deleterious impacts of its project upon the estuarine systems that will be affected by its emissions. We do not think that FPL has done so. FPL has rejected as too costly an available technology that would reduce its emissions of a key pollutant to the health of Tampa Bay.

Initially, FPL proposed to use low nitrogen oxide burners. Later, FPL entered into a stipulation with affected counties to employ an experimental technology to further reduce nitrogen oxide emissions to levels that would be still greater than what SCR (selective catalytic reduction) would produce, but lower than with just low nitrogen oxide burners. Even with FPL's proposed reduction in nitrogen oxide, the proposed limitations would be higher than this Board has previously required of applicants who are not located in proximity to nitrogen-limited estuarine systems, e.g., Orlando Stanton Unit II and Indiantown Co-generation.

EXCEPTION Number 12

This exception contends that FPL failed to provide evidence concerning the volumes of water which had been historically pumped pursuant to these permits, and the cumulative impact of pumping more than the volume which had been historically pumped.

These issues are questions of fact and therefore must be considered under the standard established by Section 120.57(1)(b)10, Florida Statutes, cited earlier. We deny this exception.

EXCEPTION Number 13

This exception contends that FPL's comparative risk assessment did not compare the differences in the comparative

ability to contain an oil spill compared to a spill of Orimulsion. The exception also based upon the fact that FPL is relying upon the Vessel Information Positioning System (VI PS), which has not been yet been fully funded and there is no record evidence that it will be fully funded and in place by 1998.

The comparative spill risk assessment of FPL should be rejected because it did not consider: 1) that an orimulsion spill will be more difficult to clean up due to the increased volume of water which will need to be transported ashore; (Henderson, Vol 18, pgs 2070-2072), 2) that an orimulsion spill will cause more damage to the water column communities than a spill of fuel oil; (Henderson, Vol. 18, pg. 2073), and 3) that an orimulsion spill will be more difficult to contain because it is a predispersed fuel with its own dispersant. (Henderson, Vol. 18, pgs 2068 & 2072-2073).

Concerning the exception relating to VIPS, the record contains evidence that funding for the Tampa Bay VIPS is still being sought and it is uncertain that it will be obtained. (Garcia, Vol. 5, pg. 495) For both of these reasons, the Board concludes that FPL has failed to provide reasonable assurances concerning the relative risk related to a spill of orimulsion. The risks we accept to fuel our electrical generating plants with oil are known and well recorded. The risks we assume to fuel our electric generating facilities with orimulsion are unknown. Better to continue with the risks we know than to accept the unknown risks associated with orimulsion.

EXCEPTION Number 14

This exception is based upon the fact that the transportation of limestone to the FPL Manatee Plant by truck would place an inordinate burden on the residents of Parrish, Florida, and is not in the broad public interest.

The proposed certification in the instant proceeding would authorize FPL and its contractors to truck limestone through the village of Parrish, Florida at a rate of possibly up to 404 semi-tractor truck trips per day. This truck traffic would place an inordinate burden on the existing private property use in and around Parrish. The private property owners in Parrish will bear permanently a disproportionate share of a burden allegedly imposed for the good of the public, which should be borne by the public at large.

The Siting Board finds that the proposed trucking of limestone through the village of Parrish is contrary to the broad public interest and therefore the requested authorization is denied.

EXCEPTION Number 15

This exception is based upon the fact that the testimony is speculative as to the systemwide air emission impacts after the year 1999. The Board agrees.

The proposed certification neither proposes nor makes any revision to any FPL air permits at FPL's other plants. Thus, FPL's other plants remain both legally and physically capable of continuing their existing levels of air pollution emissions, or even increasing such actual air emission up to the permitted emission levels. Without such legally binding emission limitation it is speculative whether systemwide emission reductions will occur. FPL's power purchases from and to other power companies can vary depending upon market conditions absent enforceable emission limitations. Pursuant to Section 403.509, Florida Statutes, the Board must set forth the actions the applicant must take to secure the Board's ultimate approval of the application. From an examination of the record and the evidence that alternate fuels other than No. 6 oil would increase the costs associated with the production of electrical power, there are no modifications to this application which would cause the Siting Board to approve the burning of orimulsion. Future applications which deal with the health and safety issues raised herein may be subject to Board approval.

Any party to this Order has the right to seek judicial review of this Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Siting Board (also clerk of the Department of Environmental Protection), Office of General Counsel, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Order is filed with the Clerk of the Siting Board.

DONE and ORDERED this 25th day of April, 1996, in Tallahassee, Florida.

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant
to S120.52 FLORIDA STATUTES,
with the designated Department
Clerk, receipt of which is
hereby acknowledged.

BY THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

Clerk

Date

LAWTON CHILES
GOVERNOR

ENDNOTES

1/ It is also noted that FPL failed to provide reasonable assurance of compliance with the criteria of prior DEP precedent set forth in the final order in *Pacetti v. State, Dept. of Environmental Regulation*, 8 FALR 4050, at 4055 (DER 1986). FPL presented no evidence that its proposed additional input of nitrogen would not cause a violation of the nutrient standard to occur if the ambient water quality of Tampa Bay was at or better than the nutrient standard. In order to provide such reasonable assurance FPL would have had to establish the water quality necessary to comply with the nutrient standard. It was found that current water quality does not comply with nutrient standard and that nitrogen reductions are necessary. (Acceptance of PF 217 and 218 of M-88/MCSOBA). Since FPL's algal assays were run with water from Tampa Bay containing levels of nitrogen which violate the nutrient standard, it is unknown what the algal growth rate in water with lower nitrogen levels would be with FPL's proposed nitrogen increase.

2/ *Coppolino v. State*, 223 So.2d 68, 70 (Fla. 2nd DCA 1969)

3/ FPL's witness who ran the EKMA and RPM models had no previous experience in ozone modeling. (McCann, Vol. 7, Pg. 780, L 24)

4/ DEP's ozone standard is clearly a cumulative impact standard since it provides no one can cause or contribute to an ozone violation. Rule 62-212.400(1)(a)

CERTIFICATE OF SERVICE

I hereby certify this 30th day of April, 1996, that true and correct copies of the foregoing Final Order have been served by U. S. Mail upon the following:

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