Request for Modification of the Site Certificate for the Indiantown Cogeneration Facility

December 1999

Prepared for:

Indiantown Cogeneration, L.P.
P.O. Box 1799
19140 SW Warfield Blvd.
Indiantown, FL 34956

Prepared By:

Earth Tech

196 Baker Avenue
Concord, Massachusetts 01742

TABLE OF CONTENTS

		Page
1.0	**INTRODUCTION**	**1-1**
2.	**MODIFICATIONS REQUESTED**	**2-1**
2.1	Addition of a Carbon Dioxide Recovery Plant	2-1
2.1.1	CO_2 Recovery Plant Description	2-2
2.1.2	CO_2 Recovery Plant Impacts and Benefits	2-4
2.2	Addition of a Chilled Water Plant	2-8
2.2.1	Chiller Operation Description	2-8
2.2.2	Chiller System Impacts and Benefits	2-11
2.3	Changes in Plant Output Rating	2-12
2.3.1	Physical Modification Description	2-13
2.3.2	Permit Language Changes	2-13
2.4	Changes in Cooling Water Storage Pond Elevation	2-14
2.5	Clarification of Auxiliary Boiler Operating Requirements	2-16
2.6	Modifications to Reflect Revised Water Allocation Plan with SFWMD	2-17
2.7	Modification of Groundwater Monitoring Requirements	2-18
2.8	Consistency among PSD, Title V, NPDES and COC conditions	2-19
2.9	NPDES Discharge	2-20
2.9.1	Facility Description	2-21
2.9.2	Emergency Discharges from the Cooling Water Pond are Expressly Authorized	2-22
2.9.3	Emergency Discharges from the Wastewater Pond were contemplated During Certification	2-24
2.9.4	Conclusion	2-25
2.10	Changes to Air Permit Requirements	2-26
2.10.1	Stack Test Methods	2-26
2.10.2	Pulverized Coal Boiler Opacity	2-27
3.	**APPLICATION PROCEDURE**	**3-1**
3.1	Project Schedule	3-1

TABLE OF CONTENTS (Cont'd)

ATTACHMENTS

ATTACHMENT A
Existing Conditions of Certification and Revisions

ATTACHMENT B
Minor Source Permit Application to Construct Flue Gas Carbon Dioxide Recovery Plant

ATTACHMENT C
Analysis of Incremental Water Use

ATTACHMENT D
Chilled Water Plant Vendor Description

ATTACHMENT E
PSD Permit Application to Modify Pulverized Coal Plant

ATTACHMENT F
Cooling Water Pond Topographic Survey

ATTACHMENT G
SFWMD Correspondence

ATTACHMENT H
FDEP 9/10/99 Correspondence on Groundwater Monitoring

ATTACHMENT I
As-Built Site Plan

ATTACHMENT J
Correspondence Related to NPDES Permitting

ATTACHMENT K
Discussion of Stack Test Methods

1.0 INTRODUCTION

Indiantown Cogeneration, L.P. (ICLP) is the owner and operator of the Indiantown Cogeneration Facility (the Facility) located at 19140 Southwest Warfield Blvd., in Indiantown Florida. The construction and operation of the Facility was authorized in a Site Certification which was issued on February 6, 1992 and then modified by orders issued July, 1992 and March, 1995. The 1992 and 1995 modifications addressed several changes that were identified as the Facility's conceptual design evolved into a more detailed design for construction.

Now that operating experience has been gained with the cogeneration Facility, several additional modifications to the site certification have been identified. These modifications generally fall into three categories. First, evolving market conditions have suggested that the environmental and economic benefit of the Facility would be enhanced through the addition of a carbon dioxide recovery plant and a chilled water plant. The carbon dioxide recovery plant will remove carbon dioxide from the existing boiler flue gas stream, and then purify and condense the carbon dioxide into a marketable product. This project would provide both air pollution control and an additional income source for ICLP. The chilled water plant will use an absorption refrigeration cycle to provide chilled water for process use at one or more adjacent facilities. Both of these activities will increase the benefits of cogeneration.

Second, subject to certain contractual arrangements, the opportunity to increase the Facility's electric generating capacity has been identified. This increase can be accomplished without any increases in permitted air emissions limitations. Third, several changes have been identified, including changes that amount to environmental improvement projects, which will allow ICLP to reduce its environmental impacts and more readily comply with its permit conditions. All of these modifications are described in detail in the subsequent sections of this document.

In addition to the modifications requested in this filing, ICLP proposes to make several amendments to its site certification application. The proposed amendments will not require changes to the Conditions of Certification, and do not have substantial environmental impacts. The proposed amendments are being provided as a separate document, to avoid unnecessary details in this modification application.

The current Conditions of Certification for ICLP are included in Attachment A for reference. This application proposes specific changes to those Conditions where appropriate.

1.0 INTRODUCTION/PROJECT SUMMARY

Indiantown Cogeneration L.P. (ICLP) operates a pulverized coal fired facility (the Facility) that produces electricity for sale to the Florida Power and Light Company and process steam to Caulkins Indiantown Citrus Company. The site, which occupies approximately 232 acres, is located nine miles east of Lake Okeechobee and about three miles northwest of the community of Indiantown in southwestern Martin County. A Site Vicinity Plan is provided in Appendix 2. ICLP wishes to modify its operations to permit the construction and operation of a flue gas carbon dioxide (CO_2) recovery plant.

The proposed CO_2 recovery plant will remove carbon dioxide from the pulverized coal boiler's exhaust stream for sale as a product. Between 5% and 10% of the pulverized coal boiler flue gas will be directed to the CO_2 recovery plant. The flue gas will be cooled and scrubbed with a monoethanolamine (MEA) solution, which captures the CO_2. The CO_2 is then stripped out of the MEA solution, cleaned, compressed, and shipped in liquid form. A portion of the MEA is recycled back into the absorber and the MEA leaving the CO2 stripper column is reclaimed for reuse in the absorber system. The flue gas leaving the absorber will be directed back to the pulverized coal boiler exhaust stack. A detailed process description is provided in Section 2.0.

1.1 Environmental Impacts and Benefits

1.1.1 Potential Air Emissions

The flue gas exiting the absorber will contain some entrained MEA, and other Volatile Organic Compounds (VOC). To minimize VOC emissions, the flue gas will be directed through a 10-foot, circulating water packed tower and a demister prior to exhausting to the pulverized coal boiler stack. The packed tower/demister section of the absorber will minimize VOC vent losses to 5 pounds per hour, resulting in potential annual VOC emissions of less than 22 tons per year from the absorber. In addition to VOC emissions from the absorber, the process will have some fugitive emissions. Additional MEA (and other VOC) emissions will be minimized through best management practices, minimizing the evaporation of MEA (and other VOC) from leaks in the system, spills, and solid waste handling practices. In addition to the removal of CO_2, the absorber may remove SO_2, NO_x, particulates, and trace pollutants present in the slipstream that will be directed to the CO_2 recovery plant.

1.1.2 Waste Streams/Co-Products

The CO_2 recovery plant will produce the following waste streams/co-products:

- Reclaimer bottoms containing MEA, water, heat stable salts, and dissolved salts. The expected volume is approximately 7 gallons/hour. ICLP expects to ship the reclaimer bottoms off-site as non-hazardous waste; beneficial reuse options are being considered.

- Filter cake: an aqueous solution of sodium sulfate, heat stable salts and MEA will be pressed in a filter coated with diatomaceous earth. Expected quantities are about 70 tons/year, to be shipped off-site approximately quarterly as non-hazardous industrial waste.

- Flue gas scrubber blowdown: the Flue Gas Scrubber uses a circulating caustic solution to remove SO_2 from the pulverized coal boiler flue gas. A blowdown stream is drawn from the circulating solution to remove the soluble sodium salts that accumulate. This blowdown stream is expected to be 3 to 3.5 gallons per minute, and will be used for fly ash dust suppression.

- Water blowdown from the Direct Contact Cooler, approximately 12 gallons/minute, which will be recycled into the Facility's water treatment system.

- Excess reflux water: the system is designed to reuse the water exiting the solvent stripper reflux. If short-term process imbalances create excess reflux water, that water will be stored in a surge tank. If excess reflux water needs to be discarded, it will either be processed at the Facility's water treatment system or shipped off-site as non-hazardous industrial waste, depending on quality.

Solid wastes will be containerized and managed in accordance with FAC 62-701 and 62-730, as applicable. Efficient operation of the plant will minimize these waste streams. The vendor-supplied information in Appendix 2 provides more details regarding waste streams from the CO_2 recovery plant.

1.1.3 Emission Reductions/Environmental Benefits

The proposed recovery plant will have the capacity to remove CO2 from the existing flue gas stream to produce 400 tons per day of liquid CO_2 for sale. The CO_2 will meet an existing demand for end-use products such as food and beverages, industrial gas, and chemical feedstock.

The proposed ICLP CO_2 recovery plant will have a positive environmental impact, in that it will reduce the CO_2 being emitted from the facility. The CO_2 will come from coal that is already being combusted to generate electricity and steam. The ICLP CO_2 recovery plant can therefore displace over 400 tons per day of CO_2 that would otherwise be emitted.

Additionally, the control of greenhouse gases, including CO_2, is an issue that has gained worldwide attention. The proposed Indiantown CO_2 recovery plant is a proactive, cost-effective step to reduce CO_2 emissions. The use of a CO_2 recovery plant may be viewed as either a pollution prevention mearure or a pollution control project. This is a step that should be supported by FDEP and EPA as part of the nationwide flexible approach to reduce emissions of greenhouse gases.

1.2 Application Organization

This application provides a project description in Section 2 and a discussion of regulatory requirements in Section 3. Section 4 discusses Project emissions and controls, including control technology analyses. Appropriate application forms may be found in Appendix 1. Appendix 2 provides supporting drawings and a vendor-supplied system description. Supporting calculations and emissions data are provided in Appendix 3.

2.0 PROJECT DESCRIPTION

Presently, the ICLP facility includes one main pulverized-coal-fired boiler and one steam generator, two auxiliary boilers operated during lightoff and startup of the main boiler or if the main boiler is down and process steam is required for Caulkins Indiantown Citrus Company, and material handling/conveying equipment. The primary source of air emissions is the main boiler, firing pulverized coal. Exhaust gas from the main boiler is vented through a series of pollution control devices (PDCs) which include; spray dryer absorbers for SO2 removal, fabric filter baghouses to remove particulates and a selective catalytic reduction (SCR) system for the control of NOx emissions. Secondary air emission sources include the auxiliary boilers firing natural gas or No. 2 fuel oil and the material handling systems for coal, ash and lime. Bin vent filters are provided for material handling equipment to control visible particulate emissions.

The proposed project involves routing 5% to 10% of the purified flue gas from the main pulverized-coal-fired boiler to a gas absorption and stripping system, utilizing monoethanolamine (MEA) for the adsorption of CO2. The processed flue gas will then be vented back to the main boiler exhaust stack and discharge to the atmosphere. The height of the main boiler exhaust stack is 495 feet above grade. The proposed CO_2 recovery plant will be located adjacent to the main boiler exhaust stack to the south. Approximately 3.5 (MW) of site-produced power will be necessary to operate the CO_2 recovery plant.

The proposed CO_2 recovery plant will remove carbon dioxide from the exhaust stream for sale as a product. Equipment for such a system typically includes: a Direct Contact Cooler (DCC), a flue gas blower, one CO_2 absorber, a CO_2 stripper, an amine reclaimer, CO_2 compressors, CO_2 dryers, a cryogenic CO_2 distillation column, liquid CO_2 storage tanks, ammonia refrigerant compressors, and associated heat exchangers, pumps, and receivers.

Typically, the CO_2 removal unit receives a percent of the flue gas. The flue gas is first cooled in the DCC. This improves CO_2 recovery and removes some trace impurities that are washed out in the water used to cool the flue gas. The proposed project at ICLP includes a caustic scrubbing section upstream of the DCC to remove sulfur dioxide (SO_2) impurities.

Using a blower to overcome the system pressure losses, the flue gas is then blown through an absorber where CO_2 is removed from the flue gas by a lean solvent monoethanolamine (MEA) solution. In the upper section of the absorber, the flue gas passes through a circulating water stream to remove MEA from the flue gas. The exhaust gas is then returned to the main pulverized coal stack for discharge to the atmosphere.

The rich MEA solvent (nearly saturated with CO_2) is pumped to a stripper column. The CO_2 is released by heating the MEA with steam. CO_2 and water vapor evolved from the stripper go to a cooler where water vapor is condensed out of the CO_2 and directed back to the stripper and process waste tank to maintain the water balance. The CO_2 is directed to the purification unit. Lean MEA solvent leaving the stripper is cooled and returned to the absorber, thus completing the cycle.

CO_2 enters the purification unit and is washed to remove any residual MEA. The CO_2 is then cooled and compressed, further condensing and removing moisture. The final discharge pressure of the CO_2 is high enough that it will condense using an ammonia refrigeration system. After compression, the CO_2 is filtered to remove residual oil and then it flows through the dryers to remove moisture to a dew point of minus 80°F. The CO_2 is then condensed using an ammonia condenser and purified in a stripping column to remove trace inerts, such as NOx and various products of incomplete combustion. Liquid CO_2 is then subcooled, and further purified in the Molecular Sieve Beds to remove residual NOx and other impurities.

The CO_2 Absorber Column would be the main permitted emission point for the CO_2 removal system. The flue gas passes through a packed tower scrubber before being vented back through the pulverized coal boiler stack to the atmosphere. The scrubber is designed to remove most of the MEA from the stack exhaust gas to be recycled back into the process. The scrubbed flue gas is then vented to the atmosphere. Small amounts of fugitive emissions come from the ancillary equipment in the MEA system, the corrosion inhibitor system, the CO_2 process vents, and the glycol systems from the valves, seals, and lines. Batches of CO_2 that do not meet product specifications ("off-spec product") will occasionally be vented to atmosphere.

Thermal breakdown of MEA in the system will cause emissions of thermal decomposition products in the CO_2 Absorber Column exhaust. An allotment in the total VOC emission rate from the system includes these decomposition products. Ammonia will also be emitted as a decomposition product.

A vendor-supplied system description is included in Appendix 2.

3.0 REGULATORY APPLICABILITY EVALUATION

3.1 Chapter 62-210 Stationary Sources -General Requirements

3.1.1 62-210.300 Permits Required

The owner or operator of any emissions unit which emits or can reasonably be expected to emit any air pollutant must obtain an appropriate permit from the Department of Environmental Protection (the Department) prior to beginning construction, modification, or initial or continued operation of the emissions unit unless exempted pursuant to Department rule or statute. Since the proposed CO_2 recovery plant can not meet the categorical exemptions provided in Rule 62-210.300 (3)(a) or the generic exemptions provided in Rule 62-210.300 (3)(b), ICLP must obtain a preconstruction permit prior to installing the proposed CO_2 recovery plant.

3.2 Chapter 62-212 Stationary Sources - Preconstruction Review

3.2.1 62-212.300 General.

The proposed CO_2 recovery plant will be constructed at an existing major source. If the proposed modification at the Facility resulted in a net emissions increase that exceeds the significant emission rate for a regulated pollutant, the project would be subject to major new source preconstruction review regulation. As mentioned previously and documented in Section 4.0 of this application, the potential VOC emissions from the CO_2 recovery plant will be less than 25 tons per year (including fugitive emissions). The significant emission rate for VOC emissions is 40 tons per year. The proposed modification to the Facility to construct a CO_2 recovery plant will not affect the existing emission units at the Facility. Therefore, only the emissions from the proposed equipment are being considered to determine the net emissions increase. Since the proposed CO_2 recovery plant has a maximum potential emission rate less than 40 tons per year VOC, general preconstruction review applies and ICLP is applying for an air construction permit pursuant to Rule 62-212.300.

3.2.2 62-212.400 Prevention of Significant Deterioration (PSD)

The U.S. Environmental Protection Agency (EPA) has promulgated Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) which require a permit review and approval for new or modified existing sources which have the potential to emit criteria pollutants in amounts greater than the significant emission levels. Similarly, the Department has promulgated PSD preconstruction review regulations as provided in Rule 62-212.400. Sources that are "major stationary sources" and "major modifications" located in areas designated as attainment or unclassifiable for national Ambient Air Quality Standards (NAAQS) are subject to the PSD regulations. Martin County and the surrounding counties are designated as "in attainment or cannot be classified" for all criteria pollutants. The proposed CO_2 recovery plant will be constructed at an existing major source and will have the potential to emit VOC at an annual rate of less than 25 tons per year. The net emissions increase from the modification will be below 40 tons per year, the significant emission rate for VOC, and therefore, the PSD preconstruction review criteria provided in Rule 62-212.400 does not apply to the proposed project.

3.2.3 62-212.500 Non-Attainment

The proposed CO_2 recovery plant will be constructed at an existing facility located in Martin County which has been designated as "in attainment or cannot be classified" for all criteria pollutants. Therefore, non-attainment new source review is not applicable to the proposed project.

3.3 Chapter 62-204 Air Pollution Control: General

3.3.1 62-204.800 Federal Regulations Adopted by Reference

None of the emission standards contained in 40 CFR 60, 61 and 63, adopted by reference pursuant to Rule 62-204.800 apply to the proposed project. MEA is not a listed hazardous air pollutant (HAP). Of the expected thermal decomposition products, only methanol is a HAP. Potential emissions of methanol are well below 10 tons per year. Since emissions of methanol are less than 10 tons per year, the facility is not a major source of methanol. There is currently no applicable standard for Maximum Achievable Control Technology (MACT) promulgated under Title III of the Clean Air Act. There are no current MACT requirements for this source for two reasons: methanol emissions fall below major source thresholds, and no standard has been promulgated.

3.4 Chapter 62-296 Stationary Sources-Emission Standards

3.4.1 62-296.320 General Pollutant Emission Limiting Standards

Rule 62-296.320 provides general pollutant emission limiting standards. The general emission limiting standard for volatile organic compounds emissions or organic solvents emissions requires:

(1a) No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without

applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department

(2) Objectionable Odor Prohibited No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

The proposed CO_2 absorber will utilize a packed tower scrubber and demister to minimize the potential MEA emissions from the absorber. Best management practices will be used to minimize the evaporation of MEA during material handling and use. MEA has a slight ammonia-like odor which will not be detectable at the property line.

3.4.2 62-296.500 Reasonably Available Control Technology (RACT)

Since the proposed CO_2 recovery plant is not subject to any of the specific emission limiting standards of Rules 62-296.500 through 62-296.516 or subject to PSD preconstruction review pursuant to Rule 62-212.400, the requirements of 62-296.570, Reasonably Available Control Technology (RACT) Requirements for Major VOC and NO_x Emitting Facilities, are not applicable.

3.5 Greenhouse Gas Reduction

The proposed recovery plant will have the capacity to remove CO_2 from the existing flue gas stream to produce 400 tons per day of liquid CO_2 for sale. the control of greenhouse gases, including CO_2, is an issue that has gained worldwide attention. The proposed Indiantown CO_2 recovery plant is a proactive, cost-effective step to reduce CO_2 emissions. This is a step that should be supported by FDEP and EPA as part of the nationwide flexible approach to reduce emissions of greenhouse gases.

3.5.1 *EPA Goals*

As part of the EPA's strategic plan, a stated goal is preventing pollution. The strategic plan states: "Pollution prevention and risk-management strategies aimed at cost-effectively eliminating, reducing, or minimizing emissions and contamination will result in cleaner and safer environments in which all Americans can reside, work, and enjoy life." Another stated goal is the reduction of global and cross-border environmental risks. The strategic plan states: "The United States will lead other nations in successful, multilateral efforts to reduce significant risks to human health and ecosystems from climate change..."

In addition, the EPA's strategic plan includes emphasizing pollution prevention as a guiding principle. The strategic plan states "we will structure our approaches to create incentives for preventing pollution and the transfer of pollution among air, water, and land. To accomplish this, the Agency will use a mix of tools -- including performance standards and economic incentives in setting national pollution controls, as well as voluntary pollution reductions and other innovative alternatives -- in furtherance of EPA's goals and objectives."

The proposed Indiantown CO_2 plant fits with the EPA's stated goals of cost-effectively reducing emissions, reducing risks from climate change, and preventing pollution. In the alternative, the CO_2 plant is an effectie air pollution control measure.

3.5.2 *FDEP Goals*

The Florida Department of Environmental Protection Mission and Values Statement states: "The Department accomplishes its mission in a manner that... provides for responsible and wise use of the state's mineral, cultural and living resources." We believe that the beneficial re-use of stack emissions to create a salable product is a wise use of resources that should be supported by FDEP.

4.0 PROJECT EMISSIONS AND CONTROL TECHNOLOGY REVIEW

4.1 CO_2 Plant Emissions

The flue gas exiting the absorber will contain entrained MEA. To minimize MEA emissions, the flue gas will be directed through a 10-foot, circulating water packed tower and a demister prior to exhausting to the pulverized coal boiler stack. The packed tower/demister section of the absorber will minimize MEA vent losses to 2.0 pounds per hour. This emission rate assumes a circulating amine solution flow rate through the absorber of 2,000 gallons per minute and an unrestricted operation of 8,760 hours per year. Expected emission rates of other VOCs, as products of decomposition of the MEA, have been estimated at approximately 3 pounds per hour.

The packed tower will contain 10 feet of packing to collect entrained MEA and additional demister material to knock down any entrained liquid droplets. The wash water will enter the packed tower countercurrent to the processed flue gas. The amine content of the circulating water system will be maintained at or below 1% by mixing a slip stream with the lean amine feed to the absorber and replacing it with condensate from the stripper reflux drum. The use of countercurrent packed columns is the most common type of unit encountered in gaseous pollutant control and is generally considered best available control technology (BACT). Therefore, a review of other technologies is not presented.

In addition to absorber vent losses, MEA can be lost in discarded reflux water, discarded reclaimer bottoms, discarded filter solids, leaks in the system, and spills. These additional MEA emissions will be minimized through best management practices, minimizing the evaporation of MEA from leaks in the system, spills, and solid waste handling practices. Also, through efficient operation of the system, an optimum water balance will be maintained to reduce the amount of reflux water that must be discarded.

Table 4-1 provides a summary of the potential emission and control technologies employed to reduce emissions for the proposed CO_2 Recovery Plant.

Table 4-1
VOC EMISSION RATES

ABSORBER VENT	5 lb/hr *(minimized using packed tower scrubber & demister)*
	21.9 ton/yr
MISC. SOURCES	0.5 lb/hr *(minimized through good operating practices)*
	2.2 ton/yr
TOTAL	24.1 ton/yr

Appendix 1

Permit Application Forms

Department of
Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Indiantown Cogeneration, L.P.	
2. Site Name: Indiantown Cogeneration Plant	
3. Facility Identification Number: 0850102 [ ] Unknown	
4. Facility Location: Street Address or Other Locator: 19140 SW Warfield Blvd City: Indiantown County: Martin Zip Code: 34956	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: David Burrage, Environmental Manager
2. Application Contact Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown State: FL Zip Code: 34956
3. Application Contact Telephone Numbers: Telephone: (561) 597-6500 Fax: (561)597-6520

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Permit Number:	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[ ] Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: ____________________

[ ] Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: ____________________

Operation permit number to be revised: ____________________

[ ] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: ____________________

[ ] Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: ____________________

Reason for revision: ____________________

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[✓] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1.	Name and Title of Owner/Authorized Representative or Responsible Official: Stephen Sorrentino, General Manager
2.	Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown State: FL Zip Code: 34956
3.	Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (561) 597- 6500 Fax: (561)597 - 6210
4.	Owner/Authorized Representative or Responsible Official Statement: *I, the undersigned, am the owner or authorized representative*(check here [ ], if so) or the responsible official (check here [✓], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.* [signature] 12/22/99 Signature Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1.	Professional Engineer Name: George S. Lipka Registration Number: 0050359
2.	Professional Engineer Mailing Address: Organization/Firm: Earth Tech Street Address: 196 Baker Avenue City: Concord State: MA Zip Code: 01742
3.	Professional Engineer Telephone Numbers: Telephone: (978)371- 4000 Fax: (978)371- 2468

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [✓], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

George P. [signature] — Signature

December 22, 1999 — Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
007	CO2 Plant	AC1E	

Application Processing Fee

Check one: [ ] Attached - Amount: $__________________ [ ] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations: A new CO2 plant that will remove carbon dioxide from the existing exhaust stream for sale as a product. Please see Section 2 of the text for further description.
2. Projected or Actual Date of Commencement of Construction: TBD
3. Projected Date of Completion of Construction: TBD

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone:	East (km):		North (km):
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 27/2/20		Longitude (DD/MM/SS): 80/30/45	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911, 4961
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: David Burrage, Environmental Manager		
2. Facility Contact Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown	State: FL	Zip Code: 34956
3. Facility Contact Telephone Numbers: Telephone: (561)597 - 6500	Fax: (561)597 - 6210	

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [✓] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [ ] Major Source of Hazardous Air Pollutants (HAPs)?	
5. [ ] Synthetic Minor Source of HAPs?	
6. [✓] One or More Emissions Units Subject to NSPS?	
7. [ ] One or More Emission Units Subject to NESHAP?	
8. [✓] Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters): Major source of HAPs based on current estimates of HCL emissions.	

List of Applicable Regulations

62-210.300	62-213
62-210.350	62-273.300
62-210.370	62-297
62-210.500	62-296.405
62-210.550	62-204.800
62-210.700	40 CFR 60,Subpart Da
62-212.300	40 CFR 60,Subpart Db
62-212.400 (PSD-FL-168)	40 CFR 60,Subpart Y
62-212.410	
62-296.711	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
CO	A				
PB	B				
NOX	A				
PM	A				
PM10	A				
S02	A				
VOC	B				
SAM	B				
H021	B				
H114	B				
FL	B				
H015	B				
H106	A				
Monoethanolamine	B				

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [✓] Attached, Document ID:____1____ [ ] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [✓] Attached, Document ID:____2____ [ ] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [✓] Attached, Document ID:____3____ [ ] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
5. Fugitive Emissions Identification: [✓] Attached, Document ID:____4____ [ ] Not Applicable [ ] Waiver Requested
6. Supplemental Information for Construction Permit Application: [✓] Attached, Document ID:____5____ [ ] Not Applicable
7. Supplemental Requirements Comment: Document I.D. 1-3 in Appendix 2. Document I.D. 4 as addressed as the main body of text.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: [ ] Attached, Document ID:________ [ ] Not Applicable	
9. List of Equipment/Activities Regulated under Title VI: [ ] Attached, Document ID:________ [ ] Equipment/Activities On site but Not Required to be Individually Listed [ ] Not Applicable	
10. Alternative Methods of Operation: [ ] Attached, Document ID:________ [ ] Not Applicable	
11. Alternative Modes of Operation (Emissions Trading): [ ] Attached, Document ID:________ [ ] Not Applicable	
12. Identification of Additional Applicable Requirements: [ ] Attached, Document ID:________ [ ] Not Applicable	
13. Risk Management Plan Verification: [ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:________) or previously submitted to DEP (Date and DEP Office:________________________) [ ] Plan to be submitted to CEPPO (Date required:____________________________) [ ] Not Applicable	
14. Compliance Report and Plan: [ ] Attached, Document ID:________ [ ] Not Applicable	
15. Compliance Certification (Hard-copy Required): [ ] Attached, Document ID:________ [ ] Not Applicable	

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[✓] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Regulated or Unregulated Emissions Unit? (Check one)

[✓] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):

4. Emissions Unit Identification Number: [ ] No ID
ID: 007 [ ] ID Unknown

5. Emissions Unit Status Code: C	6. Initial Startup Date: TBD	7. Emissions Unit Major Group SIC Code: 2813	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method): The flue gas exiting the absorber will contain entrained MEA and other VOC. To minimize VOC emissions, the flue gas will be directed through a 10-foot, circulating water packed tower and a demister prior to exhausting to the pulverized coal boiler stack. The packed tower/demister section of the absorber will minimize VOC vent losses to 5 pounds per hour, resulting in potential annual VOC emissions of 21.9 tons per year. This emission rate assumes a circulating amine solution flow rate through the absorber of 2,000 gallons per minute and an unrestricted operation of 8,760 hours per year. Also see Section 4.0 of the text for further control technology discussion.
2. Control Device or Method Code(s): 013

Emissions Unit Details

1. Package Unit: Manufacturer:	Model Number:	
2. Generator Nameplate Rating:	MW	
3. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:		 °F seconds °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:		mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate: 400 tons CO_2 per day		
5. Requested Maximum Operating Schedule:	24 hours/day 52 weeks/year	7 days/week 8760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

62-210.300	
62-212.300	
62-296.320	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? Main Stack		2. Emission Point Type Code: 2
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Main Stack		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: PC boiler (001), Proposed CO2 Plant (007)		
5. Discharge Type Code: V	6. Stack Height: 495 feet	7. Exit Diameter: 16 feet
8. Exit Temperature: 140 °F	9. Actual Volumetric Flow Rate: 1123700 acfm	10. Water Vapor: 15.00 %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters): Airflow in dscfm not listed because the PC boiler has no emission limits in grains/dscfm.		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC	**013**	**014**	**EL**

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 5.5 lb/hour 24.1 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [✓] 1 [ ] 2 [ ] 3 _0.0_ to _2.2_ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 2
8. Calculation of Emissions (limit to 600 characters): Vendor-supplied material balance	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Estimate from tanks, pumps, flanges.	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ______ of ______

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment (limit to 200 characters):	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram [✓] Attached, Document ID: 3 [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:________ [✓] Not Applicable [ ] Waiver Requested
3. Detailed Description of Control Equipment [✓] Attached, Document ID: 4 [ ] Not Applicable [ ] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:________ [ ] Previously submitted, Date:________________ [✓] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
8. Supplemental Information for Construction Permit Application [✓] Attached, Document ID: 4 [ ] Not Applicable
9. Other Information Required by Rule or Statute [ ] Attached, Document ID:________ [✓] Not Applicable
10. Supplemental Requirements Comment: Document I.D. 3 in Appendix 2 Document I.D. 4 is addressed as the main body of the text.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation [ ] Attached, Document ID:________ [ ] Not Applicable
12. Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID:________ [ ] Not Applicable
13. Identification of Additional Applicable Requirements [ ] Attached, Document ID:________ [ ] Not Applicable
14. Compliance Assurance Monitoring Plan [ ] Attached, Document ID:________ [ ] Not Applicable
15. Acid Rain Part Application (Hard-copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID:________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID:________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID:________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID:________ [ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID:________ [ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID:________ [ ] Not Applicable

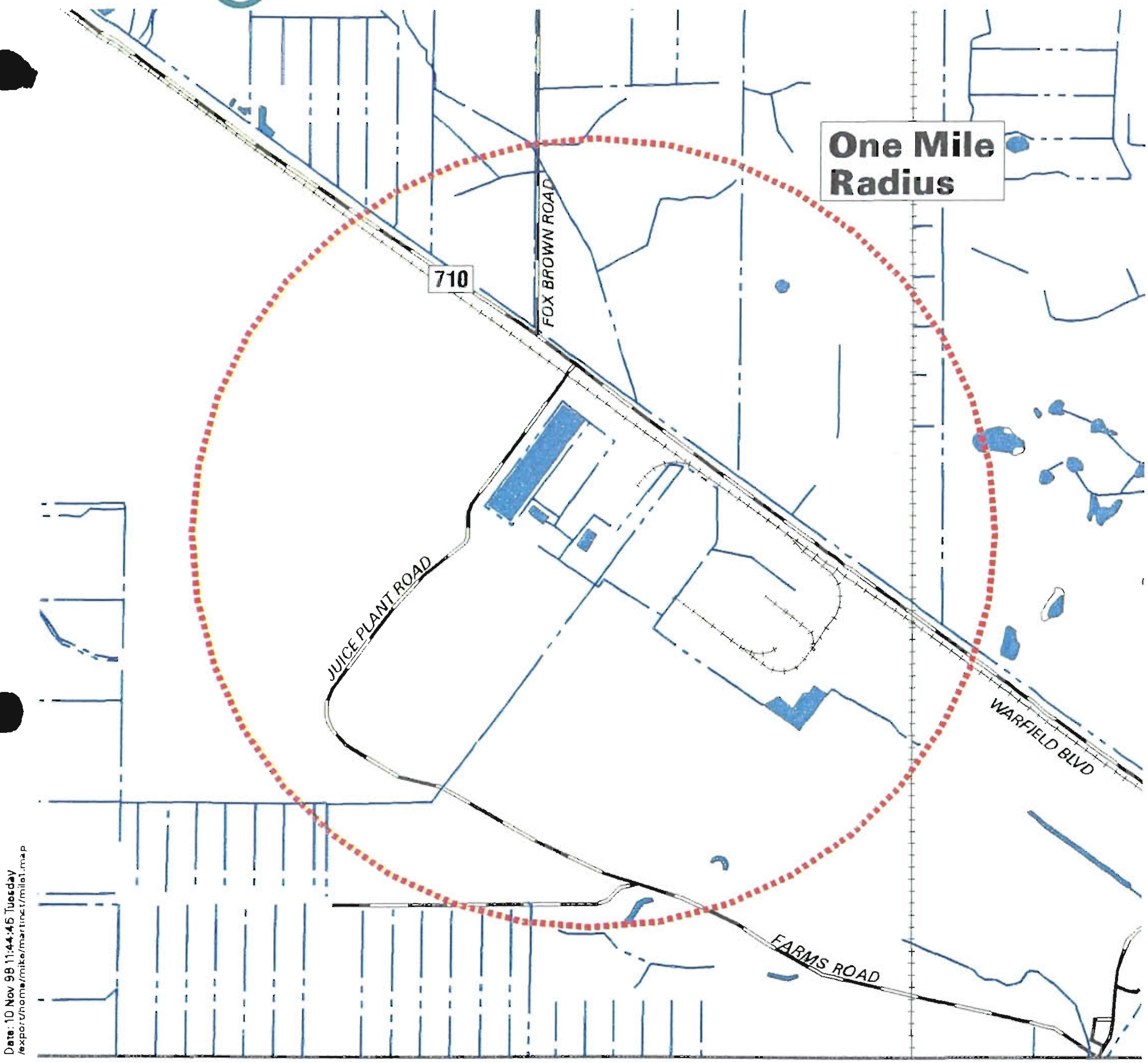
Appendix 2

Drawings and Vendor Process Description

Area Within One Mile of Site

Data supplied by Martin County GIS Department.

EARTH TECH



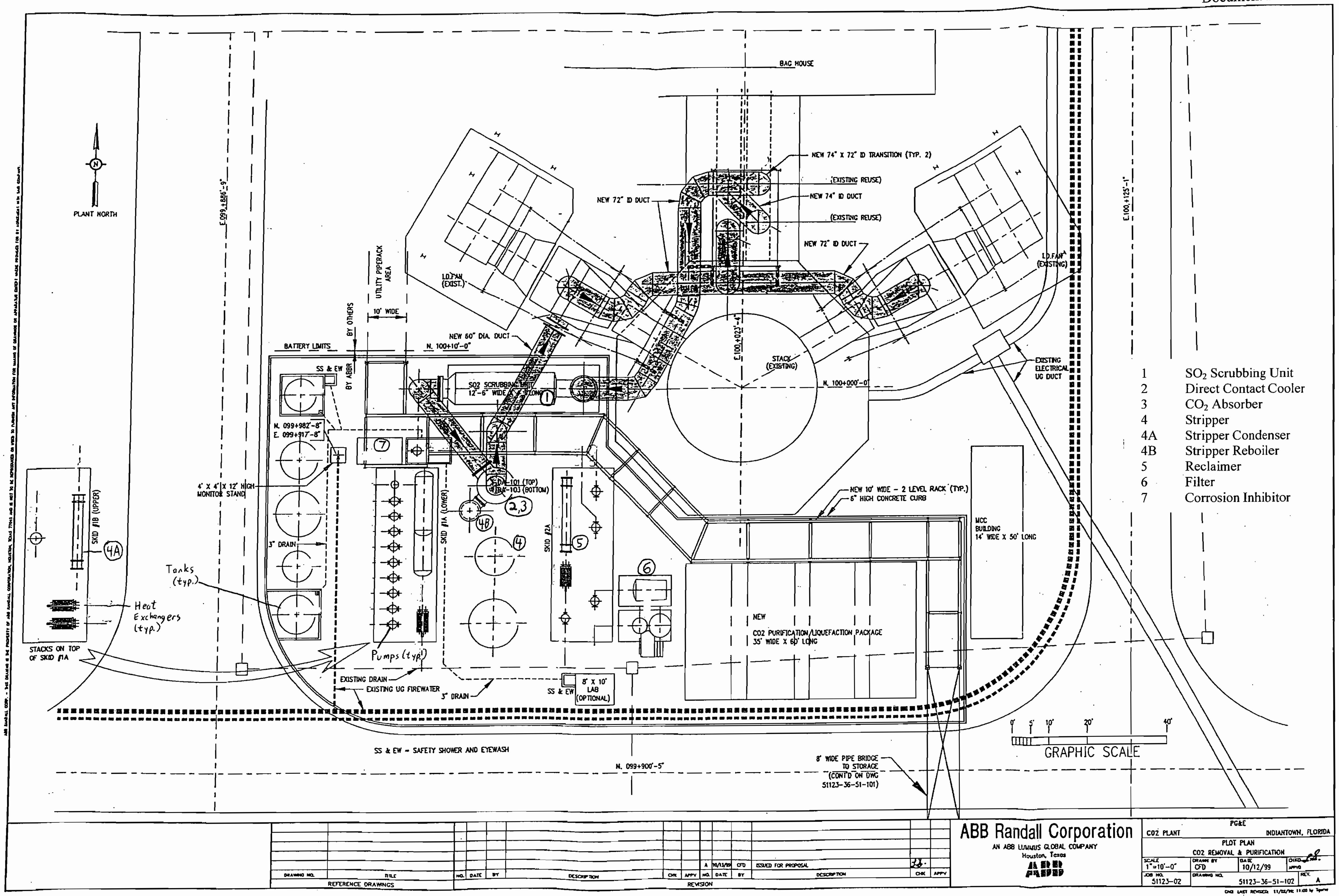
Road or Highway
Railroad
River or Stream
Ditch or Canal

Area Within One Mile of Site

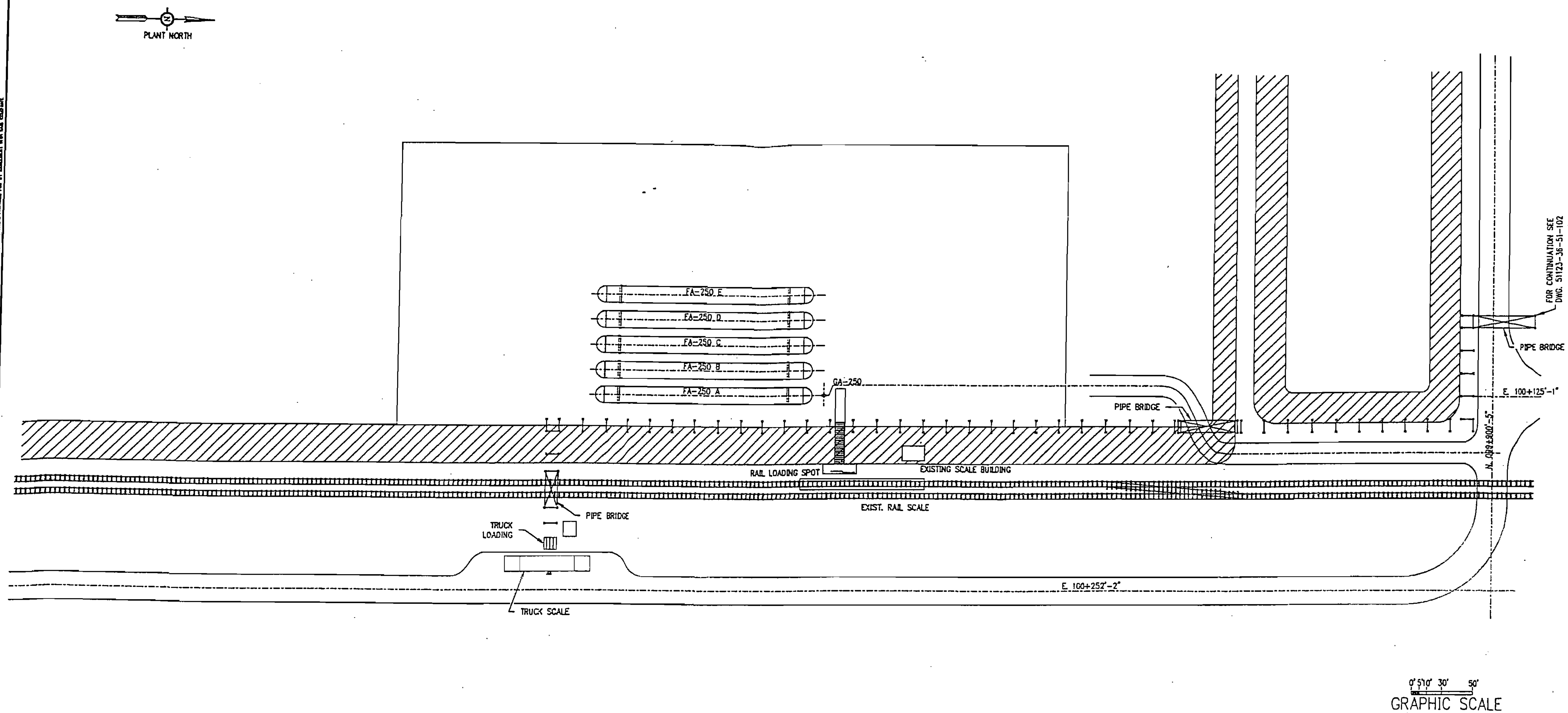
Scale 1:24000
0 2000 4000
Feet

Data supplied by Martin County GIS Department.

Document ID: 2



Document ID: 2

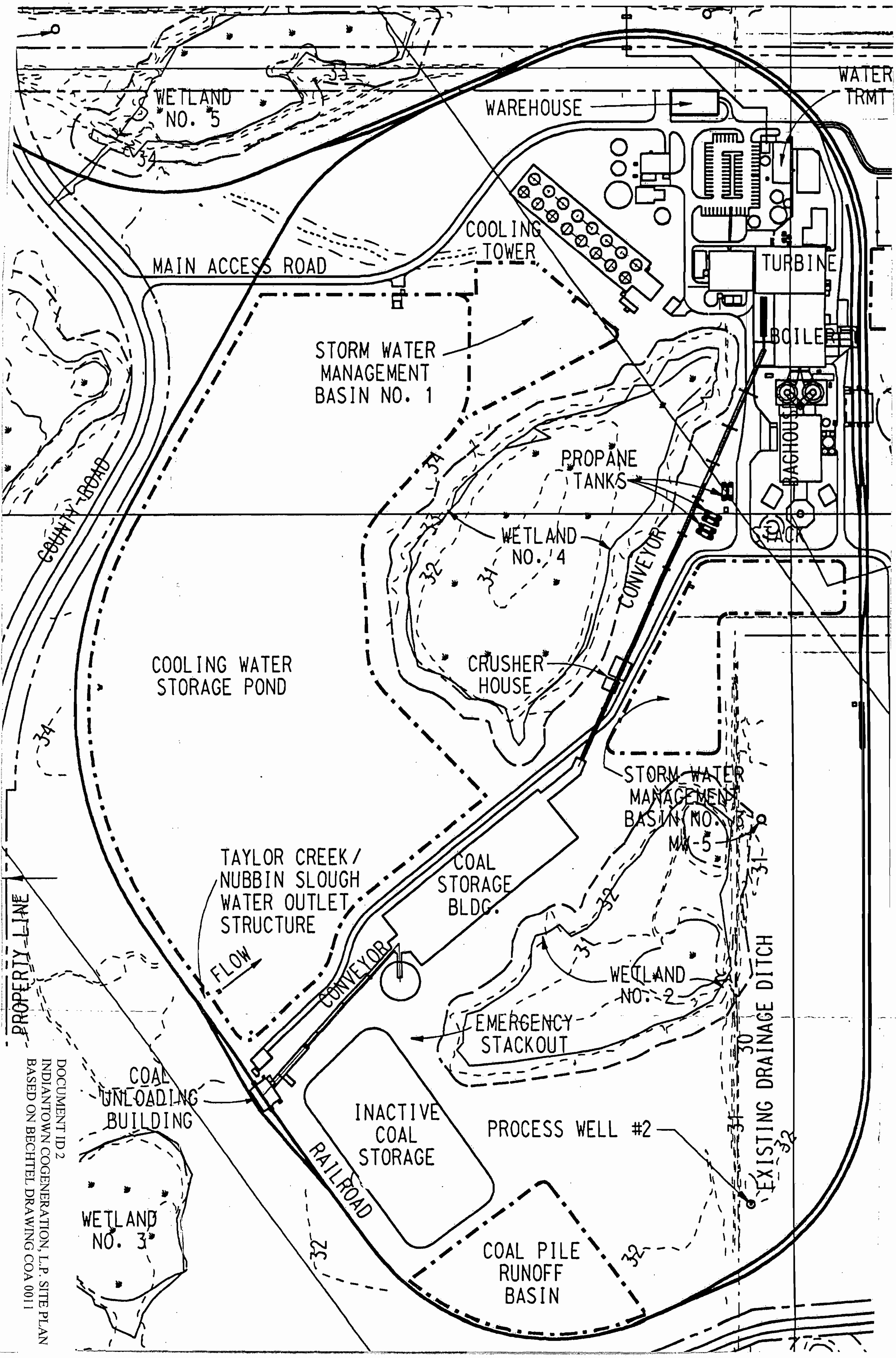


DRAWING NO.	TITLE	NO.	DATE	BY	DESCRIPTION	CHK	APPV	NO.	DATE	BY	DESCRIPTION	CHK	APPV
								A	10/13/99	CFD	ISSUED FOR PROPOSAL		
REFERENCE DRAWINGS		REVISION											

ABB Randall Corporation
AN ABB LUMMUS GLOBAL COMPANY
Houston, Texas

CO2 PLANT	PG&E	INDIANTOWN, FLORIDA	
PLOT PLAN CO2 STORAGE & LOADING			
SCALE 1"=30'-0"	DRAWN BY CFD	DATE 10/13/99	CHKD / APPD
JOB NO. 51123-01	DRAWING NO. 51123-36-51-101		REV. A

CFD1 LAST REVISED: 10/22/99; 11:23 by Tgarza



DOCUMENT ID 2
INDIANTOWN COGENERATION, L.P. SITE PLAN
BASED ON BECHTEL DRAWING COA 0011

2. MODIFICATIONS REQUESTED

2.1 Addition of a Carbon Dioxide Recovery Plant

ICLP is proposing to add to the Facility a new process to recover carbon dioxide from the existing flue gas stream. The proposed CO_2 recovery plant will remove carbon dioxide from the pulverized coal boiler's exhaust stream for sale as a product. Between 5% and 10% of the pulverized coal boiler flue gas will be directed to the CO_2 recovery plant. The flue gas will be cooled and scrubbed with a monoethanolamine (MEA) solution, which captures the CO_2. The CO_2 is then stripped out of the MEA solution, cleaned, compressed, and shipped in liquid form. The MEA is recycled in a closed-loop system.

The CO_2 plant will be designed to produce 400 tons per day of liquid CO_2 for sale. The CO_2 will meet an existing demand for end-use products such as food and beverages, industrial gas, and chemical feedstock.

CO_2 recovery plants are associated with various industrial processes that generate CO_2. The most common industrial sources of raw CO_2 gas in the US are ammonia and hydrogen production, breweries, and ethanol fermentation plants. Underground reserves of natural CO_2 are a significant source, but most of this gas is pumped into oil wells to improve oil recovery. A small number of power plants operate recovery plants similar to that proposed by ICLP and, very rarely, oil or gas is burned for the sole purpose of generating raw CO_2. Traditionally in developed countries, CO_2 is produced from the following sources, in approximately the following percentages:

Fermentation	~16%
Natural Gas/Underground Wells	~18%

Fertilizer/Chemical By-product	~42%
Hydrogen reformer (refineries)	~22%
Flue Gas	~2%

The proposed ICLP CO_2 recovery plant will have a positive environmental impact, because it will reduce the CO_2 being emitted from the Facility. The CO_2 will come from coal that is already being combusted to generate electricity and steam. The ICLP CO_2 recovery plant can displace over 400 tons per day of CO_2 that would otherwise be emitted.

The control of greenhouse gases, including CO_2, is an issue that has gained worldwide attention. The proposed ICLP CO_2 recovery plant is a proactive, cost-effective step to reduce CO_2 emissions. The CO_2 plant may be viewed as either a pollution prevention technology or an air pollution control system. This is a step that should be supported by FDEP and EPA as part of the nationwide flexible approach to reduce emissions of greenhouse gases.

2.1.1 CO_2 Recovery Plant Description

The following is a typical CO_2 recovery plant description. Final design of the CO_2 recovery plant proposed for Indiantown is in progress, and final vendor selection has not occurred. Vendor-provided process descriptions and drawings are included in Attachment B.

The proposed CO_2 recovery plant will remove carbon dioxide from the exhaust stream for sale as a product. Equipment for such a system typically includes: a

Direct Contact Cooler (DCC), a flue gas blower, one CO_2 absorber, a CO_2 stripper, an amine reclaimer, CO_2 compressors, CO_2 dryers, a cryogenic CO_2 distillation column, liquid CO_2 storage tanks, ammonia refrigerant compressors, and associated heat exchangers, pumps, and receivers.

Typically, the CO_2 removal unit receives a percent of the flue gas. The flue gas is first cooled in the DCC. This improves CO_2 recovery and removes some trace impurities that are washed out in the water used to cool the flue gas. The proposed project at ICLP includes a caustic scrubbing section upstream of the DCC to remove sulfur dioxide (SO_2) impurities.

Using a blower to overcome the system pressure losses, the flue gas is then blown through an absorber where CO_2 is removed from the flue gas by a lean solvent monoethanolamine (MEA) solution. In the upper section of the absorber, the flue gas passes through a circulating water stream to remove MEA from the flue gas. The exhaust gas is then returned to the main pulverized coal stack for discharge to the atmosphere.

The rich MEA solvent (nearly saturated with CO_2) is pumped to a stripper column. The CO_2 is released by heating the MEA with steam. CO_2 and water vapor evolved from the stripper go to a cooler where water vapor is condensed out of the CO_2 and directed back to the stripper and process waste tank to maintain the water balance. The CO_2 is directed to the purification unit. Lean MEA solvent leaving the stripper is cooled and returned to the absorber, thus completing the cycle.

CO_2 enters the purification unit and is washed to remove any residual MEA. The CO_2 is then cooled and compressed, further condensing and removing moisture. The final discharge pressure of the CO_2 is high enough that it will condense using an ammonia refrigeration system. After compression, the CO_2 is filtered to remove residual oil and then it flows through the dryers to remove moisture to a dew point of minus 80°F. The CO_2 is then condensed using an ammonia condenser and purified in a stripping column to remove trace inerts, such as NOx and various products of incomplete combustion. Liquid CO_2 is then subcooled, and further purified in the Molecular Sieve Beds to remove residual NOx and other impurities.

The CO_2 Absorber Column would be the main permitted emission point for the CO_2 removal system. The flue gas passes through a packed tower scrubber before being vented back through the pulverized coal boiler stack to the atmosphere. The scrubber is designed to remove the MEA from the stack exhaust gas to be recycled back into the process. The scrubbed flue gas is then vented to the atmosphere. Small amounts of fugitive emissions come from the ancillary equipment in the MEA system, the corrosion inhibitor system, the CO_2 process vents, and the glycol systems from the valves, seals, and lines. If any batches of CO_2 do not meet product specifications ("off-spec product"), they will be vented to atmosphere.

Thermal breakdown of MEA in the system will cause emissions of thermal decomposition products in the CO_2 Absorber Column exhaust. An allotment in the total VOC emission rate from the system includes these decomposition products. Ammonia will also be emitted as a decomposition product.

2.1.2 CO_2 Recovery Plant Impacts and Benefits

Installation of the CO_2 recovery plant will result in a small new emission source and will also result in an incremental increase in water consumption of about 220 gallons per minute (about 7% of the existing average permitted rate of withdrawal). Approximately 3.5 MW of site produced electricity will be required to power the CO_2 recovery plant.

The CO_2 recovery plant will produce the following waste streams/co-products:

- Reclaimer bottoms containing MEA, water, heat stable salts, and dissolved salts. The expected volume is approximately 7 gallons/hour. ICLP expects to ship the reclaimer bottoms off-site as non-hazardous waste; beneficial reuse options are being considered.

- Filter cake: an aqueous solution of sodium sulfate, heat stable salts and MEA will be pressed in a filter coated with diatomaceous earth. Expected quantities are about 70 tons/year, to be shipped off-site approximately quarterly as non-hazardous industrial waste.

- Flue gas scrubber blowdown: the Flue Gas Scrubber uses a circulating caustic solution to remove SO_2 from the pulverized coal boiler flue gas. A blowdown stream is drawn from the circulating solution to remove the soluble sodium salts that accumulate. This blowdown stream is expected to be 3 to 3.5 gallons per minute, and will be used for makeup water to the lime slaker.

- Water blowdown from the Direct Contact Cooler, approximately 12 gallons/minute, which will be recycled into the Facility's water treatment system.

- Excess reflux water: the system is designed to reuse the water exiting the solvent stripper reflux. If short-term process imbalances create excess reflux water, that water will be stored in a surge tank. If excess reflux water needs to be discarded, it will either be processed at the Facility's water treatment system or shipped off-site as non-hazardous industrial waste, depending on quality.

Anhydrous ammonia will be stored and used in the CO_2 recovery plant. ICLP will comply with the OSHA Process Safety Management regulations under 29 CFR 1910.119 and the EPA Risk Management Planning regulations under 40 CFR 68, that relate to the safe storage and handling of anhydrous ammonia.

The absorption, recovery, and purification portions of the CO_2 recovery plant will be located around the existing pulverized coal boiler stack. The original Facility construction laydown area will be used to store CO_2 and transfer it to delivery trucks and railcars. All construction will be on previously disturbed land; no wetland or upland preserve area will be affected.

ICLP proposes to increase the use of steam for CO2 recovery, thereby increasing the benefits of cogeneration at this Facility. As demonstrated in the original certification of the plant, cogeneration is a highly efficient means of creating more than one kind of energy from a single fuel source. The Facility currently burns coal to produce steam that is used both for producing electricity and for process needs at Caulkins' (displacing the use of Caulkins boilers). Use of steam generated by ICLP for CO2 recovery improves upon the existing benefit by further using the energy released by the combustion in the Facility's boiler. ICLP is not proposing any increase in steam generating capacity; the proposed project will make use of available capacity.

Authorization to add the CO_2 recovery plant will require modifications to the Conditions of Certification as follows.

- Renumbering of Condition II(1), B.1 as Condition II(1), B.1.a (page 10, Conditions of Certification, operation of boilers)

- Additional condition at Condition II(1), B.1.b (page 10, Conditions of Certification) to read:

  CO2 Recovery Plant

  A CO2 recovery plant is permitted to operate at a nominal 400 ton/day CO2 production rate. This Facility shall be allowed to operate continuously (8,760 hr/yr).

- Additional condition at Condition II(1), B.2.L. to read:

  l. CO2 Recovery Plant

  The CO2 absorber column shall emit no more than 5 lb/hr VOC in addition to the products of combustion from the PC boiler (emissions from the PC boiler are regulated per Condition II(1), B.2.a).

  Fugitive emissions of VOC and ammonia from the CO2 Recovery Plant shall be minimized through the use of good operating and maintenance practices.

- Additional condition at Condition II(1), C.1.g. to read:

  g. Prior to operation of the CO2 Recovery Plant, the permittee shall submit to the Department's Bureau of Air Regulation a plan or procedure demonstrating that the *system used to measure the PC boiler emissions accurately accounts for the exhaust gasses ducted to the CO2 Plant.*

The air emission impacts of the addition of the CO_2 plant are detailed in Attachment B, "Minor Source Permit Application to Construct Flue Gas Carbon Dioxide Recovery Plant". The incremental increase in water use is evaluated in Attachment C, "Analysis of Incremental Water Use." Please note that requested changes to the water allocation in the Conditions of Certification are summarized in Attachment C.

2.2 Addition of a Chilled Water Plant

The proposed chilled water plant would produce cold water in a closed loop to be provided through hard piping to an adjacent facility, Caulkins Citrus. Chilled water would be created through a steam absorption system. This process will be a small additional source of consumptive water use; since it is a closed system, this additional water use will be minimized. Piping to Caulkins would be constructed on previously disturbed land, using the existing corridor. The proposed chilled water plant would placed at the north end of the Facility, adjacent to Caulkins Citrus, on previously disturbed land. No wetland or upland preserve area will be affected. In summary, water and a specialized salt (lithium bromide) are used in a closed-loop system that uses steam as the energy source to create chilled water. That chilled water will be supplied to Caulkins Citrus through a second closed-loop system.

2.2.1 Chiller Operation Description

ICLP has not selected a final vendor for the chiller. The chiller tentatively selected is a YORK Millennium Absorption Chiller, which is described below. Specific details may change with final chiller selection. YORK vendor literature, including a process diagram, is included in Attachment D.

The chiller will use a two-stage absorption refrigeration cycle using water as the refrigerant and lithium bromide as the absorbent. The entire process occurs in hermetic vessels in an almost complete vacuum. The continuous cycle can be divided into six steps:

1. **Solution Pump/Heat Exchanger.** A dilute solution of lithium bromide and water descends from the absorber to the Solution Pump. This flow of dilute solution is split into two streams and pumped through heat exchangers to the First-Stage generator and to the Second-Stage generator.

2. **First-Stage Generator.** A steam heat exchanger heats dilute lithium bromide coming from the Solution Pump/Heat Exchangers. This produces hot refrigerant vapor which is sent to the Second-Stage Generator, leaving a concentrated solution that is returned to the Heat Exchangers.

3. **Second-Stage Generator.** The energy source for the production of refrigerant vapor in the Second-Stage Generator is the hot refrigerant vapor produced by the First-Stage Generator. The refrigerant vapor produced in the First-Stage Generator is increased by 40%, without using any additional fuel. The result is much higher efficiency than conventional systems. This additional refrigerant vapor is produced when dilute solution from the Heat Exchanger is heated by refrigerant vapor from the First-Stage Generator. The additional concentrated solution that results is returned to the Heat Exchanger. The refrigerant vapor

from the First-Stage Generator condenses into liquid, giving up its heat, and continues to the condenser.

4. **Condenser.** Refrigerant from two sources – (1) liquid resulting from the condensing of vapor produced in the First-Stage Generator and (2) vapor produced by the Second-Stage Generator – enters the Condenser. As the liquid refrigerant enters the low pressure of the condenser it flashes into vapor. The two sources of refrigerant vapor combine and condense to liquid as they are cooled by the condenser water. The liquid then flows down to the Evaporator.

5. **Evaporator.** Refrigerant liquid from the Condenser passes through a metering valve and flows down to the Refrigerant Pump, where it is pumped up to the top of the Evaporator. Here the liquid is sprayed out as a fine mist over the Evaporator tubes. Due to the extreme vacuum (6mm Hg) in the Evaporator, some of the refrigerant liquid vaporizes, creating a refrigerant effect. (This vacuum is created by hygroscopic action – the strong affinity lithium bromide has for water – in the Absorber). The refrigerant effect cools the returning system chilled water in the Evaporator tubes. The refrigerant liquid/vapor picks up the heat of the returning chilled water, cooling it from 54^{O}F to 44^{O}F. The chilled water is then supplied back to the system.

6. **Absorber.** As the refrigerant liquid/vapor flows to the Absorber from the Evaporator, a concentrated solution coming from the Heat Exchanger is sprayed out into the flow of descending refrigerant. The hygroscopic action between lithium bromide and water, and the related changes in concentration and temperature, result in the creation of an extreme vacuum in the Evaporator

directly above. The dissolving of the lithium bromide in water gives off heat, which is removed by condenser water entering from the cooling tower at 85°F and leaving for the Condenser at 92°F. The resultant lithium bromide solution collects in the bottom of the Absorber, where it flows down to the Solution Pump. The chilling cycle is now completed and begins again at Step 1.

2.2.2 Chiller System Impacts and Benefits

The YORK Millennium Absorption Chiller has been tentatively selected because it is efficient, compact, and low maintenance. The materials in the sealed refrigeration system are water and a specialized salt; no ammonia, chlorofluorocarbons, or hydrochlorofluorocarbons will be used. The system will use some non-contact cooling water; this water will be supplied through ICLP's existing cooling water system. Changes to the Facility's water use are evaluated in Attachment C, "Analysis of Incremental Water Use".

ICLP proposes to increase the use of steam for chilled water production, thereby increasing the benefits of cogeneration at this Facility. Cogeneration is a highly efficient means of using the available energy from fuel combustion, as discussed in Section 2.1.2 above. ICLP is not proposing any increase in steam generating capacity; the proposed project will make use of available capacity.

The chilled water plant will replace older, less efficient methods of cooling in-place at Caulkins Citrus. It will therefore improve energy efficiency and decrease energy needs.

2.3 Changes in Plant Output Rating

ICLP has identified an opportunity to increase the electrical output of the Facility without increasing permitted emissions limitations. By modifying the NO_x reduction system, and adjusting the lime slurry flow to the spray dryer absorber, the fuel flow through the generation unit may be increased while keeping emissions within the existing permit limits. The existing boiler and steam turbine generator are capable of utilizing this additional heat, thus raising the Facility's electrical output from a nominal 330 MW to a nominal 390 MW. The physical capacity of the steam turbine generator is not being changed. Any increased output will be subject to appropriate contractual provisions.

This increase in electrical output brings important economic and environmental benefits. ICLP provides a benefit to the statewide electrical system in that the ICLP Facility is dispatchable; that is to say its electrical output can be fluctuated by the electrical system operator in order to meet changing loads. Increased electrical output enhances this load-following capability. This increases the Facility's ability to provide electrical system reliability services, and to be compensated for them. From an environmental perspective, ICLP is among the lowest emitting facilities in Florida. Electricity generated from this Facility will cause less pollution than electricity produced at higher-emitting facilities. Thus, increased use of this Facility to meet demand is beneficial.

2.3.1 Physical Modification Description

ICLP expects that the only physical modifications that may be needed to meet the existing permit limits at an increased load will be enhancements to the NO_x control system. All other permit limits can be met using the existing equipment.

Specific Condition 6 of the PSD permit allows the Facility "to use any technology (e.g. SNCR, SCR, or combustion controls) to achieve the NO_x limitation" for the PC boiler. ICLP will continue to meet the existing NO_x limitation. Per existing Condition of Certification (1).A.2., ICLP will provide details of the enhanced NO_x reduction system upon completion of final design, and at least 90 days prior to commencing on-site construction for the modification.

Although the final system design is still in progress, ICLP is considering the use of an SNCR system to augment the existing SCR system. The supplemental SNCR system would ensure compliance with the NO_x limitation at increased loads.

2.3.2 Permit Language Changes

As stated above, ICLP will maintain the existing emission limits for the PC Boiler. The proposed rating change will require changes in the Site Certification, as follows.

- The first sentence of Condition II(1), B.1 (page 10, Conditions of Certification) needs to be revised to read;

  The Pulverized Coal (PC) boiler is permitted to operate at a maximum of <u>4100</u> MMBtu/hr heat input (nominal <u>390</u> MW).

- The first sentence of Condition II(1), B.2.a (page 10, Conditions of Certification) needs to be revised to read;

  Based on a permitted heat input of 4100 MMBTU/hr heat input, the stack emissions from the main boiler shall not exceed any of the following limitations:

  Please note that requested changes to the water allocation in the Conditions of Certification are summarized in Attachment C. The proposal to increase ICLP's rated output is detailed in Attachment E, "PSD Permit Application to Modify Pulverized Coal Plant."

  The modifications described herein will not increase the steam generating capacity of the Facility; neither the capacity of the steam boiler nor the capacity of the steam turbine will be increased by the proposed modifications.

2.4 Changes in Cooling Water Storage Pond Elevation

ICLP is proposing to raise the emergency spillway elevation of the Facility's 26-acre cooling water storage pond. This will serve two purposes. First, ICLP can obtain additional storage capacity for water under normal operating conditions by maintaining the water level at a higher level. Second, increasing the depth of the pond will decrease the amount of light that reaches the bottom of the pond, which in turn will reduce algal growth. A reduction in algal growth will permit ICLP to reduce the amount of algae treatment chemicals used, making this an environmentally beneficial pollution prevention step.

A topographic survey drawing for the cooling water storage pond is included in Attachment F. This drawing shows that the storage pond has a similar or lower elevation than the rest of the Facility. Discharges from the emergency discharge spillway, or from overtopping the ponds, are very likely to remain onsite. Based on the water table observed December 9, 1997, the storage capacity of the pond exceeds the volume of runoff generated by the 25-year, 72 -hour rainfall event by 1.7 acre-feet.

During the original PPSA siting process, the cooling water storage pond was treated as a minor aboveground storage impoundment. Per the South Florida Water Management District (SFWMD) final agency report, "the maintained water level within the impoundment will be 37.5-foot NGVD from September to April and 37.0-foot NGVD from May to August." This review was based on the ground level being approximately 34-foot NGVD. As a result of the construction of the Facility, the ground elevation has been increased. Based on the drawing in Attachment F, the elevation of the roads and railbed on-site vary between 38-foot and 40-foot NGVD. Based on our review and discussions with SFWMD, it does not appear that the cooling water storage pond needs to continue to be considered an aboveground storage impoundment, because the water level is not significantly aboveground level.

ICLP proposes to raise the working level of both the north section and the south section of the cooling water storage pond by one foot. The emergency spillway elevation will be raised by 1 foot, from 37.5-foot NGVD to 38.5-foot NGVD. Since the entire pond and spillway will be elevated one foot, the storage capacity is assumed to remain constant. The height of the containment dike varies from 40.5-foot to 41.9-foot NGVD. The minimum freeboard above the maximum water depth would therefore still be two feet or more, which falls within the guidelines set in Appendix 6 of Volume 4 of the SFWMD Basis of Review document (1987).

Section 2.2.2.2 of that document sets the minimum freeboard for a minor impoundment at "not less than 2 feet, nor more than 3 feet." Further, if the cooling water storage pond is not an aboveground storage impoundment under SFMWD rules, then the minimum freeboard criteria do not apply.

Accordingly, ICLP requests the following change to Condition Part IV C.2.a. of the Conditions of Certification:

BASIN 6:

1-12-foot wide weir consisting of a 3 sided drop inlet with the crest at 37.5-foot 38.5-foot NGVD.

2.5 Clarification of Auxiliary Boiler Operating Requirements

ICLP wishes to clarify the permit limits pertaining to the two auxiliary boilers. The original permit allowed one auxiliary boiler. The permit was amended at ICLP's request to allow the construction of two smaller boilers instead of one large boiler. ICLP wishes to revise the language of the Conditions of Certification to clearly identify the allowable hours of operation for each individual auxiliary boiler. ICLP proposes to revise Condition II(1), B.1. to state the following:

... In addition to the PC boiler, the Facility will have one or two auxiliary boilers rated at up to a combined total of 342 MMBtu/hr (#2 Fuel Oil) and a combined total of 358 MMBtu/hr (Natural Gas or Propane) which operate ~~*at the combined total heat input rate a maximum of 5,000 hours with up to 1,000 hrs/yr on #2 fuel oil and the balance on natural gas or propane.*~~ *at a combined total of less than 1.79×10^{12} British Thermal Units per year. The Auxiliary Boilers are*

each permitted to run 5,000 full load equivalent hours per calendar year, with no more than 1,000 hours of that period using fuel oil as the primary fuel.

ICLP further proposes to revise Condition II(1), B.2.b to state the following:

The auxiliary boiler or boilers, rated at up to a combined total of 358 MMBtu/hr (Natural Gas and propane) and a combined total of 342 MMBtu/hr (#2 fuel oil), shall be limited to ~~a maximum of 5,000 hours/year at the combined total heat input rates with up to 1,000 hrs/yr firing #2 Fuel Oil with 0.05% sulfur, by weight, and the balance firing natural gas or propane.~~ a combined total of less than 1.79 x 10^{12} British Thermal Units per year. The Auxiliary Boilers are each permitted to run 5,000 full load equivalent hours per calendar year, with no more than 1,000 hours of that period using fuel oil with 0.05% sulfur, by weight, as the primary fuel.

This issue was discussed in ICLP's original Title V Operating Permit application in 1996, and ICLP's comments to the draft Operating Permit in 1998. This change is also addressed in the PSD permit for the MW increase, included in Attachment E.

2.6 Modifications to Reflect Revised Water Allocation Plan with SFWMD

After the original Site Certification was issued, ICLP discussed revisions to the water withdrawal/allocation conditions with SFWMD. These discussions addressed specific conditions when water withdrawals from the L-63N canal are acceptable below an elevation of 17.50 feet NGVD, and when water withdrawals from the Upper and Lower Production Zones of the Upper Floridian Aquifer are acceptable to test and maintain the wells. These changes were discussed some time ago with

SFWMD to address practical operational concerns that arose during the initial operation of the Facility.

Specific correspondence relating to these issues is included in Attachment G. This includes proposed language modifying the Conditions of Certification. ICLP requests that this language be incorporated in the Conditions of Certification, as suggested by SFWMD.

2.7 Modification of Groundwater Monitoring Requirements

The Site Certification included a stringent groundwater quality monitoring protocol. Now that this program has been in place for over five years, it has become apparent that the situation is stable and that the presence of the Facility is not having any impact on the existing ground water quality. As the implementation of the existing program is time-consuming and expensive, ICLP is requesting that the program be modified. ICLP proposes to modify the requirement to sample and analyze the groundwater from a quarterly basis to an annual basis. ICLP is also proposing to remove the requirement for further testing for most organic compounds. These parameters have not been shown to be present in significant concentrations at ICLP, and none of the ICLP operations are likely to affect any of these parameters.

We propose the following additional text to be added to the Part II (4) 2. Groundwater Monitoring Program of the Conditions to Certification:

g. Starting in 2000, testing shall be performed on an annual basis for the Volatile Organics, Inorganics, and Metals listed above.

h. *Starting in 2000, water elevations for all wells shall be measured on an annual schedule and submitted to the Department along with the annual data and shall be measured in reference to 1929 NGVD for all monitoring wells (1/100 of a foot) and surface wells (1/10 of a foot). Starting in 2000, annual testing shall only be required for the metals listed above, as well as phenol and napthalene (except upon demonstration that key indicators show a significant increase above background levels).*

In addition, we propose the removal of the specific reference to DER form 17-1.216(2) from Part II (4) 2.j. This is not the appropriate reporting form.

In a meeting with Terry Davis of FDEP – PSL Branch Office on July 29, 1999, Mr. Davis suggested that ICLP petition to reduce the frequency of groundwater monitoring. A copy of Mr. Davis' September 10, 1999 correspondence, which rates the Facility as "satisfactory" for all the compliance areas evaluated, is presented in Attachment H.

2.8 Consistency among PSD, Title V, NPDES and COC conditions

To ensure consistency among the PSD, Title V, NPDES and COC conditions, we request that the following language be added to the Conditions of Certification:

Subject to the notice requirements of 403.516(1), F.S., the certification shall be automatically modified to conform to subsequent DEP-issued amendments, modifications, or renewals of any separately-issued Prevention of Significant Deterioration (PSD) permit, Title V Air Operation permit, or National Pollutant Discharge Elimination System (NPDES) permit for the project and the conditions of such permits shall be controlling over these Conditions of Certification.

2.9 NPDES Discharge

On December 10, 1999 FDEP issued a draft NPDES permit for potential emergency discharges during significant storm events from two "minor" impoundments at the site (included in Appendix J). ICLP believes this permit is necessary to ensure compliance with the intent of the federal Clean Water Act which requires permits for discharges without exception for emergency discharges in extreme events. There is an apparent conflict among two of the Conditions of Certification and between various Site Certification submissions as to whether these discharges are currently authorized under the Site Certification. Therefore, ICLP is seeking clarification to confirm that the Site Certification authorizes these emergency releases.

In the Notice of Draft Permit, FDEP indicates that the Conditions of Certification should be modified to formally recognize the emergency discharges. The notice specifically states:

> *The construction and operation of the power plant was approved under the Florida Electrical Power Plant Citing Act, under DER Case No. PA 90-31. The final Order approving certification for this project was issued by the siting board on February 6, 1992. At this time, the emergency discharges may be prohibited by the order based on Section II.3.C in the Conditions of Certification, which reads "There shall be no discharge of industrial or domestic wastewaters from this site into waters of the state." Therefore, in addition to obtaining the discharge permit, the Order must also be modified to formally recognize the emergency discharges. The applicant has stated that they will seek to have the Order modified, in accordance with the provision in Rule*

62-17.211(4), Florida Administrative Code (F.A.C.), once the discharge permit is issued.

In accordance with the direction provided in the Notice of Draft Permit, ICLP is requesting modification of the Conditions of Certification to recognize the emergency discharges. As discussed in Section 2.8, above, we are also requesting this modification to maintain consistency with the NPDES permit.

2.9.1 Facility Description

An 8-acre lined wastewater storage pond provides for storage of wastewater until it can be recycled for use in the Facility. The water inputs for this pond are brine generated by the evaporators in the zero-discharge system, concentrated cooling tower blowdown, miscellaneous plant wastewater, and rainwater which falls onto the surface of the pond (no stormwater runoff is conveyed into this pond). The spray dryer is the ultimate reuse point for the concentrated brine from the wastewater treatment system. This reuse of concentrated brine in the spray dryer and the recycling of the treated wastewater back into the plant operations (after storage in the wastewater pond) qualify the plant as a "zero-discharge" Facility.

The 26-acre lined cooling water storage pond provides a supply of water for plant operations. The primary sources of water for the cooling water pond are surface water piped in from Taylor Creek/Nubbins Slough and rainwater that falls onto the surface of the pond. Minor inflows can come from several other sources. Filtered water from the plant's water softener system may be discharged into the cooling water pond. There is a pipe from the wastewater pond, which can transfer water to the cooling water pond when the water level in the wastewater pond exceeds safe operating levels. Stormwater from Stormwater Basin 001 was designed to be diverted to the cooling water storage pond for recycling in the plant. Water from the cooling water and wastewater equalization tank is stored in the cooling water pond pending reuse in the plant. These transfers are consistent with the zero discharge design concept of the plant and do not significantly adversely affect water quality in the cooling water pond. As mentioned in the April 1991 Site Certification Application (SCA) Sufficiency Responses Volume 1, Florida Department of Environmental Regulation Question 35, and Volume 2, SFWMD Question 7:

> *The design and operation of a zero discharge system requires that conventional wastewater be viewed as a water resource. This results in an integrated water treatment scheme addressing both treatment of makeup water source and optimizing the reuse of wastewater.*

Consistent with this principle, some process water is currently stored in the cooling water pond pending reuse in the plant. This is a result of a reuse system optimization; certain process water flows have been redirected within the plant.

2.9.2 Emergency Discharges from the Cooling Water Pond are Expressly Authorized

Emergency discharges from the cooling water pond were contemplated by ICLP throughout the Site Certification proceedings and are expressly authorized by the Conditions of Certification. Following are some references to emergency discharges from the cooling water pond.

> ICL Exhibit AA-13, introduced at the Certification hearing, shows the Preliminary Drainage Plan for the site. The cooling water pond is shown with an

emergency discharge structure, consistent with SFWMD Basis of Review requirements.

The original SCA states that "in order to pass excess pond storage to avoid overtopping during major storms, an emergency spillway is provided." SCA, p. 3.5.1-4.

In his prepared direct testimony, Adnan Alsaffar stated that during the 25-yr, 3-day storm, the cooling water pond "will discharge to a toe ditch at the base of the containment dike and ultimately to the existing drainage ditch [which conveys waters to the St. Lucie canal]." Alsaffar, p. 21.

Condition of Certification IV.C.2. expressly authorizes the cooling water pond (referred to as Basin 6) to discharge 9 cubic feet per second into the on-site toe ditch through a 12-foot wide weir.

It is clear that emergency discharges from the cooling water pond were contemplated throughout the certification process, including the current Conditions of Certification. The apparent conflict arises from Condition II.3.C. which states that "there shall be no discharge of industrial or domestic wastewater from the site to waters of the state." The storage of process water in the cooling water pond pending reuse in the plant raises the possibility that small volumes of diluted industrial waterwater might be discharged from the cooling water pond, during certain periods of excessive rainfall.

2.9.3 Emergency Discharges from the Wastewater Pond were contemplated During Certification

The wastewater pond was not included in the initial design of the plant, as reflected in the SCA (The SCA called for the deep well injection of certain wastewater). However, ICLP's subsequent pre-certification hearing submissions, including the sufficiency responses and the prepared direct testimony, describe this minor impoundment in detail. These submissions also describe emergency discharges from the wastewater pond, as follows:

- The Preliminary Drainage Plan introduced at the Certification hearing shows an emergency discharge structure for the wastewater pond, consistent with SFWMD Basis of Review requirements. ICL Exhibit AA-13.
- The second round of sufficiency responses state in response to SFWMD comment #6 that a "broad crest type spillway with a crest Elevation of 37.5 ft and width of 6 ft is provided to discharge any excess water above El. 37.5 ft during periods of prolonged precipitation in excess of [the] 100-year condition." SFWMD-12.
- In response to another SFWMD sufficiency comment, ICLP stated that "an emergency discharge structure . . . will operate only during periods of prolonged precipitation in excess of the 100-yr condition." SFWMD-25.

Similar to the cooling water pond, the necessity for occasional emergency discharges from the wastewater pond has been contemplated from the time this impoundment was incorporated into the plant design. However, the Conditions of Certification do not expressly authorize a discharge from the wastewater pond (as they do for the cooling water pond), while Condition II.3.C. expressly prohibits the discharge of industrial wastewater from the site into waters of the state. Note that whereas the cooling water pond will experience emergency discharges under a 25-yr, 72-hour storm, the wastewater pond will experience a discharge only for storms exceeding the 100-yr, 72-hour storm. It is our belief that these extreme events were considered to be so rare that they were simply omitted from consideration in the Conditions.

2.9.4 Conclusion

Both the cooling water pond and the wastewater pond were approved and constructed with emergency discharge structures to discharge water during extreme rainfall events. First, while Condition IV.C.2. expressly authorizes emergency discharges from the cooling water pond, the blanket prohibition on discharges of industrial wastewater in Condition II.3.C. may conflict with this authorization. ICLP wants to clarify that Condition IV.C.2. authorizes emergency storm water-related discharges from the cooling water pond. Second, although the possibility of emergency discharges from the wastewater pond were contemplated during the Certification process, these discharges are not expressly authorized in the Conditions of Certification, perhaps due to their extreme rarity (only during rainfall events exceeding the 100-yr, 72-hour storm).

ICLP seeks to clarify the authorized emergency stormwater-related discharges from the cooling water pond, and emergency discharges from the wastewater storage pond, through the following modification of Condition II.3.C.

> *There shall be no discharge of industrial or domestic wastewaters from the site to the waters of the state, except emergency storm water-related discharges from the cooling water pond and the wastewater storage pond, as a result of extreme rainfall events.*

We further request that Condition IV.C.2. be modified to reflect allowable discharge from the wastewater storage pond after rainfall exceeding the category of a 100 year/72 hour storm. Correspondence related to NPDES permitting is included in Attachment J.

2.10 Changes to Air Permit Requirements

Through the PSD and Title V air permitting processes, changes have been made to the allowable test methods for compliance stack testing, and the opacity limit for the pulverized coal boiler. As discussed in Section 2.8 above, ICLP requests that the Site Certificate be updated to reflect changes in the PSD and Title V air permits. Specific changes appropriate at this time are discussed below.

2.10.1 Stack Test Methods

Through stack testing for the PC Boiler, it has become clear that EPA Method 5 is the most appropriate method for testing both particulate matter and PM-10 from the Facility's stack. Method 5 is appropriate because of the particulate matter in the Facility's emissions are a small particulate size, there are very low concentrations and the permit limits for PM and PM-10 are identical. In addition, the testing requirement for sulfuric acid has been waived because of interference problems with the test method. These changes, and other changes in test methodology, have been approved in the PSD permit and the Title V Operation permit.

We request the replacement of the table in Condition II(1). B.3.b of the Conditions of Certification with the following table to reflect the current test methods:

EPA Method	For determination of
1	Selection of sample site and velocity traverses
2	Stack gas flow rate when converting

	concentrations to or from mass emissions limits
3, 3A & 3B	Gas analysis when needed for calculation of molecular weight of or percent O2
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions
6, 6C, or 19	Sulfur dioxide
7E	Nitrogen oxides
9	Visible emissions
22	Fugitive emissions from transfer points
10	Carbon monoxide
12 or 101A	Lead
13A or 13B	Fluorides
18 and 25	Volatile organic compounds
101A or 108	Mercury
104	Beryllium
EPA draft method or other methods approved by the Department	Ammonia (NH3)

In addition, we request removal of the statement "A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing." This requirement is not reflected in the PSD permit or the Title V permit. Test methods and procedures have been agreed upon with FDEP and do not need to be set forth unless ICLP proposes to change methods or procedures.

Documentation of the appropriateness of the test methods used is included in Attachment K.

2.10.2 Pulverized Coal Boiler Opacity

Through an amendment to the PSD permit issued on April 13, 1998, short-term opacity "spikes" from the pulverized coal boiler are allowed. Specifically, the amendment allows one 6-minute period per hour of not more than 27 percent opacity. This is consistent with the language of the federal New Source Performance Standard requirements under 40 CFR 60 Subpart Da.

We request the modification of Condition II (1)B.2.a.iii. to the following to reflect the changes to the PSD and Title V air permits:

VE (Visible Emissions)

- <u>*VE from the pulverized coal boiler baghouse exhaust shall not exceed 10 percent opacity (6 minute average), except for one 6-minute period per hour of not more than 27 percent opacity.*</u>
- *VE from ~~each~~ <u>other</u> baghouse exhausts<u>s</u> shall not exceed 10% opacity (six minute average).*
- *No VE during lime silo loading operations (i.e., less than 5% opacity).*
- *VE from the ash handling baghouse shall not exceed a particulate limit of 0.010 grains/acf and VE of 5% opacity.*

3. APPLICATION PROCEDURE

The Indiantown Facility was the subject of a full site certification proceeding under the Power Plant Siting Act (PPSA ss. 403.501-.518, F.S). This process resulted in a Site Certification Order and Conditions of Certification (SCO and COC, respectively). These documents stand in place of all other state permits that would otherwise be required for the construction and operation of the Facility.

The requested modifications should be reviewed under the procedure specified in Section 403.516 (1)(b), F.S. This provision allows the Department to modify a certificate if, after due notice, no party or affected member of the public objects.

3.1 Project Schedule

ICLP is interested in discussing the overall project schedule with the Department. Specific implementation goals for the project are listed in Table 3-1, below.

TABLE 3-1
IMPLEMENTATION GOALS

Task	Target Timeline
CO_2 Plant	Final System Design 3/1/00 Commence Construction 6/1/00 Startup 3/1/01 Full-Time Operation 4/1/01
Chilled Water Plant	Installation 6/15/00
MW Increase	Final air pollution control system design 1/1/00 Air pollution control retrofit 4/1/00 Operation at increased capacity 5/1/00
Changes in Cooling Water and Wastewater Storage Pond Elevations	Increase in pond elevation will begin immediately upon approval. Increase in storage will occur within 4 weeks.
Clarification of Permitted Operating Hours for Auxiliary Boilers	No action

Clarification of SFWMD requirements	No action
Modification of Groundwater Monitoring Requirements	Facility will comply with new groundwater monitoring requirements once finalized.
Update of air permit requirements	No action

Attachment A

Existing Conditions of Certification and Revisions

65

MICHELLE GRIFFIN

APR 6 1995

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re: INDIANTOWN COGENERATION L.P., MODIFICATION OF CERTIFICATION PA 90-31 MARTIN COUNTY, FLORIDA	)	DEP CASE NO. PA 90-31B OGC NO. 91-0146

FINAL ORDER MODIFYING CONDITIONS OF CERTIFICATION

On February 6, 1992, the Governor and Cabinet, acting as the Siting Board, issued a final order approving certification for the Indiantown Cogeneration, L.P., (ICL) Project. That certification order approved the construction and operation of a 330 MW (net) cogeneration facility and associated facilities to be located in Martin and Okeechobee Counties, Florida.

On August 25, 1994, ICL filed a request to modify the conditions of certification pursuant to Section 403.516(1)(b), F.S. ICL requested that the conditions be modified to approve changes to the Planned Unit Development condition as agreed to by Martin County, a change in groundwater withdrawal rates and groundwater withdrawal zones, a change in surface water pumping rates, and a new condition to allow use of treated wastewater for cooling system makeup.

Copies of ICL's request were distributed to all parties to the certification proceeding and made available for public review. On January 6, 1995, a Notice of Proposed Modification of Power Plant Certification regarding the proposed modifications was published in the Florida Administrative Weekly. The notice specified that a hearing would be held if a party to the original certification hearing objects within 45 days from receipt of the proposed modification or if a person whose substantial interests will be affected by the proposed modification objects in writing within 30 days after issuance of the public notice. No written objection to the proposed modifications was received by the Department.

Accordingly, in the absence of any timely objection,

IT IS ORDERED:

The proposed changes to the Indiantown Cogeneration Project, described in the August 25, 1994, request for modification, are APPROVED. Pursuant to Section 403.516(1)(b), F.S. the Department hereby MODIFIES the conditions of certification for the Indiantown Cogeneration Project as follows:

Condition Part II.(9) is added as follows:

(9) USE OF TREATED WASTEWATER

Treated domestic wastewater may be used as makeup water to the Project's cooling water system upon receipt of permission from the Department and the South Florida Water Management District. Such approval may be obtained by submission of the following information:

A. The name and address of the domestic treatment system to supply the treated effluent.

B. The DEP permit number for the supplying treatment system.

C. Plans and specifications for the proposed connecting pipeline and pumps necessary to transmit the treated effluent to the Project.

D. An analysis of the characteristics of the treated effluent.

E. Demonstration that the treated effluent is treated to meet the following requirements prior to use in the cooling system:

1. Maintenance of a minimum of a 1.0 mg/liter free

chlorine residual after a 15 minute contact time.*

2. Turbidity not to exceed 5 NTU.

3. Continuous chlorine monitoring.

* The Department may approve a lower level of chlorination upon demonstration that a viral concentration of less than one PFU per 25 gallons can be achieved at a that lower level of concentration and that satisfactory control of biological growth in the cooling tower can be maintained.

Condition Part IV B.2. is revised to read as follows:

B. WATER USE CONDITIONS

2. Site Specific Design Authorizations

a. Authorized Withdrawal

Source	Maximum Annual Allocation (MGY)	Maximum Daily Allocation (MGY)
L-63N	1484.00	4.69
~~Upper-Production-Zone~~ Upper Floridan Aquifer	195.00 ~~38.70~~	2.60 ~~0.43~~
Upper Permeable ~~Lower-Production~~ Zone-Lower ~~Upper~~ Floridan Aquifer	174.0 ~~336.60~~	~~4.46~~ 2.32

c. Authorized Withdrawal Facilities

~~3 1,700-GPM-Surface-Water-Pumps-in-L-63N~~

2 - 2,550 GPM Surface Water Pumps in L-63N

1 - 10" x 1340′ Flowing Well cased to 500′ (existing well)

1 - 10" x ~~1300~~ 1265′ Flowing Well cased to ~~600~~ 750′

2 - 15" x 1350′ Flowing Wells cased to 750′

~~4 - 14" x 1600′ Flowing Wells cased to 1400′~~

2 - 15" x 1650′ Flowing Wells cased to 1487′

VII. Martin County

1. Construction and operation of the Indiantown Cogeneration Project shall be undertaken in accordance with the planned unit development (industrial) agreement ("PUD Agreement") between the Permittee and Martin County, Florida, dated July 24, 1991 as amended on July 28, 1992. Said agreement is incorporated into these Conditions of Certification by this reference and shall be complied with and enforced as if the provisions of that agreement were contained in these Conditions. An amendment of the PUD Agreement which is adopted accordance with the laws and ordinances of Martin County in effect shall be deemed incorporated into these Conditions of Certification for purposes of conflicts with any other Condition of Certification, with an applicable nonprocedural requirement within the regulatory authority of an agency other than Martin county, or with a material statement of fact or study of the permittee in the record on which certification is based, then such an amendment to the PUD Agreement shall also require modification of certification pursuant to Section 403.516, F.S. before that amendment to the PUD agreement may become enforceable under this certification. Upon submittal to Martin County of an amendment to the PUD Agreement, the permittee shall provide a copy of the proposed PUD amendment to all agency parties to this certification for review for consistency with this Condition.

~~1. Construction and operation of the Indiantown Cogeneration Project shall be undertaken in accordance with the planned unit~~

~~development-(industrial)-agreement-between-the-Permittee-and Martin-County,-Florida,-dated-July-24,-1991.--Said-agreement-is incorporated-into-these-Conditions-of-Certification-by-this reference-and-shall-be-complied-with-and-enforced-as-if-the provision-of-that-agreement-were-contained-in-these-Conditions.~~

Any party to this Order had the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Protection in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; 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 that the Final Order is filed with the Department of Environmental Protection.

DONE AND ENTERED this 31st day of March, 1995, in Tallahassee, Florida.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

Kirby B. Green III for
Virginia B. Wetherell
Secretary

3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000
(904) 488-4805

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[signature] 4/3/95
Clerk Date

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing was sent by U.S. Mail to the following this 3rd day of April, 1995.

Douglas S. Roberts
Hopping Green Sams & Smith
P.O. Box 6526
Tallahassee, FL 32314

David Jordan
Senior Attorney
Dept. of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100

Vernon Whittier
Assistant General Counsel
Department of Transportation
Haydon Burns Building
605 Suwannee Street
Tallahassee, FL 32399

John Fumero
South Florida Water
Management District
P.O. Box 24680
3301 Gun Club Road
West Palm Beach, FL
33416-4680

Roger G. Saberson
Attorney for Treasure Coast
Regional Planning Council
70 SE 4th Ave.
Delray Beach, FL 33483-4514

Fred W. Van Vonno
Assistant County Attorney
Martin County
2401 Southeast Monterey Road
Stuart, FL 34996

Michael Palecki
Division of Legal Services
Florida Public Service
Commission
101 East Gaines Street
Tallahassee, FL 32399-0850

Susan M. Coughanour
James Golden
South Florida Water
Management District
P.O. Box 24680
3301 Gun Club Road
West Palm Beach, FL
33416-4680

John D. Cassels, Jr.
Counsel for Okeechobee County
P.O. Box 968
400 Northwest Second Street
Okeechobee, FL 34972

James Antista
General Counsel
Florida Game and Fresh Water
Fish Commission
Bryant Bldg.
620 S. Meridian Street
Tallahassee, FL 32399-1600

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

R T Donelan

RICHARD T. DONELAN, JR.
Assistant General Counsel
2600 Blair Stone Road
Tallahassee, FL 32399-2400
(904) 488-9314

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In Re: INDIANTOWN COGENERATION L.P., MODIFICATION OF CERTIFICATION PA 90-31 MARTIN COUNTY, FLORIDA	)	DER CASE NO. PA 90-31

FINAL ORDER MODIFYING CONDITIONS OF CERTIFICATION

On February 6, 1992, the Governor and Cabinet, acting as the Siting Board, issued a final order approving certification for the Indiantown Cogeneration, L.P., (ICL) Project. That certification order approved the construction and operation of a 330 MW (net) cogeneration facility and associated facilities to be located in Martin and Okeechobee Counties, Florida.

On April 21, 1992, ICL filed a request to modify the conditions of certification pursuant to section 403.516(1)(b), F.S. ICL requested that the conditions be modified to approve several recently identified changes to the project design and operation. These proposed changes include alternate rail spur corridors to the project site, changes to or increases in the storage capacity of various onsite facilities, an additional nitrogen oxide control option, use of two auxiliary boilers one-half the size of the original auxiliary boiler, onsite fuel storage facilities, and alterations to the plant layout.

Copies of ICL's request were distributed to all parties to the certification proceeding and made available for public review. On May 1, 1992, a Notice of Proposed Modification of Power Plant Certification regarding the proposed modifications was published in the Florida Administrative Weekly. ICL published notice of the proposed modification in the Indiantown News on April 29, 1992. The notices specifies that a hearing would be held if requested on or before 45 days from receipt of the proposed modification by the parties or within 30 days of publication of the notice. No hearing was requested. No person has filed written objections to the proposed modifications.

Accordingly, in the absence of any dispute,

IT IS ORDERED:

The proposed changes to the Indiantown Cogeneration Project, described in the April 20, 1992, request for modification, are approved based on the absence of any request for a hearing or written objections. The Department hereby approves the requested modifications. All modifications to the original certification as conceptually described in the request for modification, in and of themselves and as they impact the total infrastructure, shall be in conformance and in compliance with the following as appropriate:

- Domestic Waste Treatment and Disposal Facilities - Chapters 17-4, 17-28, 17-600, 17-602, 17-604, 17-610 and 17-640, F.A.C.

- Potable Water - Chapters 17-4, 17-531, 17-532, 17-550, 17-555, and 17-560, F.A.C.

- Industrial Waste - Chapters 17-4, and 17-660, F.A.C.

- Stormwater - Chapters 17-4, and 17-25, F.A.C.

Pursuant to Section 403.516(1)(b), F.S. the Department hereby modifies the conditions of certification for the Indiantown Cogeneration Project as follows:

Condition II(1), B.1. is revised to read as follows:

1. Boilers

The Pulverized Coal (PC) boiler is permitted to operate at a maximum of 3422 MMBtu/hr heat input (nominal 330 MW). This facility shall be allowed to operate continuously (8,760 hrs/yr.) In addition to the PC boiler, the facility <u>will have one or two</u> auxiliary boiler<u>s</u> rated at up to <u>a combined total of</u> 342 MMBtu/hr (#2 Fuel Oil) and <u>a combined total of</u> 358 MMBtu/hr (Natural Gas or Propane) which operate <u>at the combined total heat input rate</u> a maximum of 5,000 hours with up to 1000 hrs/yr on #2 Fuel Oil and the balance on natural gas or propane.

Condition II(1), B.2.b. is revised to read as follows:

b. Auxiliary Boiler

The auxiliary boiler <u>or boilers</u>, rated at up to a <u>combined total</u> of 358 MMBtu/hr (Natural Gas and propane) and <u>a combined total of</u> 342 MMBtu/hr (#2 Fuel Oil), shall be limited to a maximum of 5000 hours/year <u>at the combined total heat input rates</u> with up to 1000 hrs/yr firing

#2 Fuel Oil with 0.05% sulfur, by weight, and the balance firing natural gas or propane. The maximum total annual emissions from the auxiliary boiler or boilers will be as follows when firing #2 Fuel Oil:

Condition Part II (2), Wetlands, create a new paragraph K. to read as follows:

K. The provisions of Condition II(2) are also applicable to wetlands located along the alternate rail corridors connecting the site to the CSX Railroad.

Condition II(3) - create a new paragraph D. to read as follows:

D. Tanks

Diesel fuel also will be used to fuel on-site locomotives which move rail cars around the Site. Diesel fuel will be delivered by truck and stored in above-ground storage tanks designed, constructed and maintained in accordance with Chapter 17-762, F.A.C., including secondary containment. Stormwater will be collected from the bermed area around the tanks and pumped back to the plant for treatment and use. Any pollutant storage tanks on-site for facility construction activities must also be above-ground and designed, constructed and maintained in accordance with Chapter 17-762, F.A.C., including secondary containment.

Conditions Part IV, C, 1. - create a new paragraph k. to read as follows:

k. In the event the rail spur selected by the permittee impacts the surface water management system of an existing legal user, the permittee shall be responsible for correcting any water quality or water quantity problems resulting from the selected rail spur. Detailed plans and supporting calculations shall be submitted to SFWMD pursuant to Conditions IV, C, 3., a.(3).

Condition Part VI - create a new paragraph 8 to read as follows:

8. The permittee shall obtain approval from the Department of Transportation, pursuant to Rule 14-46.003(2), F.A.C., for any public railroad-highway grade crossings associated with the rail spur the permittee selects to connect the Project Site to the CSX Railroad.

Any party to this Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Regulation in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; 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 that the Final Order is filed with the Department of Environmental Regulation.

DONE AND ENTERED this 20th day of July, 1992 in Tallahassee, Florida.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION

Carol M. Browner
Secretary

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9730

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk — 7-21-92 Date

BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

In Re: APPLICATION FOR POWER PLANT SITE CERTIFICATION OF INDIANTOWN COGENERATION PROJECT	DOAH CASE NO. 90-8072EPP DER CASE NO. PA 90-31

FINAL ORDER

FOR

INDIANTOWN COGENERATION PROJECT

ISSUED: February 7, 1992

BEFORE THE GOVERNOR AND CABINET
STATE OF FLORIDA
SITTING AS THE SITING BOARD

IN RE:
APPLICATION FOR POWER PLANT SITE CERTIFICATION OF INDIANTOWN COGENERATION PROJECT, PA 90-31

DOAH CASE NO. 90-8072EPP

FINAL ORDER APPROVING CERTIFICATION

On February 4, 1992, this matter came before the Governor and Cabinet, sitting as the Siting Board, pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Section 403.501, et seq., Florida Statutes (1991), for final agency action concerning a Recommended Order dated December 24, 1991, attached as Exhibit 1, which recommends site certification for the Indiantown Cogeneration Project Power Plant. On September 24, 1991, the Board adopted a previous Recommended Order in this case which concluded that the proposed project was consistent with all applicable zoning ordinances and land use plans. The Public Service Commission entered a Final Order certifying the need for the proposed project on March 21, 1991.

No exceptions to the Recommended Order have been filed. Having reviewed the Recommended Order and having otherwise been fully advised, it is **ORDERED**:

1. Pursuant to Section 120.57(1)(b)10, Florida Statutes (1991), the Recommended Order dated December 24, 1991, (Exhibit 1) is **APPROVED** and **ADOPTED** by the Board.

2. The Board hereby **APPROVES** certification of the location, construction, and operation of the Indiantown Cogeneration Project at the proposed site, subject to the Conditions of Certification contained in Appendix A of Exhibit 1.

3. The Board hereby **DELEGATES** to the Department of Environmental Regulation the authority to assure and enforce compliance by Indiantown Cogeneration Partnership and its agents with all of the Conditions of Certification.

NOTICE OF RIGHTS

Any party to this certification proceeding 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 in the Department of Environmental Regulation Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy with the appropriate District Court of Appeal. The notice of appeal must be filed within 30 days from the date this Final Order is filed with the Clerk of the Siting Board.

DONE and ORDERED this 6th day of February, 1992, in Tallahassee, Florida, pursuant to the vote of the Governor and Cabinet sitting as the Siting Board, at a duly-noticed and constituted Cabinet meeting on February 4, 1992.

THE GOVERNOR AND CABINET
SITTING AS THE SITING BOARD

BY: Lawton Chiles
THE HONORABLE LAWTON CHILES

FILING AND ACKNOWLEDGEMENT

FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kathy C. Carter 2-7-92
Clerk Date

I hereby certify that the attached order was provided by mail on this 13th day of February, 1992, to the following persons:

The Honorable Lawton Chiles
Governor
The Capitol, Room 210
Tallahassee, Florida 32399

The Honorable Jim Smith
Secretary of State
The Capitol, LL-10
Tallahassee, Florida 32399

The Honorable Robert A. Butterworth
Attorney General
The Capitol, Plaza Level
Tallahassee, Florida 32399

The Honorable Bob Crawford
Commissioner of Agriculture
The Capitol, Plaza level
Tallahassee, Florida 32399

The Honorable Gerald A. Lewis
State Comptroller
The Capitol, Room 2001
Tallahassee, Florida 32399

The Honorable Tom Gallagher
State Treasurer and Insurance Commissioner
The Capitol, LL-27
Tallahassee, Florida 32399

The Honorable Betty Castor
Commissioner of Education
The Capitol, Plaza Level
Tallahassee, Florida 32399

Hamilton S. Oven, Jr., P.E.
Florida Department of Environmental
Regulation
2600 Blair Stone Road, Room 309L
Tallahassee, FL 32399-2400

Richard T. Donelan, Esquire
Assistant General Counsel
Florida Department of Environmental
Regulation
2600 Blair Stone Road, Room 654
Tallahassee, Florida 32399-2400

Kathryn Funchess
Stephen Pfeiffer
General Counsel
Florida Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Vernon Whittier
Assistant General Counsel
Department of Transportation
Haydon Burns Building
605 Suwannee Street, M.S. #58
Tallahassee, Florida 32399

John Fumero
South Florida Water Management District
Post Office Box 24680
West Palm Beach, Florida 33416-4680

Eugene McClellan, Assistant General Counsel
Department of Natural Resources
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Roger G. Saberson
Attorney for Treasure Coast
Regional Planning Council
70 S.E. 4th Avenue
Delray Beach, FL 33482-4514

Fred W. Van Vonno
Assistant County Attorney
Martin County
2401 Southeast Monterey Road
Stuart, Florida 34996

Brian Sodt
Central Florida Regional Planning Council
Post Office Box 2089
Bartow, Florida 33830-2089

John D. Cassels, Jr.
Counsel for Okeechobee County
Post Office Box 968
400 Northwest Second Street
Okeechobee, Florida 34972

James Antista, General Counsel
Kenneth McLaughlin, Assistant General Counsel
Florida Game and Fresh Water Fish Commission
Bryant Building
620 South Meridian Street
Tallahassee, FL 32399-1600

Doug Roberts
Carolyn S. Raepple
Gary Sams
Attorneys at Law
P.O. Box 6526
Tallahassee, FL 32314
(Counsel for Applicant)

R. T. Donelan, Jr.
Asst. General Counsel
Dept. of Environmental
Regulation

State of Florida
Division of Administrative Hearings
The DeSoto Building, 1230 Apalachee Parkway
Tallahassee, FL 32399-1550
(904) 488-9675 • SunCom: 278-9675

Sharyn L. Smith
Director

Ann Cole
Clerk

December 24, 1991

Honorable Lawton Chiles
Governor
State of Florida
The Capitol
Tallahassee, FL 32399

Honorable Jim Smith
Secretary of State
State of Florida
The Capitol, PL-02
Tallahassee, FL 32399-0250

Honorable Robert A. Butterworth
Attorney General
State of Florida
The Capitol
Tallahassee, FL 32399-1050

Honorable Tom Gallagher
Treasurer and Insurance Commissioner
State of Florida
The Capitol
Tallahassee, FL 32399-0300

Honorable Bob Crawford
Commissioner of Agriculture
State of Florida
The Capitol
Tallahassee, FL 32399-0810

Honorable Gerald A. Lewis
Comptroller
State of Florida
The Capitol, Plaza Level
Tallahassee, FL 32399-0350

Honorable Betty Castor
Commissioner of Education
State of Florida
The Capitol
Tallahassee, FL 32399

Re: Application for power plant site certification of Indiantown Cogeneration Project, DOAH Case No. 90-8072EPP

Dear Siting Board:

Enclosed is my Recommended Order in the site certification hearing of the referenced case. Exhibits received in evidence and the transcript of the certification hearing have been transmitted to Richard T. Donelan, Jr., at the Department of Environmental Regulation.

As required by Section 120.58(5), Florida Statutes, please provide the Division of Administrative Hearings a copy of your final order in this case within 15 days of rendition.

Sincerely,

Diane K. Kiesling

DIANE K. KIESLING
Hearing Officer

RECEIVED

DEC 26 1991

D. E. R.
SITING COORDINATION

DKK:dw
Enclosure

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

In Re: APPLICATION FOR POWER PLANT SITE CERTIFICATION OF INDIANTOWN COGENERATION PROJECT	)	DOAH CASE NO. 90-8072EPP DER CASE NO. 90-31

RECOMMENDED ORDER

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

In Re: APPLICATION FOR POWER PLANT SITE CERTIFICATION OF INDIANTOWN COGENERATION PROJECT	)))))	DOAH CASE NO. 90-8072EPP DER CASE NO. 90-31

RECOMMENDED ORDER

Pursuant to proper public notice, a certification hearing as required by Section 403.508(3), Florida Statutes (Supp. 1990), was held in Indiantown, Florida on October 21, 1991, before the Division of Administrative Hearings, by its designated Hearing Officer, Diane K. Kiesling.

APPEARANCES

For Indiantown Cogeneration Project:	Douglas S. Roberts Carolyn S. Raepple Hopping Boyd Green & Sams 123 S. Calhoun Street Post Office Box 6526 Tallahassee, FL 32314
For Department of Environmental Regulation:	Richard T. Donelan, Jr. Assistant General Counsel 2600 Blair Stone Road Tallahassee, FL 32399-2400
For Martin County:	Fred W. Van Vonno Assistant County Attorney 2401 Southeast Monterey Road Stuart, FL 34996
For South Florida Water Management:	Cecile Ross Assistant Counsel 3301 Gun Club Road West Palm Beach, FL 33416-4680
For Treasure Coast Regional Planning Council:	Roger G. Saberson 70 S.E. 4th Avenue Delray Beach, FL 33482-4514

STATEMENT OF THE ISSUES

The general purpose of the hearing was to receive written and documentary evidence, including that presented by members of the public, concerning whether, through available and reasonable methods, the location and operation of the proposed cogeneration project will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of State waters and their aquatic life, in an effort to fully balance the increasing demands for electrical power plant location and operation with the broad interests of the public. Section 403.502, Florida Statutes (Supp. 1990).

PRELIMINARY STATEMENT

This proceeding was held pursuant to the Florida Electrical Power Plant Siting Act, Chapter 403, Part II, Florida Statutes (Supp. 1990), and Chapter 17-17, Florida Administrative Code, to consider the application of Indiantown Cogeneration, L.P. (ICL) for site certification of a proposed 330 megawatt coal-fired cogeneration project at a site located in western Martin County, Florida. By order dated September 24, 1991, the Governor and Cabinet, sitting as the Siting Board, adopted the Hearing Officer's Recommended Order holding the proposed Indiantown Cogeneration Project (ICP) is consistent and in compliance with existing land use plans and zoning ordinances of Martin County and Okeechobee County, Florida. Pursuant to Section 403.519, Florida Statutes, the Florida Public Service Commission issued a determination of need for the proposed ICP on March 21, 1991.

The Department of Community Affairs (DCA), the Florida Game and Fresh Water Fish Commission (FGFWFC), and the Department of Transportation (DOT) did not enter appearances at the hearing but did enter into settlement stipulations with ICL that were received into evidence. The Department of Natural Resources (DNR), the Central Florida Regional Planning Council (CFRPC), and Okeechobee County did not appear at the certification hearing.

ICL presented the oral or written testimony of twelve witnesses and their supporting exhibits, 1-63. Eleven witnesses were offered and accepted as expert witnesses in various fields. All written testimony and exhibits offered by ICL were received into evidence. Pursuant to a stipulation among the parties, the testimony and exhibits of three witnesses were admitted by sworn affidavit without those witnesses having to appear at the hearing. The revised DER written analysis and agency report was admitted. ICL exhibits 64-66 were admitted in evidence and ICL exhibits 67 through 72, constituting stipulations between ICL and various agency parties and containing agreed-upon conditions of certification, were also received into evidence. DER exhibit 1 was admitted. During the public hearing, two members of the general public offered comments and testimony on their own behalf. No other witnesses or exhibits were offered by any other parties. Attached to this Recommended Order as Appendix A are the Conditions of Certification to which the parties have all agreed.

The transcript of the proceedings was filed on December 4, 1991. The parties joint proposed recommended order was filed on December 3, 1991. Because only one proposed recommended order was filed by the parties, it is unnecessary to make spec: rulings on each proposed finding of fact. All proposed findings of fact are adopted in substance as modified herein, except for proposed finding of fact 73 which is unnecessary.

FINDINGS OF FACT

General Project Description

1. The Indiantown Cogeneration Project (ICP) will consist of a coal-fired cogeneration facility capable of generating 330 megawatts (net) of electricity for sale to Florida Power and Light Company. The plant will also supply up to 225,000 pounds per hour of process steam to the adjacent Caulkins Citrus Processing plant. Steam for electrical production citrus processing will be produced in a pulverized coal boiler.

2. Cogeneration facilities such as the ICP are energy generating facilities that produce more than one form of energy. In this project, the second form of energy is generated by capturing waste heat in the form of steam from the electrical generating process and using it in the citrus processing facility. A cogeneration facility, therefore, achieves efficiencies in fuel use, capital investment, and operating costs.

3. The 220-acre project site is located in southwestern Martin County, approximately nine miles east of Lake Okeechobee, 20 miles west of Stuart, and three miles northwest of

the unincorporated community of Indiantown, Florida. The site lies south of State Road 710 directly behind the existing Caulkins Citrus Processing Plant and the vacant Florida Steel Corporation site, both of which border on State Road 710. A CSX railroad line runs parallel to State Road 710.

4. Features of the project include a rail spur to connect the site to the existing CSX rail line, a new site access road that will ultimately be dedicated to public use, and a 19-mile water pipeline connecting the facility to a surface water source in neighboring Okeechobee County. This pipeline will be located within the existing CSX railroad right-of-way. The ICP will tie into an existing electrical transmission line crossing the site; no new transmission facilities will be required for the project. A rail loop will be constructed within the project site to accommodate coal deliveries by rail. Enclosed coal and lime handling and storage facilities will be constructed on the site. However, there will be no on-site ash disposal. The project site will also include a 25-acre cooling water storage pond. Within the site, 24 acres of wetlands will be preserved and buffered by minimum 50-foot upland buffers.

5. The main project site is currently unimproved and is zoned for industrial uses. The site is used on a limited basis for cattle grazing. Surrounding land uses consist of other industrial or agricultural uses, including pasture and citrus groves. There are no existing buildings at the site. The only structures on site are the existing electrical transmission towers within the FPL transmission line right-of-way.

6. Cooling and process water for the project will be obtained principally from Taylor Creek/Nubbin Slough also k as L-63N in Okeechobee County. The intake structure and pumphouse will be located on a one-half acre site, which is adjacent to the existing CSX railroad right-of-way. The cooling water pipeline will run from the intake structure southeast within the railroad right-of-way to the ICP site. During periods of drought when surface water is not available from Taylor Creek/Nubbin Slough, the ICP will withdraw groundwater from the upper Floridan aquifer, a zone of water containing high levels of dissolved solids.

Site Selection

7. The ICP site offers a number of advantages for the proposed cogeneration facility. First, the facility is s close to the adjacent citrus processing plant, which minimizes heat loss in delivering steam to the citrus plant through a steam line. The site also provides direct access to an existing transmission line. Third, the site is close to State Road 710 and the CSX railroad, providing vehicular access and good rail access for delivery of coal and removal of ash. The railroad right-of-way also provides a corridor for the water supply pipeline within an already existing disturbed area. Additionally, the project will obtain water primarily from Taylor Creek/Nubbin Slough, which drains agricultural areas into Lake Okeechobee and carries a high nutrient load. Coal was selected as the primary fuel for the facility for several reasons,

including constraints on natural gas delivery, enhancement of fuel diversity on the FPL system, cost effectiveness, and the availability of high quality low sulfur coal in addition to the use of advanced air pollution control systems.

8. In selecting the site and designing the ICP, ICL discussed the project extensively with local residents and officials. The concerns and suggestions raised were addressed or incorporated into the ICP's final design. These features included use of low sulfur coal, avoidance of wetlands, use of low quality surface water, covering coal piles, and off-site disposal of ash. In addition, ICL has committed to establish a trust fund to support community improvements in Indiantown and to encourage Project employees to live in the Indiantown area.

PSC Need Determination

9. The determination of need for the Indiantown Cogeneration Project was entered by the Public Service Commission (PSC) in Order No. 24268 issued on March 21, 1991. The PSC reached the following conclusions in its order:

(a) The proposed power plant will contribute to electric system reliability and integrity. This conclusion was based on the fact the project is located close to Florida Power & Light Company's (FPL) load center, will not interfere with the ability to import power from other utilities, and would result in minimal transmission losses compared to other more distant sites. Further, FPL's ability to dispatch the facility, to obtain generation during times of peak demand, and to coordinate maintenance of facilities contributed to this determination reliability and integrity.

(b) The ICP was also found to provide adequate electricity at reasonable cost based on the Project's proximity to the load center, contractual incentives to provide the most efficient delivery of power, and the easy integration of the plant into FPL's transmission grid. The ICP was concluded to be less expensive than the equivalent portion of FPL's own generating alternative.

(c) The Project was also determined to be the most cost-effective alternative available for meeting the need for additional generating capacity. It was found to be less expensive than FPL's own constructed units or the statewide avoided unit as determined by the PSC.

(d) The Commission concluded that FPL, as a purchaser of the electricity to be generated, had taken reasonable measures to conserve electricity. The Commission concluded that FPL had reduced its need for electrical generating capacity through demand-side management and cost effective conservation programs.

(e) Finally, the Commission determined that the Project would contribute to the larger statewide and Peninsular Florida need for power in 1996, the in-service year for this project.

Project Design and Site Layout

10. The steam production facility for the project will be an outdoor, natural circulation-type, pulverized coal boiler. Pulverized coal will be mixed with hot combustion air and ignited in the furnace section of the boiler. Advanced combustion burners will be used in the boiler to minimize the formation of nitrogen oxides. High pressure steam from the boiler will go to an extraction-condensing steam turbine/generator where electricity will be produced.

11. A low-pressure steam extraction is taken from the steam turbine and routed to the Caulkins Citrus plant via a steam line. The steam will be used in the Caulkins plant in evaporators to concentrate orange juice and in dryers to produce a cattle feed supplement from citrus peel and pulp. The condensed steam will be returned from the citrus facility for reuse in the ICP.

12. The plant will use a selective non-catalytic reduction (SNCR) process to reduce formation of nitrogen oxides. In this process ammonia is injected into the boiler to react with nitrogen oxides, forming elemental nitrogen and water. A computer-controlled system will be used to inject ammonia at preselected temperature zones to maximize the control of nitrogen oxide emissions with the least amount of ammonia injection. The exiting flue gas will then enter a spray dryer absorber system where a lime slurry is injected to reduce sulfur dioxide emissions through reactions of sulfur dioxide and other gases with the lime slurry. This produces gypsum particles which,

along with other particles, principally fly ash, are removed in the baghouse. In that facility, the particulate-laden gas st: enters the baghouse, passes through the bag filters where ash is removed, and discharges to the stack.

13. Bottom ash formed during coal combustion will drop into a water-impounded hopper. From there it will be removed by a submerged drag chain conveyor to a storage facility. The bottom ash as well as the fly ash will be removed from the site for disposal.

14. Coal will be delivered to the project site by rail and unloaded in a totally enclosed facility through bottom dump hoppers. Coal storage will be provided in both active and inactive piles. The active pile will be maintained in an enclosed building capable of containing seven days' supply of coal. Coal will be reclaimed from the active coal pile transported in enclosed galleries to the coal crusher. The active coal pile building will include a physical barrier, such as a liner, below the pile to protect groundwater. An outdoor inactive coal pile will contain thirty (30) days of compacted coal. The inactive pile will be grass covered and a liner will be used under it to protect groundwater.

15. Lime, which will be used in the control of sulfur dioxide emissions, will be delivered in bottom dump rail cars or self-unloading trucks. Rail unloading will take place in a separate unloading building with a dust collection system to prevent fugitive dust emissions. A liner will be installed in the area around the unloading building. Lime will be

mechanically transferred from the unloading building in enclosed conveyors to a lime storage silo.

16. The ICP will also include an auxiliary boiler which serves two functions. First, this boiler will provide start-up steam to the turbine cycle during start-up of the main boiler. The auxiliary boiler also is intended to supply steam to the citrus processing facility during those times when the main boiler is not in operation. This boiler is a package-type boiler capable of firing natural gas, propane or fuel oil.

17. The ICP's heat dissipation system will consist of a mechanical draft cooling tower, an on-site cooling water storage pond, and an intake structure and pipeline for providing water to the project site. Steam exiting the turbine generator will be condensed by cooling water flowing through a condenser. This heat will ultimately be transferred to the atmosphere in a cooling tower where hot water contacts cool air. In the tower, fans will force air up through falling hot water. The cooled water will be collected in a basin at the bottom of the tower and reused in the plant circulating water system. Mist eliminators will be used within the tower to reduce the escape of water droplets entrained in the air flowing out of the cooling tower. Such water droplets contain solids, including salts, that are present in the cooling water and which could impact vegetation upon which these solids fall. The potential for drift impacts to wetlands has been minimized through the use of mist eliminators that reduce drift to 1/1000th of the plant circulating water flow and by orientation of the cooling tower.

18. A lined 25-acre cooling water storage pond will be constructed on site to provide nine days of plant water nee This pond will store water from Taylor Creek/Nubbin Slough and _s lined to prevent water loss due to seepage to the ground.

19. Water will be obtained from Taylor Creek/Nubbin Slough through a water intake structure excavated in the bank of the canal. Two wedge-wire screens, each with the capacity to provide 100 percent of the facility's water needs, will be placed in the intake forebay. The slots in the screen are narrowly spaced, at 1 millimeter, and design flow through the slots is less than one-half foot per second. This will minimize impingement or entrapment of fish or larvae on the intake screens. The intake screens will be connected to a pump house located behind the canal bank with three pumps, each capable of providing 50 percent of the plant's water needs.

20. From the pump house, water will be conveyed to the on-site cooling water storage pond via an 18 to 24-inch water pipeline to be located within the existing CSX Railroad right-of-way. The pipeline will be buried except where it crosses streams and wetlands. At such locations, the pipeline will be supported on existing bridge supports, be placed on precast pilings or span the wetland entirely.

21. The ICP is designed so that there will be no discharge of plant wastewaters, including process wastewaters, cooling tower blowdown, or contaminated stormwater. Instead, wastewater will be reused in the plant, further reducing the plant's water needs. The water treatment and recycling system

consists of several components. The plant's cooling water will be treated to remove solids that could cause scaling and corrosion problems. These solids will be removed as a sludge and the treated water will be recycled for cooling.

22. Raw water requires treatment before use as process water in the plant. Liquid waste from the water treatment system will be treated and cycled through the cooling tower water treatment system prior to being sent to a filter press where solids are removed. A portion of the effluent from the water treatment system will be used directly in the spray dryer for control of sulfur dioxide emissions and a portion of the effluent will be sent to an evaporator where it will be reprocessed, with clean water recycled to the plant and the evaporator brine also used in the spray dryer. During periods when the plant is relying on Floridan water, which is of lower quality, excess wastewater generated by the evaporator cannot be recycled as quickly into the plant process. A lined 8-acre wastewater storage pond will be used to store up to 75 days of wastewater production. When the plant water supply reverts to Taylor Creek/Nubbin Slough, the wastewater stored in this pond will be recycled into the plant for use in the spray dryer.

23. Sanitary wastewater will be collected and pumped to the Indiantown Water Company for treatment. Potable water needs of the facility will also be supplied by the Indiantown Water Company.

24. The site will contain several stormwater management basins. The basin around the cooling tower and power block area

and the basin serving the coal pile area will be lined. Stormwater in these basins, which could be contaminated by pl activities, will be pumped to the on-site water treatment facilities for use in the plant. Other stormwater management basins are designed to collect and discharge stormwater to existing on-site wetlands to maintain pre-development rates of water flow.

25. The site contains seven wetlands, totalling approximately 24 acres. Each wetland will be surrounded by a minimum 50-foot upland buffer. Additional upland areas, totalling 59 acres, will also be preserved on site. No plant construction or operations will occur within these wetland or upland preserve areas.

Construction Activities and Schedule

26. Construction of the ICP will involve initial clearing and grubbing of the site, pile driving, site filling operations, foundation installation, and equipment erection activities. Erosion and sedimentation control measures will be taken in areas requiring land clearing. Appropriate measures will be taken to reduce fugitive dust emissions during construction, including water spraying of roadways, speed reductions, and covered or wetted truck beds to reduce material blown from trucks.

27. Construction of the water pipeline will require minimal clearing and grubbing, only to the extent required to dig the trench and store topsoil. Backhoes and draglines will be

used to install the pipe. Sedimentation and erosion measures will be used to minimize soil erosion and turbidity in streams. The cooling water intake structure at Taylor Creek/Nubbin Slough will be constructed by installing a cofferdam in the canal and excavating behind the cofferdam to install the intake pipes and screens. Local erosion and sedimentation control measures will be undertaken to prevent sediment from entering the canal during construction of the intake.

28. Investigations of the soil at the site indicate that adequate support for building foundations will be provided. Foundations for major buildings will require pile-type foundations. Other buildings can be constructed on support or spread footings. In the event large structures are relocated to areas where no soils data exist, further field investigations as needed will be undertaken to properly design foundations.

29. Construction of the ICP should take approximately 3 1/2 years, commencing in mid-1992. The estimated cost of the facility is between $600 million and $700 million. The construction work force will peak at 800 workers for several months in the third year of construction. The average for that third year, 1994, will be approximately 600 construction employees.

30. Approximately 80 permanent jobs will be created by the ICP. The plant will operate on a 7-day-per-week, around-the-clock basis. ICL has committed to an incentive program to encourage new plant employees to live in and become active in the Indiantown community. Additionally, ICL will undertake a local

recruitment program to enhance employment opportunities at the plant for Indiantown residents.

Fuel Use and Supply

31. The ICP's main boiler is designed to burn a low sulfur coal, containing less than 2% sulfur, as the primary fuel. Coal will be delivered by trains entering and leaving the site from the north, with no coal traffic passing through Indiantown. Three trains per week will be required to supply coal. Ash resulting from coal combustion will be removed from the site for disposal or to be reclaimed for beneficial uses.

32. Natural gas will be used as a start-up fuel in the main boiler and as the primary fuel in the auxiliary boiler. Propane will act as a backup fuel for natural gas in both boilers. Natural gas will be supplied by an existing pipeline which serves the adjacent citrus processing plant.

33. A very low sulfur fuel oil will be used as an alternate backup fuel when natural gas or propane is not available, such as during a natural gas curtailment. The infrequent deliveries of fuel oil will be by tank truck and pumped to an on-site storage tank which will be designed in accordance with FDER regulations.

Consumptive Water Use

34. The ICP will utilize surface water withdrawn from the Taylor Creek/Nubbin Slough as its principal source of water for cooling and process water needs. At a 100 percent operating

capacity factor, the plant's annual water withdrawal would be 5,430-acre feet. An analysis of the effects of these withdrawals on water levels in Taylor Creek/Nubbin Slough indicated that this source could supply the plant water requirements approximately 95 percent of the time. This conclusion was based on ceasing pumping when the water level in the canal reaches 17.5 feet. During the 16-year study period, the longest period in which the water level dropped below 17.5 feet was approximately 75 days.

35. The plant's maximum water withdrawals from Taylor Creek/Nubbin Slough represent 0.16 percent of the total annual inflow into Lake Okeechobee and about 5 percent of the flow of the Taylor Creek/Nubbin Slough system. However, Taylor Creek/Nubbin Slough water is high in nutrients, including phosphorous. The plant's water withdrawals can reduce the annual discharge of phosphorous to Lake Okeechobee by approximately 7.0 tons for a 1.0 percent annual reduction of total phosphorous to Lake Okeechobee. Further, investigations indicate that there will be no impacts to other surface water users in the area of the intake canal.

36. During periods when surface water is not available from Taylor Creek/Nubbin Slough, the ICP will obtain water from wells in the Floridan aquifer. This groundwater contains high concentrations of total dissolved solids which require treatment before use. Water will be obtained from both the upper production zone, beginning at about 685 feet below ground level, and the lower production zone, beginning at a depth of 1,485 feet below ground, within the Floridan aquifer.

37. The ICP will use the lowest quality water available in sufficient quantities to meet the Project's water ne[illegible] Minimum adverse impacts to the water resource, other legal users, or land uses are anticipated.

Surface Water Management

38. Construction and operation of the project will involve treatment, storage and management of surface water runoff resulting from rainfall. Existing drainage consists of a ditch which traverses the site from north to south. The stormwater runoff currently has a low flow velocity and is ultimately conveyed to the St. Lucie Canal, approximately 2.5 miles to the south via an existing system of agricultural canals.

39. Construction drainage will consist of drainage ditches, swales, and culverts directing stormwater into sev[illegible] sedimentation basins. Operations drainage will consist of a series of permanent basins that will collect, treat, and either recycle or discharge stormwater. The expected increase in peak stormwater runoff will be alleviated by two stormwater management basins which will store incremental runoff while releasing water to maintain pre-development discharge rates, including flows to on-site wetlands and ditches. The stormwater management system is also designed to provide water quality control for stormwater prior to discharge. Oil/water separators, trash racks, and emergency cutoff devices will be installed to provide additional water quality protection. A surface water quality monitoring program will be implemented during construction and operation t[illegible] detect any impacts to surface waters.

40. Stormwater within three basins which have the potential to pick up contaminants will not be discharged but will be recycled to the plant for treatment and use. These basins include the area around the cooling tower and the west side of the power block, the outdoor covered coal pile, and the wastewater pond. The stormwater management system and the other impoundments are designed in accordance with SFWMD's regulations for such facilities.

Impacts to Surface Waters

41. Impacts on surface water hydrology from the Project construction and operation will be minimal. Because the plant will utilize a "zero discharge" wastewater treatment system, there will be no impact from plant wastewater discharges. The stormwater management system will collect, detain, possibly treat, and discharge stormwater using design features to remove potential contaminants and maintain acceptable water quality. That portion of the existing ditch traversing the site which will be relocated has been designed to minimize impacts of slightly higher peak stormwater runoff rates from developed areas during a design storm through removal and replacement of damaged culverts in that ditch.

42. Plant water withdrawals from Taylor Creek/Nubbin Slough will have minimal impacts on the flow in that water body. Water levels in the canal will not deviate significantly from historical water levels during a normal year as a result of surface water withdrawals. The quantity of water withdrawn will

have a negligible impact on Lake Okeechobee. However, these withdrawals will have a significant positive impact on wa quality by reducing nutrient inflows to the lake.

Impacts to Groundwater Resources

43. Construction and operation of the ICP will require short-term and long-term groundwater withdrawals. Temporary dewatering of groundwater near the surface will be required during construction of the coal unloading building and of the circulating water lines. Analyses show that these construction activities are not expected to adversely affect nearby wetlands or water wells. Mitigation measures, including installation of sheet piling and infiltration galleries (which direct water into the ground), will be used to insure no adverse impacts. No impact is expected to occur to the groundwater contaminant pl on the adjacent Florida Steel site.

44. During operation, the ICP will withdraw water from the Floridan aquifer as a backup water source. Geophysical and computer analyses of these withdrawals indicate that there will be minimal effects on other groundwater users. These analyses are subject to confirmation by an aquifer performance test (APT) to be conducted once the on-site storage pond has been constructed. In the event the APT results are not consistent with the modeling analyses and impacts to the nearby Caulkins wells are likely, mitigation for these impacts will be provided in accordance with an agreement between ICL and the Caulkins Citrus facility to mitigate any impacts to Caulkins' wells as - result of the ICP withdrawals.

45. Use of impervious liners beneath the coal unloading and storage areas and the wastewater and stormwater basins will prevent adverse effects on groundwater due to the percolation of potentially contaminated water into the surficial aquifer. A groundwater monitoring plan will be implemented during construction and operation to detect any impacts to groundwater.

Waste Management

46. The ICP will generate solid wastes from the operation of the combustion system, the water and wastewater treatment system, and the flue gas cleaning system. Miscellaneous wastes such as general office refuse and maintenance wastes will also be produced. There will be no on-site disposal of solid wastes. Combustion ash and solids from the dry scrubber will be removed from the site for off site disposal or recycling. The filter cake from the water treatment, consisting of solids removed from raw water, will be disposed of off site. The filter cake is not expected to be hazardous and may have value as a fertilizer due to the high phosphorous content of the surface water. The spent resin beds in the water treatment demineralizer will be removed by their suppliers. Miscellaneous office wastes will be directed to a licensed, off-site disposal area.

47. The ICP may generate small quantities of wastes that may be classified as hazardous, including solvents, spent acids, caustics, and water treatment materials. The acids and caustics will be neutralized in a neutralization tank for pH

adjustment and will not require further handling as a hazardous wastes. Generation of other hazardous wastes will be minim: by use of less hazardous or nonhazardous materials or systems. Hazardous wastes that are produced will be properly placed in a lined storage-for-disposal area and removed from the site within 90 days by a permitted hazardous waste transporter.

Air Pollution Controls and Impact Analysis

48. The Indiantown Cogeneration Project is located in Martin County, which has been designated by the U.S. Environmental Protection Agency and DER as an attainment area for all six criteria (or regulated) air pollutants.

49. Under federal and State of Florida Prevention of Significant Deterioration (PSD) regulations, the ICP is subject to "new source review." This review requires that the ICP ı new source performance standards (NSPS) and that best available control technology (BACT) be applied to control emissions of PSD air pollutants emitted in excess of applicable significant emission rates. For the ICP, a BACT analysis must be conducted for the following pollutants: nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide, volatile organic compounds, acid gases, mercury, beryllium, arsenic, and radionuclides.

50. The term "BACT" is defined in Chapter 17-2.100(28), Florida Administrative Code, as

> An emission limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department [of Environmental Regulation], 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.

Such an analysis is conducted by identifying available and technically feasible emission control alternatives and evaluating their degree of emission reduction, costs, and adverse impacts. BACT for each pollutant is the most stringent degree of emission control that is not rejected on the basis of unreasonable economic, energy, environmental, or other technical grounds. The BACT requirements are intended to insure that a proposed facility such as the ICP incorporates emission controls reflecting the latest techniques used in a particular industry, while allowing for future growth in the vicinity of the proposed facility.

51. For nitrogen oxides, the BACT determination established an emission level of 0.17 pounds per million BTU's (lb/MMBTU) of fuel consumed. This emission level can be achieved by the use of low NO_x burners which minimize the formation of nitrogen oxides and the use of a selective non-catalytic reduction system. For control of sulfur dioxide and other acid gases, the BACT analysis determined that an emission level of 0.17 lb/MMBTU of SO_2 could be best achieved by use of a dry scrubber process.

52. The BACT analysis for control of particulate matter concluded that the level of emission control was best achieved using a fabric filter in a baghouse. Other trace metal

pollutants, including arsenic, beryllium, and mercury, which are emitted as particulate matter, were also concluded to be b controlled by a fabric filter. The fabric filter will also act as the appropriate control for radionuclides. For carbon monoxide and volatile organic compounds, BACT has been determined to be the design of the combustion control system to maximize combustion efficiency.

53. For the auxiliary boiler, the BACT analysis concluded that the appropriate emission levels could be achieved for sulfur dioxide by using fuel sulfur limitations; for nitrogen oxides, by using low NO_x burners; for particulate matter, by using low-ash, clean fuels; and for carbon monoxide and volatile organic compounds, by employing combustion controls which minimize the formation of these pollutants.

54. Fugitive dust emissions will be generated by delivery, storage, and handling of coal, lime, and ash. These emissions will be controlled by a variety of control technologies and techniques, which were determined to be BACT for the control of fugitive emissions. The active coal pile will be totally enclosed in a building ventilated through a fabric filter. Coal, lime, and ash will be conveyed and handled within enclosed conveyors, also equipped with fabric filters. Fly ash will be conveyed within pneumatic systems which exhaust through a fabric filter and will be stored within enclosed silos before being transported off site. These various control methods result in minimal emissions of fugitive dust from the ICP.

55. In addition to applying the "best available control technologies," air emissions from the project must also comply with federal and state ambient air quality standards (AAQS) for six criteria pollutants and must not exceed the PSD increments for sulfur dioxide, particulates, and nitrogen oxides. Martin County and the contiguous counties are in a Class II area for PSD purposes, areas where moderate increases in air pollutants are allowed. An air quality analysis, undertaken in accordance with monitoring and computer modeling procedures approved by DER, demonstrates that the ICP will not cause or contribute to any violations of state or national ambient air quality standards. The ICP's predicted impacts also comply with the allowable Class II PSD increments for sulfur dioxide, particulates, and nitrogen oxides.

56. An analysis of potential visibility impacts to the nearest PSD Class I area, the Everglades National Park, predicted that no significant visibility impairment will be observed in the Park. An analysis of potential air quality impacts from commercial, residential, and industrial growth that might result from the Project indicates that minimal associated growth is anticipated and therefore no air quality related impacts attributable to such growth are anticipated. No adverse impacts to area soils and vegetation are expected to occur as a result of Project emissions.

57. An impact analysis was also undertaken for non-criteria pollutants (or air toxins). Four trace elements, beryllium, fluorides, inorganic arsenic, and mercury, which were

shown to be emitted in significant amounts, were analyzed. While ambient air quality standards have not been established for the pollutants, a DER draft list of "no threat" levels has been published. These "no threat" levels can be used for a health effects evaluation. They are based upon conservative assumptions to insure protection of public health and incorporate an ample margin of safety so that no impact to the public health is expected where predicted concentrations are below these levels. For the ICP, there are no exceedances of the "no threat" levels and it may be concluded that these trace element emissions will impose no significant health risks.

58. An analysis of the impacts of drift from the cooling tower indicated that there would be no impact to nearby vegetation, including wetlands, or to surface waters as a result of the ICP's operations. Orientation of the cooling tower, of advanced drift eliminators, and collection of stormwater within the area around the cooling tower will be implemented to minimize the effects of any salts contained in the drift. Additionally, a monitoring program will be undertaken to evaluate wetlands that may be potentially affected by cooling tower drift. A computer modeling analysis of the potential for ground fogging by the cooling tower plume indicates that there will be no fogging on nearby roadways as a result of the Plant's operations.

Noise Impacts

59. A field survey for ambient noise levels indicates that existing noise levels are very low, as one would expect in a

largely rural farming area. The dominant noise source in the area is road traffic from nearby State Road 710. An impact assessment of noise from project construction and operation indicates that, except for short term, sporadic site construction activities which will be perceptible at the nearest residence, noise levels from the Project will be insignificant. During construction the most significant noise sources will be pile driving, steam blowouts to clean pipes, and operation of diesel-powered equipment. However, these activities will be infrequent and the 3,500 foot distance to the nearest residence will buffer construction noise levels. Public notice will be given for any steam blowouts which are expected to occur over a two-week period. During plant construction and operation, noise reduction measures will be taken to maintain a relatively quiet noise environment for any existing residents who might be affected. These noise abatement measures are intended to insure land use compatibility with a substantial margin of assurance.

Wetlands, Vegetation, and Wildlife Impacts

60. The predominant natural vegetation on the project site consists of pine flatwoods with scattered shallow wet prairie wetlands. The land along the northern portion of the site within the existing transmission line corridor is described as ruderal. These vegetation communities are common throughout the region. No threatened or endangered plant species were found on the plant site. Three ferns found on the Project site are listed by the Florida Department of Agriculture and Consumer

Services as threatened so as to protect them from commercial exploitation. However, these ferns are common in peninsu Florida and any impacts will be negligible.

61. The ICP has been designed to avoid impacts to all wetlands located on the project site. These wetlands vary in quality from good to poor, with the poor quality wetlands having been impacted by cattle grazing, drainage, and drought conditions.

62. The land within the pipeline corridor has been previously altered by construction, operation, and maintenance of the existing railroad. The uplands and wetlands are of low ecological value. Most of the water crossings have been channelized and are dominated by weedy wetland species. Construction of the pipeline will result in no significant changes in upland vegetation. Use of aerial crossings, pilir or existing bridges to cross wetlands with the pipeline will produce negligible impact on previously disturbed wetland areas.

63. The project site, the pipeline corridor, and the site of the water intake structure were all surveyed for the presence of wildlife, including threatened and endangered species. No habitats of endangered or threatened species were found to exist in the vicinity of or on the proposed plant site. The biological resources of the site consisted of species common to the pine and wet prairie communities of southeast Florida. The fish and aquatic species at the site of the intake structure are common freshwater species for the Lake Okeechobee-Kissimmee River system. The clearing of up to 135 acres of on-site pine

flatwoods will have insignificant impacts on wildlife since this habitat is regionally common. Since construction of the pipeline will result in neither significant changes in upland vegetation nor any impacts to wetlands, there will be no permanent displacement of wildlife within the previously disturbed areas of the pipeline corridor.

Traffic Impacts

64. A highway traffic analysis conducted for the Project demonstrates that local roadways will not be significantly adversely affected. This analysis was undertaken in accordance with methodologies required by Martin County, Treasure Coast Regional Planning Council, and the Florida Department of Transportation. The analysis for up to 800 construction personnel and 80 operational employees using these methodologies indicates that all area roads will operate at acceptable levels of service.

65. ICL will construct a new plant access road that will connect State Road 710 to South West Farms Road to the southeast of the project site. This access road will provide direct access to the Caulkins Citrus facility from the citrus groves located west of the plant and reduce citrus truck traffic which currently must pass through downtown Indiantown to reach the Caulkins plant. This road is shown as a future improvement on the traffic element of the Martin County comprehensive plan.

66. Pursuant to a stipulation with DOT and other agencies, ICL has committed to construct a right turn lane into

the new plant access road from the southbound lane of State Road 710 to provide safe turning movements. ICL has also committed make improvements at the intersection of the new plant access road and State Road 710 to accommodate traffic turning right on to State Road 710 from the plant access road.

Land Use Compatibility and Socioeconomic Impacts

67. The site for the ICP is an appropriate location for a power plant from a land use perspective. The site is currently surrounded by agriculturally related manufacturing and processing plants and other agricultural activities, including pasture and citrus groves. Necessary infrastructure, including road and rail access, already exists or will be available concurrent with project development. Although the site is located in a rural area, the ICP site is within commuting distance of metropolit areas, which have an ample supply of skilled labor to construct and operate the plant. Visually, the project facilities will be compatible with the other uses in the area. Further, the site is set back from State Road 710 and a vegetative buffer will screen the site from nearby roadways. Use of the railroad right-of-way for installation of the pipeline is compatible with railroad operations and will result in no disruption of existing land use patterns. The water intake structure in Okeechobee County will not have any land use impact.

68. The Indiantown Cogeneration Project is generally compatible with the goals and policies of the State Comprehensive Plan and the Treasure Coast Regional Comprehensive Policy Plan

69. The ICP will have a substantial beneficial impact on the local economy and tax revenues. The annual project construction payroll is estimated to peak at nearly $17.7 million. Permanent employment of 80 new operations employees will produce an estimated annual payroll of $2.3 million. Indirect employment in the local economy as a result of plant operations will create an additional 155 jobs with an estimated annual payroll of $3.0 million.

70. For Martin County government the net fiscal effect of the ICP will be positive, generating a surplus of tax revenues over public expenditures on the order of $3.7 million per year. For the Martin County taxing district that includes Indiantown, district tax revenues will increase by about 20-25% per year or approximately $210,000 at project buildout.

71. Okeechobee County will also realize economic benefits from the project with construction wages between $1.25 million and $3.75 million for construction employees living in Okeechobee County. An annual payroll of $442,000 for Okeechobee County residents is expected from permanent jobs during plant operation. Net revenues to Okeechobee County as a result of project operation are expected to increase by over $50,000 per year.

Archaeological, Cultural, and Historic Resources

72. A survey of the project site, including the pipeline corridor, revealed no archaeological or cultural sites. Two areas of possible historic interest were located but they are

outside the areas to be developed. In the event archaeological or cultural resources are discovered during project constructi adequate procedures to protect such finds have been accepted by ICL as a condition of certification.

CONCLUSIONS OF LAW

The Division of Administrative Hearings has jurisdiction of the parties to and the subject matter of this proceeding. Section 403.508(3), Florida Statutes (Supp. 1990).

This proceeding was held to implement the purpose and intent of the electrical power plant site certification process, which is to assure the citizens of Florida that construction and operation safeguards of the Indiantown Cogeneration Project are technically sufficient for their welfare and protection, and to effect a reasonable balance between the need for the propo project and the environmental impact resulting from its construction and operation, including air and water quality, fish and wildlife, and the water resources and other resources of the State. Subsections 403.502(1) and (2), Florida Statutes (Supp. 1990).

In accordance with Chapter 403, Part II, Florida Statutes (Supp. 1990), Chapter 120, Florida Statutes, and Chapter 17-17, Florida Administrative Code, proper notice of this hearing was given to all persons and parties entitled thereto as well as to the general public. All the necessary and required governmental agencies were parties to this proceeding. All required reports and studies were completed and presented.

The Florida Public Service Commission, by an order dated March 21, 1991, determined the need for the electrical generating capacity to be supplied by the Project, pursuant to Section 403.519, Florida Statutes (Supp. 1990).

The Governor and Cabinet of the State of Florida, sitting as the Siting Board, determined on September 24, 1991, that the proposed site of the ICP is in conformity with existing land use plans and zoning ordinances.

The Florida Department of Environmental Regulation and the other participating agencies either have recommended, do not object to, or take no position as to certification of the project for construction and operation, subject to this order and the attached conditions of certification.

ICL, the applicant, has entered into settlement stipulations with the Department of Environmental Regulation, the Department of Community Affairs, the Department of Transportation, the Game and Fresh Water Fish Commission, the South Florida Water Management District, the Treasure Coast Regional Planning Council, and Martin County. These stipulations contain conditions of certification that are acceptable to all parties and which are incorporated into the conditions of certification appended as Appendix A to this Recommended Order. As a result of these stipulations, none of the parties oppose certification. The South Florida Water Management District and the Florida Game and Fresh Water Fish Commission do not take any position as to issues outside their jurisdiction. The Treasure Coast Regional Planning Council takes no position as to the granting of certification; however, any certification should be subject to the attached conditions.

Based on a preponderance of the evidence presented at the certification hearing, Indiantown Cogeneration, L.P., the applicant, has met its burden of proving that the Indiantown Cogeneration Project is entitled to certification. Competent, substantial evidence adduced at the hearing demonstrates that the construction and operational safeguards for the ICP are technically sufficient for the welfare and protection of the citizens of Florida and are reasonable and available methods to achieve that protection. The proposed project, if constructed, maintained and operated in accordance with this Recommended Order and the attached conditions of certification, will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of st waters and their aquatic life. Certification for construction and operation of this project is consistent with the premise of abundant, low-cost electrical energy and will effect a reasonable balance between those environmental impacts which will occur and the PSC-determined need for this Project.

RECOMMENDATION

Based upon the entire record of this proceeding and the above Findings of Fact and Conclusions of Law, it is hereby RECOMMENDED that Indiantown Cogeneration, L.P., be granted certification pursuant to Chapter 403, Part II, Florida Statutes (Supp. 1990), for the location, construction, and operation of the Indiantown Cogeneration Project as proposed in the S

Certification Application and the responses to agency sufficiency comments and in accordance with the Conditions of Certification, attached hereto and incorporated as Appendix A.

DONE and ENTERED this 24th day of December, 1991, at Tallahassee, Florida.

Diane K Kiesling

DIANE K. KIESLING, Hearing Officer
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-1550
(904) 488-9675 Suncom 278-9675

Filed with the Clerk of the Division of Administrative Hearings this 24th day of December, 1991.

Copies furnished to:

Douglas S. Roberts
Carolyn S. Raepple
Gary P. Sams
Attorneys at Law
Post Office Box 6526
Tallahassee, FL 32314
(Counsel for Applicant)

Richard T. Donelan, Jr.
Assistant General Counsel
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Kathryn Funchess, Assistant General Counsel
David L. Jordan, Assistant General Counsel
G. Stephen Pfeiffer, General Counsel
Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100

Vernon L. Whittier, Jr.
Assistant General Counsel
Department of Transportation
Haydon Burns Building
605 Suwannee Street
Tallahassee, FL 32399

John Fumero
Cecile I. Ross
Attorneys at Law
South Florida Water Management
District
3301 Gun Club Road
Post Office Box 24680
West Palm Beach, FL 33416-4680

Roger G. Saberson
Attorney at Law
70 S.E. 4th Avenue
Delray Beach, FL 33483-4514
(Treasure Coast Regional Planning Council)

Ken Plante, General Counsel
Department of Natural Resources
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Fred W. Van Vonno
Assistant County Attorney
Martin County
2401 Southeast Monterey Road
Stuart, FL 34996

Robert V. Elias, Staff Counsel
Division of Legal Services
Florida Public Service Commission
101 East Gaines Street
Fletcher Building, Room 212
Tallahassee, FL 32399-0850

Brian Sodt
Ernie Caldwell, Interim Executive Director
Central Florida Regional Planning Council
Post Office Box 2089
Bartow, FL 33830-2089

John D. Cassels, Jr.
Attorney at Law
Post Office Box 968
400 Northwest Second Street
Okeechobee, FL 34973
(Counsel for Okeechobee County)

James Antista, General Counsel
Kenneth McLaughlin, Assistant General Counsel
Florida Game and Fresh Water Fish Commission
Bryant Building
620 South Meridian Street
Tallahassee, FL 32399-1600

Hamilton S. Oven, Jr., P.E., Administrator
Office of Siting Coordination
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Board of Trustees of the
Internal Improvement Trust Fund
3900 Commonwealth Boulevard, Room 153
Tallahassee, FL 32399-3000

Honorable Lawton Chiles
Governor
State of Florida
The Capitol
Tallahassee, Florida 32399

Honorable Robert A. Butterworth
Attorney General
State of Florida
The Capitol
Tallahassee, Florida 32399-1050

Honorable Bob Crawford
Commissioner of Agriculture
State of Florida
The Capitol
Tallahassee, Florida 32399-0810

Honorable Betty Castor
Commissioner of Education
State of Florida
The Capitol
Tallahassee, Florida 32399

Honorable Jim Smith
Secretary of State
State of Florida
The Capitol, PL-02
Tallahassee, Florida 32399-0250

Honorable Tom Gallagher
Treasurer and Insurance Commissioner
State of Florida
The Capitol
Tallahassee, Florida 32399-0300

Honorable Gerald A. Lewis
Comptroller
State of Florida
The Capitol, Plaza Level
Tallahassee, Florida 32399-0350

Indiantown Cogeneration Project
DER Case No. PA 90-31
DOAH Case No. 90-8072EPP

CONDITIONS OF CERTIFICATION

TABLE OF CONTENTS

PART I - ADMINISTRATIVE CONDITIONS

(1)	Entitlement	1
(2)	Scope of License	1
(3)	Jurisdictional Agencies	1
(4)	Definitions	1
(5)	Transfer of Certification	2
(6)	Severability	2
(7)	Professional Certification	2
(8)	Right of Entry	3
(9)	Design Standards	3
(10)	Liability	3
(11)	Property Rights	3
(12)	Compliance	4
(13)	Post-Certification Review	5
(14)	Proprietary Documents or Information	5
(15)	Commencement of Construction	5
(16)	Commencement of Operation	6
(17)	Operational Contingency Plans	6
(18)	Revocation or Suspension	6
(19)	Civil and Criminal Liability	7
(20)	Enforcement	7
(21)	Five-Year Review	7
(22)	Modification of Conditions	7
(23)	Federal Annual Operating Fees and Permits	7

PART II - DEPARTMENT OF ENVIRONMENTAL REGULATION 9

(1)	Air	9
(2)	Wetlands	17
(3)	Discharges to Surface Waters	21
(4)	Groundwater	22
(5)	Sanitary Wastes	27
(6)	Solid/Hazardous Wastes	28
(7)	Operational Safeguards	29
(8)	Protection of Vegetation	29

TABLE OF CONTENTS (continued)

PART III	- GAME AND FRESH WATER FISH COMMISSION	30
PART IV	- SOUTH FLORIDA WATER MANAGEMENT DISTRICT	32
PART V	- TREASURE COAST REGIONAL PLANNING COUNCIL	56
PART VI	- DEPARTMENT OF TRANSPORTATION	58
PART VII	- MARTIN COUNTY	60
PART VIII	- DEPARTMENT OF COMMUNITY AFFAIRS	61
PART IX	- OKEECHOBEE COUNTY	62
PART X	- TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND	62

Indiantown Cogeneration Project
DER Case No. PA 90-31
DOAH Case No. 90-8072EPP

CONDITIONS OF CERTIFICATION (COCs)

PART I

ADMINISTRATIVE CONDITIONS

(1) ENTITLEMENT

Pursuant to s. 403.501-519, F.S., the Florida Electrical Power Plant Siting Act, this certification is issued to Indiantown Cogeneration L.P. (ICL) as owner/operators of the facility.

(2) SCOPE OF LICENSE

Site certification is limited to the construction and operation of the 330 MW (net) electrical power plant and associated linear facilities to be located in Martin and Okeechobee Counties.

(3) JURISDICTIONAL AGENCIES

The following agencies are deemed to have jurisdictional interest in the certification, and thus regulatory authority over the development, construction, operation, and maintenance of the facility:

Department of Environmental Regulation [DER]
Game & Fresh Water Fish Commission [GFWFC]
Department of Natural Resources [DNR]
Department of Community Affairs [DCA]
Department of Transportation [DOT]
South Florida Water Management District [SFWMD]
Treasure Coast Regional Planning Council [TCRPC]
Martin County [MC]
Central Florida Regional Planning Council [CFRPC]
Okeechobee County [OC]

(4) DEFINITIONS

A. Licensee/Permittee: References herein to the "Licensee (Permittee)" apply to Indiantown Cogeneration L.P. (ICL) as owner/operator, or to its successors or assigns. (See COC/I-(5). regarding transfer of certification).

B. Completeness/sufficiency: The term "complete" as used herein shall have the same meaning as contained in Chapter

120, F.S., not Chapter 403, F.S., i.e., a complete application shall also provide sufficient information for an agency to perform an analysis of compliance with the conditions of certification and applicable regulations. Where agency-recommended COCs have used the Ch. 403 FS term of "sufficient", that shall have the same meaning as the term "complete" as used herein.

C. Affected Agencies: References to the "affected agencies" apply to the jurisdictional agencies listed in COC/I-(3).

D. Other terms: The meaning of terms not otherwise specified in A-C, as used herein, shall be governed by the definitions contained in Chapter 403, Florida Statutes and any regulations adopted pursuant thereto; by Chapter 373, Florida Statutes, for conditions of the South Florida Water Management District, or applicable rules of the SFWMD; or by the appropriate governing definitions of the Affected Agencies.

In the event of any dispute over the meaning of a term in these conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation.

(5) TRANSFER OF CERTIFICATION

If contractual rights, duties, or obligations are transferred under this Certification, notice of such transfer or assignment shall immediately be submitted to the Florida Department of Environmental Regulation and the Affected Agencies by the previous certification holder (Licensee) and the Assignee. Included in the notice shall be the identification of the entity responsible for compliance with the Certification. Any assignment or transfer shall carry with it the full responsibility for the limitations and conditions of this Certification.

(6) SEVERABILITY

The provisions of this certification are severable, and if any provision of this certification or the application of any provision of this certification to any circumstances, is held invalid, the application of such provisions to other circumstances and the remainder of the certification shall not be affected thereby.

(7) PROFESSIONAL CERTIFICATION

Where post-certification submittals are required by these conditions, drawings shall be signed and sealed by a Professional Engineer, or Professional Geologist, as applicable, registered in the State of Florida.

(8) RIGHT OF ENTRY

The Licensee shall allow during operational or business hours the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, including personnel of the Affected Agencies, upon the presentation of credentials:

A. To have access during normal business hours (Mon.-Fri., 9:00 a.m. to 5:00 p.m.) to any records required to be kept under the conditions of this certification for examination and copying; and

B. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge of pollutants; and

C. To assess any damage to the environment or violation of ambient standards; and

D. To have reasonable escorted access to the power plant site and any associated linear facilities to inspect and observe any activities associated with the construction, operation, maintenance, or monitoring of the proposed project in order to determine compliance with the conditions of this Certification. The Licensee shall not refuse immediate entry or access upon reasonable notice to any Affected Agency representative who requests entry for the purpose of the above noted inspections and presents appropriate credentials.

(9) DESIGN STANDARDS

The facility shall be constructed pursuant to the design standards presented in the application, responses to agency sufficiency comments, and any approved post-certification submittals, and shall be considered the minimum design standards for compliance.

(10) LIABILITY

The Licensee shall hold and save the Affected Agencies harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance and/or use of any facility authorized by this Certification, to the extent allowed under Florida law.

(11) PROPERTY RIGHTS

This certification does not convey any property rights in either real or personal property, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights nor any infringement of Federal, State or local laws or regulations.

(12) COMPLIANCE

A. Compliance with Conditions

1. The Licensee shall at all times maintain in good working order and operate all treatment or control facilities or systems installed or used by the Licensee so as to achieve compliance with the terms and conditions of this certification. All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification.

2. An environmental control program shall be established under the supervision of a qualified Environmental Engineer/Specialist to assure that all construction activities conform to applicable environmental regulations and the applicable Conditions of Certification. If during construction there is detected a violation of standards, harmful effect or irreversible environmental damage not anticipated by the application, the evidence presented at the certification hearing or a post-certification submittal the Licensee shall notify the DER Southeast District Office and Siting Coordination Office, as required in B.

3. Any anticipated facility expansions beyond the certified steam eletric generating capacity, production increases, or process modifications which may result in new, different, or increased discharges of pollutants, change in type of fuel, or expansion in steam generation capacity shall require submission of a modification petition pursuant to Chapter 403, Florida Statutes.

4. In the event of a malfunction of the Cogeneration facility boiler's pollution control system resulting in a violation of this certification or DER regulations, that unit shall be promptly shut down.

B. Non-compliance Notification

If, for any reason, the Licensee does not comply with or will be unable to comply with any limitation specified in this certification, the Licensee shall notify the Southeast District Office of the Department of Environmental Regulation by telephone within one working day after said non-compliance occurs and shall confirm this in writing within seventy-two (72) hours of becoming aware of such conditions, and shall supply the following information:

1. A description of the discharge and cause of noncompliance; and

2. The period of noncompliance, including exact dates and times; or if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

C. Adverse Impact

The Licensee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

(13) POST-CERTIFICATION REVIEW

Further information may be required by these conditions for site-specific or more detailed review and approval to determine compliance with the conditions of certification. Compliance determinations of the Department and other reviewing agencies are subject to review pursuant to Chapters 120, and 403, Florida Statutes.

A. In order to provide adequate lead time for review, such information, as developed, must be submitted for post-certification review at least 180 days prior to the intended commencement date of construction or operation of the feature undergoing review unless otherwise provided herein. Notification of the submittal of the information, and any determinations made pursuant to these COC, shall be provided to the DER Siting Coordination Office for record-keeping purposes.

B. If complete information is submitted or if a written request for additional information is not issued within the thirty day time period, the information will be deemed complete on the day it was received by the agency.

C. The agency will have ninety days from the date on which a complete information submission is received in which to makes its determination regarding compliance.

(14) PROPRIETARY DOCUMENTS OR INFORMATION

Proprietary or confidential data, documents or information submitted or disclosed to any agency shall be identified as such by the Licensee and shall be maintained as such pursuant to applicable Florida law.

(15) COMMENCEMENT OF CONSTRUCTION

At least 30 days prior to the commencement of construction, the Licensee or Project Engineer shall notify the

DER Siting Coordination Office, the DER Southeast District Office, and Affected Agencies of the construction start date. Quarterly construction status reports shall similarly be submitted by the Licensee beginning with the initial construction start date. The report shall be a short narrative describing the progress of construction.

(16) COMMENCEMENT OF OPERATION

At least 30 days prior to the commencement of operation, the Licensee or Project Engineer shall notify the DER Siting Coordination Office and Affected Agencies of the operation start date.

(17) OPERATIONAL CONTINGENCY PLANS

A. Operating Procedures

The Licensee shall develop and furnish the DER Southeast District Office a copy of written operating instructions for all aspects of the operations which are critical to keeping the facility working properly. The instructions shall also include procedures for the handling of suspected hazardous or toxic wastes.

B. Contingency Plans

The Licensee shall develop and furnish the DER Southeast District Office written contingency plans for the continued operation of the system in event of breakdown. Stoppages which compromise the integrity of the operations must have appropriate contingency plans. Such contingency plans shall identify critical spare parts to be readily available.

C. Current Engineering Plans

The Licensee shall maintain a complete current set of modified engineering plans, equipment data books, catalogs and documents in order to facilitate the smooth acquisition or fabrication of spare parts or mechanical modifications.

D. Application Revisions

The Licensee shall furnish appropriate revisions to drawings and site plans submitted as part of the application, including operational procedures for isolation and containment of hazardous wastes.

(18) REVOCATION OR SUSPENSION

This certification may be suspended or revoked for violations of any of its conditions pursuant to Section 403.512, Florida Statutes.

(19) CIVIL AND CRIMINAL LIABILITY

This certification does not relieve the Licensee from civil or criminal penalties for noncompliance with any conditions of this certification, applicable rules or regulations of the Department or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the Licensee from any responsibilities or penalties established pursuant to any other applicable State Statues, or regulations.

(20) ENFORCEMENT

The Department of Environmental Regulation, as supported by the applicable Affected Agency, may take any and all lawful actions to enforce any condition of this Certification. Any agency which deems enforcement to be necessary shall notify the Secretary of DER of the proposed actions. The affected agency may request the Department to initiate modification of this Certification for any change in any activity resulting from enforcement of this Certification which change will have a duration longer than 60 days.

(21) FIVE-YEAR REVIEW

The certification shall be final unless revised, revoked, or suspended pursuant to law. At least every five years from the date of issuance of certification the Department shall review the project and these conditions of certification and propose any needed modifications.

(22) MODIFICATION OF CONDITIONS

Pursuant to Subsection 403.516(1), F.S., the Board hereby delegates the authority to the Secretary to modify any condition of this certification dealing with sampling, monitoring, reporting, specification of control equipment, related time schedules, emission limitations, conservation easements, transfer or assignment of the Certification or related federally delegated permits, or any special studies conducted, as necessary to attain the objectives of Chapter 403, Florida Statutes.

All other modifications to these conditions shall be made in accordance with Section 403.516, Florida Statutes.

(23) FEDERAL ANNUAL OPERATING FEES AND PERMITS

A. DER Responsibilities

The Department of Environmental Regulation shall implement the provisions of Title V of the 1990 Clean Air Act for the Indiantown Cogeneration Project by developing Conditions of Certification requiring submission of annual operating permit information and annual pollutant emission fe in accordance with Federal Law and Federal Regulations. The terms of such conditions shall be imposed under the modification provisions of Section 403.516(1), F.S., for which the Board specifically delegates the authority to prescribe said terms.

B. Indiantown Cogeneration L.P. Responsibilities

Indiantown Cogeneration Project shall submit the appropriate annual operating permit application information as well as the appropriate annual emission fees as required by Federal Law to the Department when such Conditions are defined under COC/I-(23)C. below.

C. Annual Operating Permit Application and Fee

(Reserved)

PART II

DEPARTMENT OF ENVIRONMENTAL REGULATION

(1) AIR

The construction and operation of the Indiantown Cogeneration Project (ICP) shall be in accordance with all applicable provisions of Chapter 17-2, 17-256, and 17-702, Florida Administrative Code, except for SO_2 and NOx during startup, shutdown, and malfunciton, then 40CFR60 shall apply.

A. Construction

1. General

a. Construction shall reasonably conform to the plans and schedule given in the application.

b. The permittee shall report any delays in construction and completion of the project which would delay commercial operation by more than 90 days to the DER Southeast District office in West Palm Beach.

2. Equipment Identification

The Licensee shall submit at least four copies of complete information as to the make and model numbers of the selected pulverized coal and auxilliary boilers, all pollution control and continuous emissions monitoring devices, operation and maintenance manuals and calibration procedures, updated process flow diagrams showing mass/energy/heat balances and ammonia injector locations and rates, and related equipment, to the DER Bureau of Air Regulation at least 90 days prior to commencing on-site construction of that particular item.

3. Stack Height and Design

The height of the boiler exhaust stack for ICL shall not be less than 495 ft. above grade. Detailed stack drawings showing sampling locations shall be submitted to the DER Bureau of Air Regulation at least 90 days prior to commencing on-site construction of the affected equipment or feature.

4. Fugitive Dust and Odors

The Licensee shall employ proper odor and dust-control techniques to minimize odor and fugitive dust emissions. Precautions to prevent fugitive particulate emissions during construction shall be to coat the roads and construction sites used by contractors, regrass or water areas of disturbed soils. Control techniques shall be sufficient to prevent nuisance conditions on adjoining property.

5. Open Burning

Open burning in connection with initial land clearin shall be in accordance with Chapter 17-256, F.A.C., Chapter 5I-2, F.A.C., Uniform Fire Code Section 33.101 Addendum, and any other applicable regulations of Martin or Okeechobee Counties, as applicable.

No open burning of construction generated material, after initial land clearing shall be allowed.

B. Operation

1. Boilers

The Pulverized Coal (PC) boiler is permitted to operate at a maximum of 3422 MMBtu/hr heat input (nominal 330 MW). This facility shall be allowed to operate continuously (8,760 hrs/yr). In addition to the PC boiler, the facility has an auxiliary boiler rated at up to 342 MMBtu/hr (#2 Fuel Oil) and 358 MMBtu/hr (Natural Gas or propane) which operates a maximum of 5,000 hours with up to 1000 hrs/yr on #2 Fuel Oil and the balance on natural gas or propane.

2. Emissions Limitations

a. Pulverized Coal Boiler

Based on a permitted heat imput of 3422 MMBTU/h. heat input, the stack emissions from the main boiler shall not exceed any of the following limitations:

i. Combustion Emissions

Pollutant	Basis lb/MMBtu	Emission Limitation lb/hr	TPY
SO_2	0.170	582*	2549
NOx	0.170	582*	2549
PM	0.018	61.6	270
PM_{10}	0.018	61.6	270
CO	0.110	376*	1649
VOC at 7% O_2	0.0036	12.30	54
H_2SO_4	0.0004	1.450	6.350
Beryllium	0.00000273	0.0093	0.041

12/09/91

Mercury	0.0000114	0.039	0.172
Lead	0.0000187	0.064	0.280
Fluorides	0.002	7.26	22.26
Arsenic	0.0000511	0.175	0.765

*24 hour daily block average (midnight to midnight)

ii. NH_3 (Ammonia) - Slip from exhaust gases shall not exceed 50 ppmv.

iii. *VE (Visible Emissions)

- VE from each baghouse exhaust shall not exceed 10% opacity (six minute average).

- No VE during lime silo loading operations (i.e., less than 5% opacity).

- VE from the ash handling baghouse shall not exceed a particulate limit of 0.010 grains/acf and VE of 5% opacity.

b. Auxilliary Boiler

The auxilliary boiler, rated at up to 358 MMBtu/hr (Natural Gas and propane) and 342 MMBtu/hr (#2 Fuel Oil), shall be limited to a maximum of 5000 hours/year with up to 1000 hrs/yr firing #2 fuel oil with 0.05% sulfur, by weight, and the balance firing natural gas or propane. The maximum annual emissions will be as follows when firing #2 fuel oil:

MAXIMUM EMISSIONS

Pollutant	lbs/hr	tons/year
NO_x	68.4	34
SO_2	17.8	9
PM	1.40	0.70
PM_{10}	1.40	0.70
CO	47.30	24
VOC	0.63	0.31
Be	4.1×10^{-5}	2.0×10^{-5}
Hg	5.1×10^{-4}	2.6×10^{-4}
Pb	3.6×10^{-2}	1.8×10^{-2}
As	6.8×10^{-3}	3.4×10^{-3}

c. Particulate emissions from the coal, and limestone handling facilities:

i) All conveyors and conveyor transfer points will be enclosed to preclude PM emissions (except those directly associated with the coal stacker/reclaimer for which an enclosure is operationally infeasible). Fugitive emission shall be tested as specified in conditions 1.B.2.e.

ii) Inactive coal storage piles shall be shaped, compacted, and oriented to minimize wind erosion, and covered.

iii) Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods and as necessary to all facilities to maintain an opacity of less than or equal to 5 percent, except when adding, moving or removing coal from the coal pile, which would be allowed no more than 20%.

iv) The lime handling system including the lime silos shall be maintained at a negative pressure while operating and the exhaust vented to a control system.

v) The fly ash handling system (including transfer and silo storage) shall be totally enclosed and vented (including pneumatic system exhaust) through fabric filters; and

vi) The Licensee shall submit to the Department, Bureau of Air Regulation in Tallahassee within thirty (30) days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal, and lime handling facilities. These data shall include, but not be limited to guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of any such device if the Department determines the selected control device to be inadequate to meet the emission limits specified in COC-(1)B.2.d. below. Such disapproval shall be issued within 30 days of receipt of the technical data.

d. Particulate emissions from bag filter exhausts from the following facilities shall be limited to 0.010 gr/acf: coal, lime and flyash handling systems. A visible emission reading of 5% opacity or less may be used to establish compliance with this emission limit. A visible emission reading greater than 5% opacity will not create a presumption that the 0.010 gr/acf emission limit is being violated. However, a visible emission reading greater than 5% opacity will require the permittee to perform a stacktest, as set forth in COC-(1)B.3. Verification and recording of the above requirements for particulate emissions shall be done at least annually.

e. Emissions shall not be visible more than 2 minutes in any 15 minute period. Compliance with fugitive emissions limitations from all transfer points will be determined by EPA/DER referenced Method 22 and opacity Method 9 (Appendix A, 40 CFR 60).

f. Coal shall not be burned in the unit unless the spray dryer scrubber, fabric filter baghouse and other air pollution control devices are operating properly except as provided under 40 CFR Part 60, Subpart Da. Any malfunctions of these air pollutions control devices are to be recorded; including duration, cause, and description of repair as specified in condition 1.D.

g. The fuel oil to be fired in the PC boiler and the auxiliary boiler shall be "new oil" which means an oil which has been refined from crude oil and has not been used. The quality of the No. 2 fuel oil used by the auxiliary boiler shall not contain more than 0.05% sulfur, by weight, based on each shipment analysis report.

h. No fraction of flue gas shall be allowed to bypass the air pollution control devices (PCD) system to reheat the gases exiting from the PCD system, if the bypass will cause emissions above the limits specified in COC-(1)B.2. The percentage and amount of flue gas bypassing the PCD system shall be documented and records kept for a minimum of two years available for FDER's inspection.

i. All fuel oil and coal shipments shall have a shipment analysis for sulfur content, ash content, and heating value. In the event continuous emission monitoring of sulfur dioxide is not performed, a daily analysis of coal sulfur content for the purpose of establishing the percentage reduction in potential sulfur emissions shall be made. Such determination shall be in accordance with EPA reference Method 19. Records of all the analyses shall be kept for public inspection for a minimum of two years after the data is recorded.

j. The applicant shall comply with applicable requirements and provisions of the New Source Performance Standard for electric utility steam generating units (40 CFR 60 Part Da).

k. As a requirement of this specific condition, the applicant shall comply with all emissions limits and enforceable restrictions required by the State of Florida Department of Environmental Regulation pursuant to Section 403.511(5), F.S., which may be adopted by regulation and which are more restrictive, that is lower emissions limits or more strict operating requirements and equipment specifications, than the requirements of COC-II(1)B.2. of these conditions.

3. Stack Testing

a. Within 60 calendar days after achieving the maximum capacity at which the unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct performance tests for particulates, SO_2, NO_x, and visible emissions during normal operations near (±10%) 3422 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a and 48a.

b. Compliance with emission limitation standards mentioned in Specific Condition No. 1 shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 17-2.700. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing.

EPA Method	For Determination of
1	Selection of sample site and velocity traverses.
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
201 or 201A	PM_{10} emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7, 7C, or 19	Nitrogen oxide emissions from stationary

sources.

8	Sulfuric acid mist from stationary source.
9	Visible emission determination of opacity. - At least three one hour runs to be conducted simultaneously with particulate testing for the emissions from dry scrubber/baghouse, and ash handling building baghouse. - At least one lime vehicle unloading into the lime silo (from start to finish).
22	Fugative emissions from transfer points.
10	Carbon monoxide emissions from stationary sources.
12 or 101A	Lead concentration from stationary sources.
13A or 13B	Fluoride emissions from stationary sources.
18 or 25,	Volatile organic compounds concentration.
101A or 108	Mercury emissions.
104	Beryllium emission rate and associated moisture content.

NOTE: Use EPA draft method or other methods approved by Department to test for ammonia.

c. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The permittee shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.

d. The permittee shall provide 30 days notice of the performance tests or 15 days notice for stack tests in order to afford the Department the opportunity to have an observer present.

e. Stack tests for particulates (PM and PM_{10}), NO_x and SO_2 and visible emissions shall be performed annually in accordance with COC (1)B.3.b. above.

C. Monitoring and Reporting

1. Air Monitoring Program

a. A flue gas oxygen meter shall be installed for each unit to continuously monitor a representative sample of the flue gas. The oxygen monitor shall be used with automatic feedback or manual controls to continuously maintai: air/fuel ratio parameters at an optimum. Performance tests shall be conducted and operating procedures established. The document "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls" may be used as a guide. The permittee shall install and operate continuously monitoring devices for each main boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity, including flue gas O_2 and/or CO_2 content. The monitoring devices shall meet the applicable requirements of Section 17-2, F.A.C., and 40 CFR 60 a minimum of 95% of the time the source is operating.

b. The permittee shall operate two continuous ambient monitoring devices for sulfur dioxide in accordance with DER quality control procedures and EPA reference methods in 40 CFR, Part 53, and two ambient monitoring devices for suspended particulates, and one continuous NO_x monitor. The monitoring devices shall be specifically located at a location approved by the Department's Bureau of Air Regulation. The frequency of operation of the particulate monitors shall be every six days commencing as specified by the Department's Bureau of Air Regulation. During construction and operation, a meteorological station will be operated and data reported with the ambient data.

c. The permittee shall maintain a log of the amounts and types of fuel received and copies of fuel analyse: containing information on sulfur content, ash content and heating values. These logs shall be kept for at least two years.

d. The permittee shall provide stack sampling facilities as required by Rule 17-2.700(4) FAC.

e. The ambient monitoring program shall begin at least one year prior to initial start up of the unit and shall continue for at least one year after commencement of commercial operation.

The Department's Bureau of Air Monitoring and Assessment and the permittee shall review the results of the monitoring program annually and determine the necessity for the continuation of or modifications to the monitoring program.

f. Prior to operation of the source, the permittee shall submit to the Department's Bureau of Air Regulation a plan or procedure that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible.

2. Reporting

a. For the ICL, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department's Southeast District Office on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7, and 60.49a and in accordance with Section 17-2.08, FAC.

b. Utilizing the SAROAD or other format approved in writing by the Department, ambient air monitoring data shall be reported to the Bureau of Air Monitoring and Assessment of the Department quarterly. Upon commencement of ambient air monitoring, such reports shall be due within 45 days of the end of the quarterly reporting period. Reporting and monitoring shall be in conformance with 40 CFR Parts 53 and 58.

c. Beginning one month after certification, the permittee shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of air pollution control equipment. All reports and information required to be submitted under this condition shall be submitted to the Siting Coordination Office, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida, 32301.

D. Malfunction or Shutdown

In the event of a prolonged (thirty days or more) equipment malfunction or shutdown of air pollution control equipment, operation shall be allowed to resume and continue to take place under appropriate Department order, provided that the Licensee demonstrates such operation will be in compliance with all applicable ambient air quality standards and PSD increments and industrial waste rules. During such malfunction or shutdown, the operation of the ICL shall comply with all other requirements of this certification and all applicable state and federal emission standards not affected by the malfunction or shutdown which is the subject of the Order. Operational stoppages exceeding two hours for air pollution control systems or four hours for other systems or operational malfunctions as defined in the operational contingency plans as specified in COC/I-(17) are to be reported as specified in COC/I-(12). Identified operational malfunctions which do not stop operation but may prevent compliance with emission limitations be reported to DER as specified in COC/I-(12).

(2) WETLANDS

A. The proposed pipeline from the project site to Nubbin Slough shall be routed within the ROW of the existing CSX Railroad as shown in the siting application.

B. Prior to the submission of any post-certification information to the Department, ICL shall arrange for a site inspection by DER District personnel from the Southeast District office in West Palm Beach or from the Bureau of Wetland Resource Management Jurisdictional Evaluation Section in Tallahassee to determine the extent of jurisdiction on the site and along the proposed pipeline route. At the time of the request, the Department will determine whether jurisdiction can be determined informally by the District office, or whether a binding jurisdictional declaratory statement, pursuant to Rule 17-312.040, F.A.C., is required. The permittee shall flag the outermost limits of construction for the entire pipeline route and shall provide aerial photographs at a scale determined to be appropriate by the Department prior to the site inspection to enable the District personnel to determine if the proposed pipeline will affect jurisdictional wetland areas.

C. At least 90 days prior to the anticipated start of construction, the permittee shall submit fully dimensioned or scaled drawings on 8.5" by 11" paper, signed and sealed by an engineer registered in the state of Florida, that show limits of jurisdictional wetlands that will be affected by the project. The submittal shall also include calculations showing the acreage of affected wetlands by wetland type, a narrative describing construction techniques to be used for the project at both the power plant site and along the alignment of the pipeline, measures proposed to control erosion and turbidity, and a narrative that provides:

1. a detailed description of each wetland impact area;

2. the acreage, type, and quality of all the jurisdictional wetlands that will be affected.

The drawings shall include plan view and cross-section views for each area of jurisdictional wetlands that will be affected by the project, as identified pursuant to Condition No. (2)B. above. In addition to showing the existing and proposed DER jurisdictional limits, the drawing shall depict existing and proposed ground elevations, the limits of construction for the pipeline, and all existing and proposed locations, sizes and invert elevations of structures that may be located in the jurisdictional wetlands.

D. The Department shall review the submittal required by Condition No.(2)C. above for sufficiency within 30 days of receipt of the information, shall request additional information from the permittee as necessary to make the submittal sufficient and shall determine the appropriateness of mitigation. If mitigation is deemed to be appropriate, ICL shall submit a mitigation plan, as described in Condition No. (2)I. below which also shall be reviewed by the Department for sufficiency. If the Department does not object to the proposed work within 90 days of the date that all of this required information is determined sufficient, the proposed work shall be considered acceptable.

E. All clearing and construction activities shall be confined to the limits of construction as shown on the drawings that are accepted by the Department pursuant to Condition No. (2)C. above. Within 30 days of the completion of construction, ICL shall arrange a site visit by DER District personnel from the Southeast Florida District office in West Palm Beach to verify that no wetland damage has occurred outside the construction limits. If wetland damage occurs outside the construction limits during construction, ICL shall submit to the Bureau of Wetland Resource Management for review a plan to restore the wetland area which was damaged and to provide mitigation for the damage. The plan shall be implemented within 30 days of the Department approval of the restoration and mitigation plan. This condition does not preclude the Department from taking enforcement action if unauthorized activities occur.

F. Prior to initiating construction, ICL shall submit a map and aerial photographs showing the location of all staging areas for the project construction to the Bureau of Wetland Resource Management for review and written approval. These areas shall be upland areas which are not currently providing endangered or threatened species habitat. The staging areas shall not be used prior to receiving DER approval.

G. During construction, best management practices, including but not limited to staked hay bales, filter cloth, and turbidity screens shall be utilized to control erosion and turbidity. All turbidity and erosion control devices shall be properly installed and maintained in good working order until project construction is complete. All side slopes shall be stabilized with grass seed, mulch, or sod within 72 hours of the final grading, and at any other time as necessary to prevent erosion or sedimentation into waters of the State.

H. If it is necessary to clear forested wetland areas during pipeline construction, the forested wetlands shall be cleared using low-impact equipment so as to minimize soil disturbance. Where practicable, the root mats and tree stumps shall be left in place to provide soil stabilization.

I. If determined to be appropriate by the Department, ICL shall provide mitigation to offset the loss and habitat degradation resulting from the construction of this project in jurisdictional wetlands.

The plan for performing the mitigation shall be submitted and approved by the Department prior to construction. The plan shall include the following information, which is to be submitted to the Bureau of Wetland Resource Management:

1. a detailed description of each wetland impact area;

2. the acreage of the type and quality of wetland being impacted at each site;

3. a narrative, fully scaled or dimensioned drawings, and aerial photographs that show and explain the proposed mitigation;

4. a detailed description of the existing vegetation, habitat, and water quality conditions at the mitigation area;

5. the acreage of the proposed mitigation by wetland type;

6. documentation providing reasonable assurance that the proposed mitigation will be both jurisdictional and successful.

If the mitigation submittal is deemed by the Department to provide insufficient information for review, additional information requested by the Department shall be submitted.

If the Department, upon review of the proposed mitigation, determines that the proposed mitigation is inadequate to offset water quality degradation, wetland loss, and habitat degradation from this project, the permittee shall propose additional mitigation.

If the proposed mitigation plan is deemed acceptable by the Department, the Department shall establish construction conditions, success criteria and monitoring plans to be carried out for the approved mitigation. These conditions, criteria and monitoring plans shall be incorporated into the certification conditions as a minor modification.

No construction within wetland areas shall commence until the Department approves the mitigation plan, and the mitigation construction conditions, success criteria and monitoring plans are incorporated into the certification conditions.

J. If determined to be appropriate by the Department to prevent future wetland losses or to ensure the success of the mitigation sites, the permittee shall agree to protect designated wetlands through a conservation easement document that is acceptable the Department. If required, the permittee shall record this easement in the public records of the respective counties where the wetlands are located prior to construction and after final approval by the Department.

(3) DISCHARGES TO SURFACE WATERS

A. Stormwater

1. Construction

To control run-off during construction which may reach and thereby pollute Waters of the State, necessary measures shall be utilized to settle, filter, treat or absorb silt-containing or pollutant-laden stormwwater to ensure against spillage or discharge of excavated material that my cause turbidity in excess of 29 Nephelometric Turbidity Units above background in Waters of the State. Control measures may consist of sediment traps, barriers, berms, and vegetation plantings. Exposed or disturbed soil shall be protected and stabilized as soon as possible to minimize silt and sediment laden run-off. The pH of the run-off shall be kept within the range of 6.0 to 8.5. The Permittee shall comply with Florida Administrative Code Chapters 17-25, 40E-2, and 40E-4. The Permittee shall complete the forms required by 17-25.09(1) and 40D-4 and submit those forms and the required information to the SFWMD for any modifications that might occur.

2. Operation

Any discharges from the site stormwater system via the emergency overflow structure which results from an event LESS than a ten-year, 24-hour storm (as defined by the U.S. Weather Bureau Technical Paper No. 40, or the DOT drainage manual, or similar documents) shall meet applicable State Water Quality Standards, Chapter 17-302, F.A.C., the Standards of Chapter 17-25, F.A.C., and Chapter 40-E, F.A.C.

B. Dewatering Operations

The dewatering operations during construction or plant operation shall be carried out in such a manner that all water withdrawn will not affect adjacent site cleanup activities, and all such water shall be detained on site. Any discharge of dewatering effluent offsite shall meet surface water quality standards and be approved by SFWMD.

C. Wastewater

There shall be no discharge of industrial or domestic wastewaters from the site to waters of the state.

(4) GROUNDWATER

1. Discharges to Groundwaters

Any accidental discharges to groundwaters shall be collected and treated as necessary, or otherwise be of high enough quality, to be able to meet the applicable Water Quality Standards of Sections 17-301.402 and 17-301.404, F.A.C. If monitoring should indicate a violation of the standards, the licensee shall immediately notify the Southeast District office and SFWMD and institute remedial action.

2. Groundwater Monitoring Program

a. A ground water monitoring plan shall be submitted within 180 days of certification in accordance with Rule 17-28.700 F.A.C., for approval by the Southeast District Office. The groundwater monitoring program shall be reviewed and approved in accordance with COC I.13. The complete ground water monitoring plan shall be signed, sealed, and dated by a professional engineer or professional geologist demonstrating competency in the field of ground water monitoring, testing, and analysis. The monitoring plan shall contain the following information:

1. Locations of proposed unaffected natural background and down gradient monitoring wells and construction details of the monitoring wells.

2. Hydrogeological, physical, and chemical data for the site including: direction and rate of ground water flow; background water quality; porosity, horizontal and vertical permeability for the surficial aquifer(s) and the depth to, and lithology of the any confining bed(s); vertical permeability, thickness, and extent of any confining bed(s); topography, soil classification descriptions, and surface drainage systems surrounding the site; and inventory, depth, construction details (well drilling logs), and cones of depression (if known) for any water supply wells located within a one mile radius of the site.

3. Monitoring wells shall be constructed in accordance with Rule 17-532, F.A.C., except as follows:
The minimum inside diameter shall be two inches.
Flush threaded couplings shall be used to join polyvinyl

chloride (PVC) pipe.

b. Sampling of the shallow aquifer groundwater quality shall be conducted in at least four well clusters in the site vicinity. At least one of these wells shall be up the hydrologic gradient from the coalpile/wastewater pond area to provide current background data. Other wells shall be located down the hydrologic gradient from the ground water discharge areas. Specific location of any new wells or modifications to the monitoring program may be proposed by the applicant, but shall be approved by the Southeast District Office prior to the construction of the new monitoring wells.

c. Upon completion of construction of the groundwater monitoring system, the following information shall be submitted to the Southeast District Office for all ground water monitoring wells and any new well(s) constructed:

Well identification	Drillers log
Latitude/Longitude	Total depth of well
Aquifer monitored	Casing diameter
Screen type & slot size	Casing type and length
Screen length	SFWMD well construction permit numbers
Elevation at top of pipe	
Elevation at land surface	

d. Upon completion of construction of the groundwater monitoring system, but no less than 12 months before the commencement of operation the Permittee shall sample all ground water monitoring wells for the Primary and Secondary Drinking Water parameters included in Chapter 17-550, F.A.C., Public Drinking Water Systems. The specific parameters to be sampled are listed in Part II, Quality Standards, Analytical Methods, Sampling, Sections 17-550.310 and 17-550.320, F.A.C.

e. The field testing, sample collection and preservation and laboratory testing, including quality control procedures, shall be in accordance with Chapters 17-4.246, 17-160, and 17-301.401, F.A.C. Approved methods as published by the Department or as published in Standard Methods, A.S.T.M. or EPA methods shall be used. Approved methods for chemical analyses are summarized in the Federal Register, December 1, 1976 (41FR52780) except that turbidity shall be measured by the Nephelometric Method.

f. All required submittals shall be sent to the Southeast District Office within 60 days of installation of the ground water monitoring system. Upon receipt and review of the required data, quarterly sampling reports shall be submitted to the Southeast District Office commencing 12 months prior to commercial operation of the unit. Any required modifications of the groundwater monitoring system or program shall be made in accordance with the provisions of Condition I(22). The groundwater monitoring program may be reviewed annually.

g. Commencing at least 12 months before the start of commercial operation, the ground water monitoring wells shall be sampled and analyzed on a quarterly basis for the following parameters:

Volatile Organics:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes

Acid Extractable Organics

- Phenol
- Methyl phenols
- Dimethyl phenols

Inorganics

- Ammonia
- Cyanide
- pH
- Specific conductance
- Fluoride
- Chloride
- Sulfate
- Sulfide
- Gross Alpha

Base/Neutral Extractable Organics

- Acenaphthene
- Acenaphthylene
- Anthracene
- Napthalene
- Fluorene
- Phenanthrene
- 1,2-Benzofluorene
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- Fluoranthene

Metals

- Iron
- Manganese
- Arsenic
- Lead
- Selenium
- Cadmium
- Chromium

h. For four quarters commencing at least 12 months before the start of commercial operation all groundwater monitoring wells shall be sampled and the samples analyzed for the parameters on the following list. Thereafter, one downgradient well, as selected by the Department, shall be sampled and analyzed annually for parameters on the following list. Upon demonstration that key indicators such as sulfate, iron, pH or chloride show a significant increase over background levels, all affected wells shall be sampled and analyzed for the following parameters:

Parameters	Storet Codes	Units
Acrolein	034210	ug/l
Acrylonitrile	034215	ug/l
Benzene	034030	ug/l
Bromodichloromethane	032101	ug/l
Bromoform	032104	ug/l
Bromothane	034413	ug/l
Carbon Tetrachloride	032102	ug/l

Chlorobenzene	034301	ug/l
Chloroethane	034311	ug/l
Chloroform	032106	ug/l
2-Chloroethylvinylehter	034576	ug/l
Chloromethane	034418	ug/l
Dibromochloromethane	032105	ug/l
1,2-Dichlorobenzene	034536	ug/l
1,3-Dichlorobenzene	034566	ug/l
1,4-Dichlorobenzene	034571	ug/l
1,1-Dichloroethane	034496	ug/l
1,2-Dichloroethane	034531	ug/l
1,2-Dichloroethene	034501	ug/l
trans-1,2-Dichloroethene	034546	ug/l
1,2-Dichloropropane	034541	ug/l
cis-1,3-Dichloropropene	034704	ug/l
trans-1,2-Dichloropropene	034699	ug/l
Ethylbenzene	034371	ug/l
Methylene chloride	034423	ug/l
1,1,2,2-Tetrachloroethane	034516	ug/l
Tetrachloroethane	034475	ug/l
Toluene	034010	ug/l
1,1,1-Trichloroethane	034506	ug/l
1,1,2-Trichloroethane	034511	ug/l
Trichloroethene	039180	ug/l
Trichlorofluoromethane	034488	ug/l
Vinyl chloride	039175	ug/l
Acenaphtene	034205	ug/l
Acenaphthylene	034200	ug/l
Anthracene	034220	ug/l
Aldrin	039330	ug/l
Benzo (a)anthracene	034034	ug/l
Benzo (b)fluoranthene	034230	ug/l
Benzo (k)fluoranthene	034242	ug/l
Benzo (a)pyrene	034247	ug/l
Benzo (g,h,i)perylene	034521	ug/l
Benzyl Butyl Phthalate	034292	ug/l
beta-BHC	039338	ug/l
delta-BHC	034259	ug/l
Bis (2-chloroethyl) ether	034273	ug/l
Bis (2-chloroethoxy) methane	034278	ug/l
Bis (2-ethylhexyl) phthalate	039100	ug/l
Bis (2-chloroisopropyl) ether	034283	ug/l
4-Bromophenyl phenyl ether	034636	ug/l
Chlordane	039350	ug/l
2-Chloronaphthalene	034581	ug/l
4-Chlorophenyl phenyl ether	034641	ug/l
Chrysene	034420	ug/l
4,4'-DDD	039310	ug/l
4,4'-DDE	039320	ug/l
4,4'-DDT	039300	ug/l
Dibenzo(a,h,)anthracene	034556	ug/l
Di-n-butylphthalate	039110	ug/l
1,2-Dichlorobenzene	034536	ug/l
1,3-Dichlorobenzene	034566	ug/l

1,4-Dichlorobenzene	034571	ug/1
3,3'-Dichlorobenzidine	034631	ug/1
Dieldrin	039380	ug/1
Diethyl phthalate	034336	ug/1
Dimethyl phthalate	034341	ug/1
2,4-Dinitrotoluene	034611	ug/1
2,6-Dinitrotoluene	034626	ug/1
Endosulfan sulfate	034351	ug/1
Edrin aldehyde	034366	ug/1
Fluoranthene	034376	ug/1
Fluorene	034381	ug/1
Heptachlor	039410	ug/1
Heptachlor epoxide	039420	ug/1
Hexachlorobenzene	039700	ug/1
Hexachlorobutadience	034391	ug/1
Hexachloroethane	034396	ug/1
Indeno(1,2,3-cd)pyrene	034403	ug/1
Isophorone	034408	ug/1
Napthanene	034696	ug/1
Nitrobenzene	034447	ug/1
N-Nitrosodi-n-Propylamine	034428	ug/1
PCB-1016	034671	ug/1
PCB-1221	039488	ug/1
PCB-1232	039492	ug/1
PCB-1242	039496	ug/1
PCB-1248	039500	ug/1
PCB-1254	039504	ug/1
PCB-1260	039508	ug/1
Phenanthrene	034461	ug/1
Pyrene	034469	ug/1
Toxaphene	039400	ug/1
1,2,4-Trichlorobenzene	034551	ug/1
4-Chloro-3-methylphenol	034452	ug/1
2-Chlorophenol	034586	ug/1
2,4-Dichlorophenol	034601	ug/1
2,4-Dimethylphenol	034606	ug/1
2,4-dinitrophenol	034616	ug/1
4,6-dinitro-o-cresol	034657	ug/1
2-Nitrophenol	034591	ug/1
4-Nitrophenol	034646	ug/1
Pentachlorophenol	039032	ug/1
Phenol	034694	ug/1
2,4,6-Trichlorophenol	034621	ug/1
Benzidine	039120	ug/1
alpha-BHC	039337	ug/1
gamma-BHC (Lindane)	039340	ug/1
Endosulfan I	034361	ug/1
Endosulfan II	034356	ug/1
Endrin	039390	ug/1
Hexachlorocyclopentadiene	034386	ug/1
N-Nitrosodimethylamine	034438	ug/1
N-Nitrosodiphenylamine	034433	ug/1
Antimony	001097	ug/1
Arsenic	001002	ug/1

Beryllium	001012	ug/1
Cadmium	001027	ug/1
Chromium	001034	ug/1
Copper	001042	ug/1
Cyanide	000720	mg/1
Lead	001051	ug/1
Mercury	071900	ug/1
Nickel	001067	ug/1
Selenium	001147	ug/1
Silver	001077	ug/1
Thallium	001059	ug/1
Zinc	001092	ug/1
2,3,7,8-tetrachlorodibenzo-p-dioxin	034675	ug/1

Water elevations for all wells shall be measured on a quarterly schedule, and submitted to the Department along with the quartrly data and shall be measured in reference to 1929 NGVD for all monitoring wells (1/100 of a foot) and surface waters (1/10 of a foot).

i. Records of monitoring information shall include: the date, exact place, and time of sampling or measurements; the person responsible for performing the sampling or measurements; the date(s) analyses were performed; the person responsible for performing the analyses; analytical techniques or methods used; and results of such analyses.

j. All ground water analysis shall be submitted within 60 days of sampling on DER form 17-1.216(2) with a summary of all exceedances of the MCL's per F.A.C. 17-550 to: Florida Department of Environmental Regulation, Southeast Florida District Office, 1900 South Congress Avenue, West palm Beach, Florida 32399-2400

k. In order to assure that representative samples are obtained, it shall be the responsibility of the permittee to maintain the integrity of the monitoring stations and protect them from destruction or vandalism. Should any of the well clusters be destroyed, the permittee shall notify the Department immediately. The notification shall include pertinent information as to the cause, and what steps are being taken to replace the monitoring station and prevent the recurrence of such problems in the future.

(5) SANITARY WASTES

a. Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the appropriate local health agency.

b. A complete submittal of plans, drawings and specifications for waste pumps, lift stations, sewage collection systems, and wastewater collection systems in accordance with appropriate DER rules shall be furnished to the Southeast District Office for approval at least 180 days prior to start of construction for the particular of such component. In order to obtain approval, the receiving sewage treatment plant shall indicate it has available capacity and its acceptance of the proposed connection of the wastewater collection system. Also plans and specifications for connections to off-site sewage and wastewater transmission systems shall be furnished to the Southeast District Office for review in accordance with Condition I(13). Department approval shall be obtained prior to the start of construction.

(6) SOLID/HAZARDOUS WASTES

A. Construction

Solid wastes resulting from construction shall be disposed of in accordance with the applicable regulations of Chapter 17-701, F.A.C. Hazardous waste/materials handling contingency plans shall be submitted to the S.E. District Office for review and approval at least 90 days prior to start of construction.

B. Operation

1. No bottom ash, fly ash, spent acid gas control media, wastewater treatment sludges, or other forms of solid waste shall be disposed of in Florida, except in a licensed off-site landfill in accordance with all applicable portions c Chapters 17-701 and 17-702, F.A.C. Plans of solid waste disposal contingency plans for handling hazardous waste/materials, shall be provided to the Southeast District Office and the Division of Waste Management for review and approval at least 90 days prior to start of operation of the ICL Unit. Review shall be performed in accordance with Condition I(13). The final plans for this facility shall include provisions for the isolated temporary handling of suspected hazardous, or toxic wastes. The ICL shall not be operated until an out of state disposal area or a Florida landfill capable of disposing of plant wastes provides a letter or contract indicating acceptance of such wastes.

2. No suspected or known hazardous, toxic, or infectious wastes as defined by Federal, State or local statutes, rules, regulations or ordinances shall be burned or landfilled at the site.

3. Ash and FGD waste prior to transport to the offsite disposal site shall be stored in an enclosed building on an impervious surface. Final disposal of this solid waste shall not be placed into a landfill in Florida without prior approval of Department. Use of an offsite lined landfill or other method in Florida may be approved by the Southeast

District Office. Any leachate generated within the solidwaste storage area shall be collected and disposed of by a method approved by the Southeast District Office. The Southeast District Office shall notify the SFWMD of the plans and specifications regarding the above referenced method.

4. A report shall be prepared detailing the amount and type (ash, FGD, special wastes, boiler residue, and water treatment sludges, etc.) of materials produced at the site, and the treatment or disposal provided. These reports shall be furnished to the Southeast District Office quarterly, commencing 120 days after the ICL becomes operational and is producing residues.

5. There shall be no discharge to waters of the State of polychlorinated biphenyl compounds.

(7) OPERATIONAL SAFEGUARDS

The overall design and layout of the facilities shall be such as to mitigate potential adverse effects to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions. The Federal Occupational Safety and Health Standards will be complied with during construction and operation. The safety standards specified under Section 440.56, Florida Statutes, by the Industrial Safety Section of the Florida Department of Commerce will be complied with during operation.

(8) PROTECTION OF VEGETATION

The Licensee shall develop the site so as to retain a buffer of trees or shall plant a buffer of trees sufficient to minimize the aesthetic and noise impacts of the facility. The buffer, as far as practicable, shall be of sufficient height and width suitable for the purpose of mitigating both construction and operational impacts of the facility.

PART III

GAME AND FRESH WATER FISH COMMISSION

(1) No more than 60 days prior to commencement of any clearing activities on the Project Site or in the pipeline right-of-way, respectively, a wildlife survey shall be conducted of the site or the pipeline right-of-way, whichever is applicable, the purpose of which is to update and supplement the survey results presented in the Site Certification Application concerning the presence of listed species (endangered or threatened species, or species of special concern) likely to occur on the site or in the right-of-way based on range and habitat. This survey shall be consistent with methodologies established or accepted by the Florida Game and Fresh Water Fish Commission (FGFWFC). Results of said survey(s) shall be submitted to the FGFWFC and the United States Fish and Wildlife Service within seven days of completion thereof. If the survey indicates that any listed species will be affected by construction of the Project or pipeline, the Permittee and the FGFWFC shall, within 15 days of receipt of the survey by the FGFWFC, consult and determine the appropriate measures necessary to avoid, minimize, mitigate, or otherwise appropriately address such impacts.

(2) ICL shall place or construct culverts or similar structures to facilitate movement of wildlife across or beneath the perimeter access road to and from upland preserve areas of the Project site. The structures shall be located, in reference to the Project's Site layout, as follows:

(a) One structure under the road in the area of the cooling water storage pond;

(b) One structure under the road in the area of Wetland No. 3; and

(c) One structure under the road in the area of Wetland No. 1.

These structures shall be designed to remain dry during a two year storm event and shall be approximately 3 feet high and 5 feet wide.

ICL shall submit detailed designs of the structures and their location to the GFWFC for review and approval 60 days prior to construction of the portions of the access road being culverted.

(3) Existing wetlands shall not be used as stormwater retention areas for run-off from developed areas of the Project site.

(4) At least 60 days before commencement of onsite

construction, ICP shall submit an upland preserve and wetland management plan to the Florida Game and Fresh Water Fish Commission and to Martin County for review and approval. This plan shall present management practices for the seven wetlands and the upland preserve areas, as designated in the Application and the PUD planned unit development (industrial) zoning agreement of Martin County, and illustrated on figure 1. At a minimum, this plan shall include a statement of preserve management objectives; a statement of what habitat functions the preserves are expected to provide; a description of how habitat values will be maintained, including measures such as perimeter staking, and vegetation control; if controlled burning is proposed to control vegetation, a schedule of fire management through a certified burn specialist and including, but not limited to burn conditions, burn frequency, and measures taken to avoid spread of wildfire; measures to be taken to remove exotic vegetation from both uplands and wetlands; legal instrument(s) by which preserve areas and wetlands have been reserved from future developmental uses; and the entity responsible for management.

PART IV

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

A. LEGAL/ADMINISTRATIVE CONDITIONS

1. GENERAL

a. Responsible Entity

The Permittee shall be responsible for compliance with the Certification Conditions. If contractual rights, duties, or obligations are transferred under this Certification, notice of such transfer or assignment, including the identification of the entity responsible for compliance with the Certification, shall immediately be submitted to the Florida Department of Environmental Regulation and the SFWMD by the previous certification holder (Permittee) and the Assignee. Any assignment or transfer shall carry with it the full responsibility for the limitations and conditions of this Certification. The previous Permittee shall be responsible for informing the Assignee of all authorized facilities and uses and the conditions under which they were authorized.

b. Minimum Standards

This Certification is based on the Permittee's submitted information to the SFWMD which reasonably demonstrates that adverse off-site water resource related impacts will not be caused by the authorized activities. The plans, drawings and design specifications submitted by the Permittee shall be considered the minimum standards for compliance.

c. Compliance Requirements

This project must be constructed, operated and maintained in compliance with and meet all non-procedural requirements set forth in Chapter 373, F.S., and Chapters 40E-2 (Consumptive Use), 40E-3 (Water Wells), 40E-4 (Surface Water Management), and 40E-6 (Right-of-Way), F.A.C., and as expressly allowed in these Conditions of Certification.

d. Off-site Impacts

It is the responsibility of the Permittee to ensure that adverse off-site water resource related impacts do not occur during the construction, operation, and maintenance of the project.

e. Liability

The Permittee shall hold and save the SFWMD harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance and/or use of any facility authorized by this Certification, to the extent allowed under Florida law.

f. Construction, Operation, and Maintenance Responsibilities

The Permittee shall be responsible for the construction, operation, and maintenance of all facilities installed for the proposed project.

g. Access

SFWMD representatives shall have the same rights of access as set forth in Condition I(8) of the Administrative Conditions of this certification.

h. Post Certification Information Submittals

Information submitted to the SFWMD subsequent to Certification, in compliance with the conditions of this Certification, shall be for the purpose of the SFWMD determining the Permittee's compliance with the Certification conditions and the non-procedural criteria contained in Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., as applicable, prior to the commencement of the subject construction, operation and/or maintenance activity covered thereunder.

i. Post Certification Permit Modifications

Once this Certification has been issued, the SFWMD will require modification of any permits issued by the SFWMD to any entities whose activities will be affected by the proposed project to reflect the activities authorized by this Certification.

j. Post Certification Construction Notifications

At least 30 days prior to the commencement of construction, the Permittee or Project Engineer shall notify the SFWMD Field Engineering Division (using the appropriate SFWMD Form) of the actual or anticipated construction start date and the expected completion date/duration of construction. Annual construction status reports shall be submitted by the Permittee to the SFWMD Field Engineering Division (using the appropriate SFWMD Form) beginning one year after the initial construction start date.

k. Operation Authorization

Operation of the cogeneration facility shall not begin until the Florida Department of Environmental Regulation has received an executed agreement between the Permittee and an entity capable of receiving and disposing of the combustion waste products generated by the proposed facility.

1. Enforcement

The SFWMD may enforce this certification pursuant to condition I(20) of the Administrative Conditions of this certification.

2. PROCESSING OF INFORMATIONAL REQUESTS

a. At least ninety (90) days prior to the commencement of construction of any portion of the proposed project, the Permittee shall submit to SFWMD staff, for a completeness and sufficiency review, any pertinent additional information required under the SFWMD's conditions of Certification for that portion proposed for construction. If SFWMD staff does not issue a written request for additional information within thirty (30) days, the information will be presumed to be complete and sufficient.

b. Within sixty (60) days of the determination by SFWMD staff that the additional information is complete and sufficient, the SFWMD shall determine and notify the Permittee in writing whether the proposed activities conform to SFWMD criteria, as required by Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., and the Conditions of Certification. If necessary, the SFWMD shall identify what items remain to be addressed. No construction activities shall begin until the SFWMD has determined either in writing, or by failure to notify the Permittee in writing, that the activities are in compliance with the applicable SFWMD criteria.

c. Since this Certification is the only form of permit required from any agency, it is understood that the Permittee and the SFWMD shall strive to resolve disputes by mutual agreement.

d. Objections to modifications of the terms and conditions of certification shall be resolved through the process established in Section 403.516, F.S.

e. Subsequent modifications to the drawings and supporting calculations submitted to the SFWMD which may alter the quantity and/or quality of waters discharged off-site shall be made pursuant to Section 403.516, F.S., and Rule 17-17.211, F.A.C. As part of this process, these modifications shall be reviewed by the SFWMD for a determination that the modifications are in compliance with the non-procedural requirements of Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., prior to the commencement of construction.

f. The SFWMD and the Permittee may jointly agree to vary the informational requirements.

B. WATER USE CONDITIONS

1. GENERAL

a. Water Shortage Compliance

In the event of a declared water shortage, the Permittee must comply with any water withdrawal reductions or monitoring requirements ordered by the SFWMD in accordance with the Water Shortage Plan, Chapter 40E-21, F.A.C.

b. Impacts on Existing Legal Uses

The Permittee shall be responsible for mitigating, to the satisfaction of the SFWMD, any adverse impacts on existing legal uses caused by the surface or ground water withdrawals authorized by this Certification. If adverse impacts occur, or are imminent, SFWMD reserves the right to curtail withdrawal rates pursuant to the enforcement provisions of Condition IV.A.1.1 of these conditions. The adverse impacts can include:

(1) A reduction in well water levels that impairs the ability of an adjacent well to produce water (an adjacent well may be a domestic well, lawn irrigation well, public water supply well, etc.);
(2) A significant reduction in water levels in an adjacent water body such as a lake, pond, wetland, or canal system;
(3) Saline water intrusion or induction of pollutants into the water supply of an adjacent water user, resulting in a significant reduction in water quality; and/or
(4) A change in water quality that causes impairment or loss of use of a well or water body.

c. Impacts On Existing Off-Site Land Uses

The Permittee shall be responsible for mitigating, to the satisfaction of the SFWMD, any adverse impacts on existing off-site land uses as a consequence of the surface or ground water withdrawals authorized by this Certification. If the withdrawals cause an adverse impact on existing land uses, the SFWMD reserves the right to curtail future withdrawal rates pursuant to the enforcement provisions of Condition IV.a.1.1 of these conditions.

Adverse impacts can include:

(1) A significant reduction in water levels in an adjacent water body such as a lake, pond, wetland, or canal system;
(2) Land collapse or subsidence caused by a reduction in water levels;

(3) Damage to crops and other vegetation, causing financial harm to the landowner; and/or

(4) Damage to the habitat of rare, endangered or threatened species.

d. Well System Operation

At any time, if there is an indication that the well casing, valves, or controls associated with the on-site backup well system leak or have become inoperative, the Permittee shall be responsible for making the necessary repairs or replacement to restore the well system to an operating condition acceptable to the SFWMD. Failure to make such repairs shall be cause for requiring that the well(s) be filled and abandoned in accordance with the procedures outlined in Chapter 40E-3 (Water Wells), F.A.C.

2. SITE SPECIFIC DESIGN AUTHORIZATIONS

a. Authorized Withdrawals

Source	Maximum Annual Allocation (MGY)	Maximum Daily Allocation (MGD)
L-63N Canal	1484.00	4.69
Upper Production Zone- Upper Floridan Aquifer	38.70	0.[illegible]
Lower Production Zone- Upper Floridan Aquifer	336.60	4.46

b. Limitations on Authorized Withdrawals

(1) Withdrawals from the L-63N Canal shall only occur when the water level in the L-63N Canal is at or above 17.50 feet NGVD.

(2) Withdrawals from the Upper and Lower Production Zones of the Upper Floridan aquifer shall only occur when the water level in the L-63N Canal is below 17.50 feet NGVD.

(3) Withdrawals from the L-63N Canal shall be used for cooling, plant processing and irrigation purposes. Withdrawals from the Upper and Lower Production Zones of the Upper Floridan aquifer shall be used for cooling and plant processing purposes.

(4) Any withdrawals from the L-63N Canal or the Upper or Lower Production Zone of the Upper Floridan aquifer in excess of the amounts specified herein shall require prior SFWMD approval.

(5) The authorization of withdrawals from the Upper Floridan aquifer is predicated on the successful completion of the Aquifer Performance Test reuired by Condition IV.B.3.a of this Certification and, if shown to be necessary, the successful implementation of the required mitigation for impacts to existing legal users. If mitigation is required for impacts to Caulkins Citrus Company, the mitigation shall be consistent with the te-

of the agreement between the Permittee and Caulkins Indiantown Citrus Company dated July 18, 1991.

(6) The withdrawals from the Upper and Lower Production Zones of the Upper Floridan aquifer are authorized for a period not to exceed 75 days at the specified maximum daily allocation or 90 days at an allocation not to exceed the maximum annual allocation. The permittee shall not exceed a total of 90 withdrawal days from the Floridan aquifer during any consecutive 365 day period without prior approval from the SFWMD.

c. Authorized Withdrawal Facilities

3 - 1,700 GPM Surface Water Pumps in L-63N
1 - 10" X 1340' Flowing Well cased to 500' (existing well)
1 - 10" X 1300' Flowing Well cased to 600'
4 - 14" X 1600' Flowing Wells cased to 1400'

d. Authorized Surface Water Withdrawal Elevation

The intake for the surface water withdrawal facilities in L-63N shall be designed such that surface water withdrawals shall cease when water levels in the canal fall below 17.50' NGVD (See also Condition E.3.a(5)).

e. Artesian Floridan Wells

The maximum installed capacity of any authorized Floridan aquifer well shall be that capacity at which the well is capable of flowing in a free flowing mode relative to the existing land elevation at the well site. Pumping equipment shall not be installed on any well as a means to regain or increase capacity unless otherwise allowed by SFWMD regulations.

f. Modification of Authorized Withdrawals

By January 1, 2005, and every ten years thereafter, unless extended by mutual agreement between the Permittee and SFWMD, the Permittee shall submit to the SFWMD a report on the project's consumptive water use which contains the information required by Chapter 40E-2, F.A.C., as in effect at that time. Within 90 days after receipt of the report, SFWMD shall evaluate the information, and issue a written notification to DER and the Permittee as to whether the maximum annual withdrawals of water for consumptive use authorized by this Certification remain in compliance with the provisions of Chapter 373, F.S., and Chapter 40E-2, F.A.C., as in effect at that time. If the notification indicates that the withdrawals are not in compliance with those provisions, SFWMD shall recommend possible alternatives for bringing the withdrawals into compliance or otherwise meeting the minimum consumptive water use needs of the certified project. If mutual agreement cannot be reached within 180 days after issuance of the written notification on whether the maximum annual withdrawals of water for consumptive use remain in compliance, then the written notification shall be immediately referred to the Division of Administrative Hearings (DOAH) for resolution in accordance with the procedural provisions of Sections 403.516(1)(c) and 120.57, F.S. In any proceeding conducted pursuant to this Condition of Certification, SFWMD shall demonstrate that the authorized water uses are no longer consistent with SFWMD's non-procedural criteria. The Permitte shall then demonstrate its entitlement to maintaining the authorized water uses by showing that the authorized water use is consistent with the non-procedural criteria of SFWMD for such water uses or that a variance or other relief is warranted. The hearing officer shall submit a recommended order to the Siting Board on whether the authorized water uses should be modified. The Siting Board shall then enter a final order on the matter, which order will constitute final agency action.

3. ADDITIONAL INFORMATION REQUIREMENTS

a. Floridan Aquifer Withdrawals

The authorized withdrawals from the Floridan aquifer are subject to the submittal of the following tests and analyses, a SFWMD evaluation of the results for a determination of compliance with the non-procedural requirements of Chapter 40E-2, F.A.C., and SFWMD's written approval to initiate withdrawals. The following information shall be submitted:

(1) The results of the Aquifer Performance Test (APT) to be conducted at the project site once the on-site water storage pond has been constructed or an alternate disposal method is approved by DER and SFWMD. The test shall be designed to determine the transmissivity and storage of the Upper and Lower production z of the Upper Floridan aquifer and the leakance between the zon A plan which details the APT shall be submitted to the SFWMD for approval at least 30 days prior to the commencement of the test.

(2) An analysis of the potential impacts to existing legal users, which exist on the date of this certification, using the results obtained from the Hydrogeologic Study, previously submitted and accepted by SFWMD, and the APT. The SFWMD shall approve the method for determining adverse impacts. Should adverse impacts be predicted to occur to any existing legal user, the Permittee shall mitigate these impacts, to the satisfaction of the SFWMD, and consistent with the terms of the agreement between the Permittee and Caulkins Indiantown Citrus Company, dated July 18, 1991.

(3) The Aquifer Performance Test results and any impact/mitigation analysis shall be submitted, signed, and sealed by a Florida Registered Professional Geologist.

b. Dewatering Operations

Prior to the commencement of construction of those portions of the project which involve dewatering activities, a detailed plan for the proposed dewatering activities must be reviewed by the SFWMD for a determination of compliance with the non-procedural requirements of Chapter 40E-2, 40E-3, and 40E-4, F.A.C. The following information shall be submitted:

(1) A detailed site plan which shows the location(s) for each proposed dewatering area;
(2) The method(s) used for each dewatering operation;
(3) The maximum depth for each dewatering operation;
(4) The location and specifications for all proposed wells and/or pumps associated with each dewatering operation;
(5) The discharge method, route, and location of receiving waters generated by each dewatering operation, including the measures (Best Management Practices) that will be taken to prevent water quality problems in the receiving water(s);
(6) The duration of each dewatering operation;
(7) An analysis of the impacts of each proposed dewatering operation which indicates that no significant impacts will occur to any existing on-site and/or off-site legal users, wetlands, or existing plumes of groundwater contamination;
(8) The location of any infiltration trench(es) and/or recharge barriers; and
(9) All plans must be signed and sealed by a Professional Engineer and a Professional Geologist, both registered in the State of Florida.

c. Surface and Groundwater Withdrawal Monthly Reporting Requirements

The Permittee shall submit daily surface water and groundwater withdrawal quantities, separated by source, to the SFWMD on a monthly basis beginning with the month following initiation of construction dewatering and/or construction and operation of the proposed canal and/or the well withdrawal facilities.

d. Surface Water and Groundwater Monitoring Program

Within six months of issuance of this Certification, the Permittee shall develop and implement a surface water and groundwater monitoring program. Within three months of issuance of this Certification, a preliminary proposal shall be submitted to the SFWMD for a determination of compliance with the non-procedural requirements of Chapter 40E-2 and 40E-4, F.A.C. In developing the monitoring program, the Permittee shall consider canal withdrawal facility and well locations, depth and method of construction, types of screens, and frequency of data collection. In addition, the monitoring program shall include the following:

(1) Permittee shall monitor water levels and water quality from the Upper and Lower Production Zones of the Floridan aquifer system. Water quality monitoring from each zone shall include the determination of the chloride ion concentration and specific conductance on a monthly basis during periods of withdrawal.

Water levels shall be collected from each zone monthly and referenced to NGVD. Data shall be submitted to the District in the month following data collection.

(2) Permittee shall collect water level data from the L-63 (adjacent to the pump station on a daily basis. Water levels s.. .l be referenced to NGVD and submitted to the District monthly. Permittee shall collect water quality data from the discharge end of the pipeline on a monthly basis. Water quality shall include the determination of the chloride ion concentration, specific conductance, TDS, PH, total phosphorus and total nitrogen. The data shall be submitted to the District on a monthly basis.

(3) Permittee shall monitor the Surficial aquifer for water level (referenced to NGVD) and water quality data during the dewatering operations. The frequency of data collection and water quality constituents to be collected shall be determined by the permittee and approved by District staff prior to commencement of dewatering.

e. New Well Construction

Prior to the construction of the proposed on-site back-up wells, the Permittee shall submit the drilling plans and other pertinent information required by Chapter 40E-3, F.A.C., to the SFWMD for review and approval. If the final well locations are different from those originally proposed in the certification application, the Permittee shall also submit to the SFWMD, for a determination of compliance with the non-procedural requirements of Chapter 40E-2, F.A.C., an evaluation of the impacts of the proposed pumpage from the proposed well location(s) on adjacent existing legal users, pollution sources, environmental features, the saline water interface, and water bodies.

C. SURFACE WATER MANAGEMENT CONDITIONS

1. GENERAL CONDITIONS

a. Professional Engineer Certificate

The operation of the surface water management system authorized under this Certification shall not become effective until a Florida Registered Professional Engineer certifies, upon completion of each phase, that these facilities have been constructed in accordance with the design approved by the SFWMD. Within 30 days after completion of construction of the surface water management system, the Permittee or authorized agent shall submit the engineer's certification and notify the SFWMD Field Engineering Division that the facilities are ready for inspection and approval. Such notification shall include as-built drawings of the site which shall include elevations, locations, and dimensions of components of the surface water management system.

b. Impacts on Fish, Wildlife, Natural Environment Values and Water Quality

The Permittee shall prosecute the work authorized under this Certification in a manner so as to minimize any adverse impacts of the authorized works on fish, wildlife, natural environment values, and water quality. The Permittee shall institute necessary measures during the construction period, including necessary compaction of any fill materials placed around newly installed structures and/or the use of silt screens, hay bales, seeding and mulching, and/or other similar techniques, to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving waters. Reference: Sections 373.413(1) and 373.416(1) F.S.; Rules 40E4.091(1)(a), 40E-4.301, and 40E-4.381(2)(a), F.A.C.

c. Discharge Structures

Discharge structures, where appropriate, shall include a baffle, skimmer, or other mechanism suitable for preventing oil, grease, or other floatable materials from discharging to and/or from retention/detention areas.

d. Off-site Discharges

Off-site discharges during construction and development shall be made only through the discharge facilities authorized by this Certification. No roadway or building construction, except for the site access road and incidental construction activities, shall commence on-site until completion of the permitted discharge structure and detention areas. All runoff generated by incidential construction activities shall be retained on-site until the discharge facility is operational. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream water stages. Stages may be subject to operating schedules satisfactory to the SFWMD.

e. Correction of Adverse Impacts Due to Ditch Relocation

The Permittee shall be responsible for correcting in a timely manner any adverse on-site or off-site impacts to water quality, water quantity and/or the environment which may occur as a result of the relocation of the existing on-site drainage ditch and the installation of additional culverts. Reference: Sections 373.413 and 373.414; Rules 40E-4.091, 40E-4.301 and 40E-4.381, F.A.C.

f. Correction of Water Quality Problems

The Permittee shall be responsible for the correction of any sedimentation, turbidity, erosion, shoaling and/or other water quality problems that result from the construction, operation, and/or maintenance of the works authorized under this Certification.

g. Additional Water Quality Requirements

The Permittee may be required to incorporate additional water quality treatment methods into the surface water management system if such measures are shown to be necessary.

h. Pipeline Access Roads

The Permittee shall, whenever available, utilize adjacent existing roads for access to the water transmission pipeline for construction, operation and/or maintenance purposes. Access roads which must be constructed in areas where an existing road is not available shall be constructed in a manner which does not impede natural drainage flows and minimizes impacts to on-site and adjacent wetlands.

i. Dike Designs for Minor Impoundments

Dike designs for minor impoundments shall be in accordance with commonly accepted engineering principles and State laws. Side slopes shall be no steeper than 2:1 (horizontal to vertical) and top widths no less than five feet.

j. Minimum Freeboard for Minor Impoundments

The minimum freeboard for minor impoundments above the maximum water depth shall be equal to the maximum water de dimensions for a 25 year, 72 but not less than two feet nor mo than three feet.

2. SITE SPECIFIC DESIGN AUTHORIZATIONS

a. Allowable Discharge

The surface water management system for the proposed project shall be designed such that peak post-development discharges from the developed area of the project site meet the following allowable discharges:

BASIN No.	ALLOWABLE DISCHARGE (CFS)	RECEIVING BODY OR USE
1	0	Used in Plant Process
2	1	Discharge into Wetland #6
3	1	Discharge into Wetland #4
4	0	Used in Plant Process
5	0	Used in Plant Process
6	9	Discharges into On-Site Toe Ditch

12/09/91

b. Authorized Discharge Facilities

BASIN 2:

1-0.25'diameter circular orifice with the invert at elevation 33.5' NGV 1-20ø V-notch with the invert at elevation 35.5' NGVD.

1-4.0' wide weir with the crest at elevation 36.5' NGVD and a length of 18" diameter culvert discharging into 20' of rip-rapped spreader swale.

BASIN 3:

1-0.25'diameter circular orifice with the invert at elevation 32.7' NGVD 1-20ø V-notch with the invert at elevation 34.6' NGVD

1-4.0' wide weir with the crest at elevation 36.0' NGVD and a length of 18" diameter culvert discharging into 20' of rip-rapped spreader swale.

BASIN 6:

1-12' wide weir consisting of a 3 sided drop inlet with the crest at 37.5' NGVD.

c. Authorized Receiving Water

C-44 Canal via existing ditch system

d. Authorized Design Elevations

BASIN NO.	CONTROL ELEVATION	MINIMUM ROAD CROWN ELEVATION	MINIMUM FINISHED FLOOR ELEVATION
1	N/A (Lined Basin)	35.7' NGVD	37.3' NGVD
2	33.5' NGVD	35.5' NGVD	36.8' NGVD
3	32.7' NGVD	34.9' NGVD	37.7' NGVD
4	N/A (Lined Basin)	34.4' NGVD	36/2' NGVD
5	N/A (Lined Basin)	N/A	N/A
6	N/A (Lined Basin)	N/A	N/A

----

e. Revisions to Site Specific Design Authorizations

Any revisions to the above site specific design authorizations proposed by the Permittee subsequent to the issuance of this Certification shall be submitted to the SFWMD for review and approval at least 90 days prior to implementation. The submittal shall include all the information necessary to support the proposed request, including detailed drawings, topographic maps, average wet season water table elevations, calculations and/or any other applicable data. Such requests may be included as part of the surface water management system construction plan submittals required by this Certification provided they are clearly identified as a requested revision to the previously authorized design.

3. ADDITIONAL INFORMATION REQUIREMENTS

a. Surface Water Management System Construction Plans Prior to the commencement of construction of any portion of the project which affects the movement of waters, all construction activities for that portion of the proposed project which may obstruct, divert, control, impound or cross waters of the state shall be reviewed by the SFWMD for a determination of compliance with the non-procedural requirements of Chapters 40E-2 and 40E-4, F.A.C. All plans, detail sheets and calculations shall be signed and sealed by a Florida Registered Professional Engineer. For all construction activities, the following information shall be submitted unless previously submitted to and accepted by the District:

(1) Detailed paving, grading and drainage plans which clearly show all on-site water management areas, all on-site and perimeter site grades, all internal and external discharge structures, how runoff will be routed within and discharged from the site, a description of and specific location for a benchmark in the vicinity of the control structure(s), and calculations which demonstrate that the design storm will be held on-site and verify the stage/storage assumptions;
(2) Detailed plans of all proposed roads, parking lots and building pads which demonstrate compliance with Martin County and SFWMD flood protection criteria;
(3) Detailed plans and supporting calculations for the surface water management systems that will serve the proposed on-site access roads and railroad spur which demonstrate compliance with SFWMD flood protection and water quality criteria;
(4) Cross-sections of all proposed control structures which demonstrate compliance with SFWMD water quality and quantity design criteria;
(5) Detailed plans and supporting calculations for the erosion control mechanism and liner to be provided within the relocated drainage ditch which demonstrate that the proposed erosion control mechanism has been designed to form an occlusive seal with the hardpan confining layer in order to prevent seepage of water from the adjacent wetland areas, to prevent scouring of the channel cross-section, and to maintain existing flows through the ditch (See also Condition D.3.a.(3));
(6) If control elevations are revised for any portion of the proposed surface water management system, revised calculations which demonstrate compliance with the SFWMD's retention/detention criteria for both quantity and quality purposes;
(7) If control elevations are revised for any portion of the proposed surface water management system, revised soil

storage calculations; and

(8) If the existing downstream control structure is either removed or modified, detailed calculations which demonstrate that there will be no adverse environmental, flood protection, or water quality impacts upstream or downstream of the structure.

b. Site Access Road Construction Plans

Prior to the commencement of construction of any portion of the proposed Site access road from S.R. 710 to the project site which will be located immediately adjacent to the Caulkins Citrus processing facility site, the final road alignment and any related construction activities shall be reviewed by the SFWMD for a determination of compliance with the non-procedural requirements of Chapters 40E-2 and 40E-4, F.A.C., including Appendix 7 (Isolated Wetlands Rule) of the Basis of Review for Permit Applications within the SFWMD. For all site access road construction activities, the following information shall be submitted:

(1) Documentation, including an aerial photograph at a scale of 1":300' with the alignment clearly indicated, which demonstrates that the proposed access road will not encroach upon or otherwise adversely impact the existing on-site and off-site wetlands located immediately west of the proposed road alignment;

(2) Construction details and cross-sections of the final road alignment and any proposed buffers, including fences;

(3) Documentation (such as a legal instrument) which conveys authority from the adjacent landowner (Caulkins Indiantown Citrus Company) to the Permittee to construct the road within the alignment proposed during the sufficiency review of the Site Certification Application.

c. Water Storage Area (Minor Impoundment) Construction Plans

(1) Prior to the commencement of construction of either of the two proposed on-site minor impoundments (the 26.4 acre cooling water storage pond and the 8.0 acre wastewater storage pond), all proposed construction activities shall be reviewed by the SFWMD for a determination of compliance with the non-procedural requirements of Chapters 40E-2 and Chapter 40E-4, F.A.C., including Appendix 6 (Above Ground Impoundments) of the Basis of Review for Surface Water Management Permit Applications within the SFWMD. All plans, detail sheets, and calculations shall be signed and sealed by a Florida Registered Professional Engineer. The Permittee shall provide the same type of information requested in Condition C.3.a above (Surface Water Management System Construction Plans), including a flood routing analysis for each of the above ground impoundments which routes the 25 year/72 hour and the 100 year/72 hour storm events through each basin and assumes a water elevation in each of the ponds equivalent to the maximum maintained water elevation of each pond.

(2) Upon completion of construction, the Permittee shall

submit a report to the SFWMD on the engineering adequacy of all above ground dikes, levees and berms behind which water will be contained and where failure could impact off-site areas. Such reports shall include proposed techniques and a schedule for repairing any deficiencies noted and shall be signed and sealed by a Florida Registered Professional Engineer.

(3) On an annual basis, in May of each year, beginning no later than one year after construction is completed and certified, the Permittee shall submit a report to the SFWMD on the engineering adequacy of all above ground dikes, levees and berms behind which water will be contained and where failure could impact off-site areas. The reports shall address the following items:

(a) An assessment of vegetative conditions in all impoundments and on all dikes;
(b) An assessment of the structural condition of all dikes, which addresses any erosion, settlement, cracking, and stability impacts;
(c) An assessment of the operational and structural conditions of any structures and pumps that are an integral part of the dike's operation;
(d) Any evidence of encroachment or misuse of land; and
(e) Recommendations for short term repairs and permanent modifications, if necessary.

(4) The Permittee shall submit Interim or more detailed Annual Reports when emergencies or major problems arise that require immediate modifications to the design and/or operation of the dike and/or its structures.

d. Water Pipeline

Prior to the commencement of construction of any portion of proposed water pipeline, all construction activities for that portion of the water pipeline which may obstruct, divert, control, impound or cross waters of the state, either temporarily or permanently, shall be reviewed by the SFWMD for a determination of compliance with the non-procedural requirements of Chapters 40E-2 and 40E-4, F.A.C. "Construction activities" in this situation shall include the placement of access/maintenance roads, culverts, and/or fill materials, excavation activities, and any related activities. All plans, detail sheets and calculations shall be signed and sealed by a Florida Registered Professional Engineer. For all pipeline construction activities, the following information shall be submitted:

(1) A centerline profile of existing topographic features along any proposed access/maintenance road(s);
(2) A preliminary design and typical cross-section of any proposed access/maintenance road(s) with elevations marked;
(3) Specifications showing the location of any access/maintenance road, culvert, and/or other related structure or facility to be constructed, including all areas to be filled or excavated;
(4) Specifications, including supporting assumptions and calculations, showing the type and size of water control structures (pipe, culvert, equalizer, etc.) to be used, with

proposed flowline elevations marked, drainage areas identified, and design capacity verified;

(5) Identification of proposed control elevations for each drainage facility to be constructed, including documentation which demonstrates that the proposed control elevations are sufficient to hydrologically maintain all wetlands to be preserved, enhanced/restored, and/or created within or adjacent to the right-of-way;

(6) A cross-section of all proposed excavation areas showing the proposed depth of excavation and the position of the pipeline;

(7) Documentation that none of the proposed construction and/or excavation activities will adversely impact off-site wetlands;

(8) Calculations and supporting documentation which demonstrate compliance with all applicable criteria, particularly as they relate to allowable discharge;

(9) Identification of wet season water table elevations for each basin in which facilities will be located;

(10) Calculations and supporting documentation which demonstrate that the proposed construction activities will not adversely impact the water quantity and/or quality of existing and/or permitted surface water management systems; and

(11) If construction of the proposed water pipeline contributes to the necessity for future modifications to adjacent/existing roads, consideration of the water quality treatment requirements of the modified roads in the surface water management system design for the water pipeline line.

e. Surface Water Quality Monitoring Program for Surface Water Discharges

Within six months of issuance of this certification, the Permittee shall develop and implement a monitoring program for surface water discharges. Within three months of issuance of this Certification, the Permittee shall submit a preliminary surface water quality monitoring program to the District for a determination of compliance with the non-procedural requirements of Chapter 40E-4, F.A.C. At a minimum, the program shall monitor all off-site discharges from the surface water management system and all surface water management system discharges into the on-site wetlands, specifically where Basin No. 2 discharges into Wetland No. 6 and Basin No. 3 discharges into Wetland No. 4.

(1) While the program may incorporate additional monitoring requirements and parameters required by other agencies, at a minimum, it shall include the following parameters and timeframes.

MONITOR TYPE AND SCHEDULE	PARAMETERS
A. GENERAL (EVERY OTHER MONTH)	TOTAL ORGANIC CARBON, DISSOLVED OXYGEN, PH, TURBIDITY, SPECIFIC

	CONDUCTANCE, CHEMICAL OXYGEN DEMAND, TOTAL SUSPENDED SOLIDS, ALKALINITY.
B. ORGANICS (SEMI-ANNUAL)	OIL AND GREASE, DETERGENTS, EPA METHODS 601 AND 602.
C. METALS (SEMI-ANNUAL)	ALUMINUM, ANTIMONY, ARSENIC, BERYLLIUM, CADMIUM, COPPER, CYANIDE, IRON, LEAD, MERCURY, NICKEL, SELENIUM, SILVER, ZINC.

(2) Water quality samples shall be taken at the above noted locations in accordance with the above schedule during periods of discharge. A laboratory certified by the State of Florida shall be responsible for all water quality analyses under (1)B and (1)C above. Reports shall be submitted to the SFWMD on a semi-annual basis. Initial sampling results shall be reported to the SFWMD no later than six months following the issuance of this Certification.

(3) The SFWMD will evaluate the monitoring results to determine whether the discharge degrades receiving waters and conforms to State water quality standards as defined in Chapter 17-302, F.A.C. If water quality problems develop, the SFWMD reserves the right to require more frequent sampling and more thorough analyses in order to provide assurances that the discharges will not cause additional off-site water quality impacts.

f. Hazardous Materials Management

Prior to the commencement of construction of this project, the Permittee shall submit a copy of the Comprehensive Hazardous Materials and Waste Management Plan for the Indiantown Co-Generation Project to the SFWMD for a determination of compliance with the requirements of Chapter 40E-4, F.A.C. The plan shall provide an adequate level of detail for early warning and detection of hazardous materials within the shallow groundwater. At a minimum, the plan shall include a groundwater monitoring network, including proposed up-gradient and down-gradient locations of monitoring wells, prepared by a hydrogeology consultant.

D. ENVIRONMENTAL CONDITIONS

1. GENERAL

a. Wetland Avoidance

The Permittee shall avoid impacting wetlands within the plant site, water withdrawal facilities, and water transmission line corridor wherever practicable. Where necessary and feasible, the location of the facilities and/or water transmission line alignment shall be varied to eliminate or reduce wetland impacts.

b. Fill Materials

No fill materials shall be obtained from excavated wetlands within the project site, unless in accordance with a mitigation plan submitted in compliance with the conditions of this Certification.

c. Wetlands Mitigation

The Permittee may be required to provide mitigation and/or other measures if wetland monitoring and/or other information demonstrates that adverse impacts to protected, restored, incorporated, and/or mitigated wetlands have occurred as a result of project-related activities.

d. Additional Environmental Review

Any future changes in on-site land use, project design, and/or the treatment of on-site wetlands shall require additional environmental review by SFWMD staff in order to determine whether any additional mitigation activities may be required.

e. Other Wetland Impacts

Any potential impacts to on-site and/or off-site wetlands from the cooling tower drift shall be addressed to the satisfaction of the FDER.

2. SITE SPECIFIC DESIGN AUTHORIZATIONS

a. Minimum Road Grades Adjacent to Wetlands

All roads adjacent to wetland areas, including those located west of Wetland No. 4 and east of the proposed northwest access road from S.R. 710 to the project site, shall have road grade elevations established a minimum of two feet above the wetland control elevation.

b. Erosion Control Mechanism Authorization

Erosion control mechanisms for the wetland water distribution channels shall be constructed in accordance with Drawing COY 0191 of the Site Certification Application Additional Information Submittal dated June 11, 1991. Any proposed changes to the design of the erosion control mechanisms authorized by this Certification shall be reviewed and approved by the SFWMD prior to construction.

c. Authorized Wetland Control Elevations

Wetland No. 4: 32.7' NGVD
Wetland No. 6: 33.5' NGVD

3. ADDITIONAL INFORMATION REQUIREMENTS

a. Wetlands Protection

Prior to the commencement of construction of any facilities to be located adjacent to the wetlands identified for preservation, the Permittee shall:

(1) Stake and rope off the protected wetlands and buffer zones to prevent encroachment during construction. The stakes and ropes shall remain in place until all adjacent construction activities have been completed. Verification of staked areas by SFWMD staff shall be required prior to the commencement of and upon completion of any construction activities.

(2) Submit documentation to the SFWMD that all protected and/or mitigated areas, including buffer zones, have been legally reserved so that they will be managed in a manner consistent with their proposed use as conservation areas.

(3) Submit manufacturer's specifications for the liner to be installed in the relocated ditch to the SFWMD for review and approval. The liner shall be of sufficient quality to prevent drawdown of the water table of the adjacent wetland into the relocated ditch. (See also Condition C.3.a.(5).)

b. Preserved Wetlands Monitoring Plan

Prior to the commencement of construction, the Permittee shall submit to the SFWMD, for review and approval, a monitoring plan designed to document the condition of the wetlands designated for preservation on the project site. This plan may be part of a monitoring program designed to document the condition of all preserved on-site areas. However, at a minimum, the plan shall include the following:

(1) Provisions for both quantitative and qualitative observations of wildlife and macroinvertebrate utilization;

(2) Weekly water level readings;

(3) Documentation of the condition of the wetlands which shall include panoramic photographs or an equivalent method;

(4) An evaluation of the success of the preservation/enhancement effort; and

(5) An annual report which includes the above and any other relevant information.

c. Future Mitigation Plans

If the construction of the proposed water pipeline and/or changes to the proposed site access road alignment or any other portion of the project design result in impacts to any on-site and/or off-site wetlands, the Permittee shall submit a mitigation and monitoring plan to the SFWMD prior to the commencement of construction for that portion which may affect wetlands for a determination of compliance with the non-procedural requirements of Chapter 40E-4, F.A.C., including Appendix 7 (Isolated Wetlands Rule) of the Basis of Review of Surface Water Management Permit Applications in the SFWMD, in effect at the time of submittal. The plan shall include the following information:

(1) A discussion of the alternatives considered to reduce or avoid wetland impacts, including a statement explaining why there are no feasible alternatives to the proposed design if wetland impacts are unavoidable;
(2) Aerial photographs, at a minimum scale of 1":300', which show the locations of the proposed facilities/alignments and all the wetlands, including those within and adjacent to the project site, the access road right-of-way, and/or the water transmission line alignment, that would be impacted by the proposed construction activities;
(3) A summary which identifies individual and total acres for all existing and impacted wetlands and an evaluation of the condition of all such wetlands;
(4) At a minimum, locations and sizes of all proposed mitigation areas, species to be planted, planting densities, details of the proposed hydrologic regime, cross-sections showing the proposed elevations and water depths, and an estimated time schedule for completion of the construction of the mitigation areas;
(5) At a minimum, provisions for both quantitative and qualitative observations of wildlife and macroinvertebrate utilization, weekly water level readings, documentation of the condition of the mitigation areas which shall include panoramic photographs or an equivalent method, an evaluation of the success of the mitigation effort, and an annual report incorporating this information and any other relevant information.
(6) If mitigation/restoration activities are proposed, a wetland mitigation and/or restoration work schedule which details each specific mitigation task (e.g. grading to proper elevation, mulching, planting, regularly scheduled maintenance and monitoring, etc.) and the calendar dates for the start and completion of each task.
(7) If mitigation shall occur within the areas designated for preservation on the Indiantown Cogeneration Plant site, documentation that sufficient areas have been legally reserved to compensate for the proposed wetland impacts;

E. LAND MANAGEMENT CONDITIONS

1. SITE SPECIFIC DESIGN AUTHORIZATIONS

a. This Certification authorizes the installation, operation and maintenance of dual 30" water withdrawal lines, screens, and an appurtenant intake facility to be located on the L-63N northeasterly Right-of-Way (ROW) at the confluence of L-63N, L-[illegible] and C-59.

b. This Certification authorizes the temporary use of the L-63N northeasterly ROW for construction access to the surface water withdrawal facilities to be installed in the L-63N ROW and the pump station site to be located immediately adjacent to the southern boundary of the CSX Railroad ROW. However, the Permittee shall secure permanent access to the pump station site which does not involve the permanent use of SFWMD ROW.

c. This Certification does not authorize the use of SFWMD ROW for the proposed pump station site. The Permittee shall acquire the pump station site through application to the SFWMD for the sale of surplus lands.

2. GENERAL DESIGN CONDITIONS

a. The Permittee shall provide and maintain General Liability Insurance through the term of this certification. The coverage shall be of a comprehensive form on an occurrence basis and shall provide coverage for death, bodily injury, personal injury and property damage that could arise directly or indirectly from the performance of this certification. The limits of coverage shall be:

(1) $5,000,000.00 per occurrence, combined single limit for bodily injury and property damage liability. Coverage shall be no more restrictive than as specified in the latest edition of the Commercial General Comprehensive Liability Policies of the Insurance Services Office (ISO).
(2) Workers' Compensation shall be as prescribed by Florida Statutes, including Employees Liability.
(3) The Permittee shall be identified as the insured on the policy/certificate of insurance and the SFWMD identified as an additional insured as it relates to General Liability.
(4) Where motor vehicles will make use of a SFWMD Project Work, Comprehensive Automobile Liability insurance shall be provided in the same limits as the Comprehensive General Liability insurance.
(5) All insurance shall be written by a company duly authorized to do business in Florida. Certificates of insurance for the coverage amounts required shall be furnished to the SFWMD.

b. The Permittee shall keep all access gates locked when not actually being used to prevent unauthorized public access.

c. The Permittee shall erect a substantial handrail or guardrail along the top of the endwall of the withdrawal facilit[illegible]

d. The Permittee is advised that the SFWMD periodically treats the L-63N, L-63S and C-59 canals with herbicides for aquatic weed control. With some herbicides the U.S. Environmental Protection Agency requires that restrictions be placed on the use of treated water for purposes such as watering livestock, irrigation and domestic use for a given period of time. The SFWMD will post a notice in the immediate vicinity of the Permittee's Intake Structure in L-63N whenever this occurs which identifies any restrictions that may be associated with the weed control activities. The Permittee is advised to inquire at the Okeechobee Field Station [(813) 763-2197] if additional information is required regarding any posted notices.

e. All excavations shall be in accordance with DER requirements and silt booms shall be employed where necessary.

f. Backfilling of the pipe trench shall be accomplished in 6" lifts and shall be thoroughly compacted.

g. The Permittee shall be responsible for the correction of any erosion or shoaling attributable to the construction, operation and maintenance of the authorized facilities.

h. The SFWMD is not responsible for any damages to installations located within its ROW.

i. The Permittee shall be responsible for the repair and/or replacement of any existing facilities located within the SFWMD ROW which may be damaged by the Permittee or his agents during the construction, operation or maintenance of the authorized facilities/uses.

j. The Permittee shall restore any canal ROW disturbed during construction, installation and/or maintenance of the authorized facilities to original or better condition.

k. The Permittee shall be solely responsible for any relocations which may be required as a result of this Certification and for any notification or coordination with the owners of previously permitted facilities located within the SFWMD ROW.

l. The Permittee acknowledges that any or all authorized facilities/uses within the SFWMD ROW are, in an emergency situation, subject to immediate alteration, modification or removal by District staff. Any resulting damage shall be the responsibility of the Permittee.

m. Any additional facilities or alterations to existing authorized facilities shall require prior approval from the SFWMD.

n. The SFWMD may request a modification to this Certification if the authorized use of the SFWMD'a ROW is later found to be contrary to SFWMD policies, operational, and/or other uses contrary to SFWMD needs requirements.

3. ADDITIONAL INFORMATION SUBMITTALS

a. Construction Plans for Authorized Uses in SFWMD Right of Way Prior to the commencement of construction of any portion of the withdrawal facilities and associated piping to be located within the SFWMD ROW, the Permittee shall submit complete detailed construction drawings showing the proposed facilities to the SFWMD for a determination of compliance with the non-procedural requirements of Chapter 40E-6, F.A.C. The drawings shall be identical to the plans to be provided to the Permittee's contractor, shall depict the proposed facilities in both plan and profile views and shall show at a minimum:

(1) The canal right of way lines;

(2) The top of the canal bank and its elevation;

(3) The width and elevation of any berms or levees;

(4) Three cross sections of the canal taken adjacent to the water withdrawal facility, 50' upstream and 50' downstream of the water withdrawal facility. The cross sections shall be taken at 10'intervals from top of bank to top of bank and shall be plotted on standard 10 X 10 cross section paper to the same horizontal and vertical scale using NGVD datum. The design section for the channel shall also be plotted on the submitted cross sections;

(5) Design details which demonstrate that withdrawals from the canal cannot occur below elevation 17.50 NGVD (see also Condition B.2.d);

(6) The wall thickness and "schedule" of the pipe, conduit o. culvert;

(7) The design of any concrete endwalls, forebays, rubble and/or sand-cement rip rap;

(8) Any appurtenances such as fences, guardrails, safety barriers or devices, signs, security enclosures, paved areas, meters, valves, blow-off lines, cathodic protection systems, utility or communications lines or services either buried or above ground, etc.;

(9) The location of the proposed facilities in relation to a section line, major road or other prominent well-known landmark by which the facilities have been located in the field.

b. Temporary Use of SFWMD Right of Way During Initial Construction

In order to use the SFWMD ROW for temporary short-term construction activities associated with the construction of the authorized withdrawal facilities and/or access during construction of the pumping station, the Permittee shall submit the following information to the SFWMD for review and approval and/or otherwise comply with the following requirements:

(1) A construction schedule and detailed plan identifying the proposed route, type and number of vehicles to be used and the

frequency of such use;

(2) A document (e.g., map/drawing) which identifies all other proposed uses of the ROW such as work areas, spoil disposal areas, stockpiling or drying areas, materials storage areas, temporary construction or office trailer sites, etc.;

(3) A document (e.g., map/drawing) which identifies any activity (such as trenching for pipe or culvert construction) which could interfere with SFWMD access through the construction site or otherwise interfere with the ability of the SFWMD to operate or maintain project works;

(4) A document (e.g., map/drawing) which identifies any construction activities within the canal similar to but not limited to the installation of coffer dams or fills. The SFWMD reserves the right to prohibit such activities if they are not in the best interest of the SFWMD;

(5) A document (e.g., map/drawing) which identifies the location of any proposed temporary facilities or uses of the SFWMD ROW in relation to a section line, major road or other prominent well-known landmark by which the facilities may be located in the field;

(6) Prior to the use of any portion of the SFWMD ROW, shall post a $25,000.00 surety bond in favor of the SFWMD to ensure restoration of any damages to the SFWMD ROW upon completion of the construction phase and keep it in force until the release of the bond is authorized by the SFWMD;

(7) Shall obtain a SFWMD Key Permit for those portions of the SFWMD ROW for which the Permittee does not currently have keys, pay all associated key fees, and abide by the key permit regulation;

(8) Conduct all use of the SFWMD ROW in accordance with the non-procedural and advance notification requirements of Chapter 40E-6, F.A.C.

PART V

TREASURE COAST REGIONAL PLANNING COUNCIL

1. The Permittee shall implement a program to assist the citizens of the Region to become more energy efficient and reduce their reliance on fossil fuels. The program shall emphasize the use of the latest energy conservation techniques and make available the latest information on producing electricity by means other than burning fossil fuels. The program shall be designed to offer the public assistance in the design, construction, and use of energy saving products and systems. The intent of the program shall be to work toward the reduction of the demand for fossil fuel derived electricity over time by the same amount as that generated by this facility. A plan for the program shall be developed in consultation with Treasure Coast Regional Planning Council (TCRPC) and the Department of Community Affairs (DCA). The program will be implemented prior to operation of the Indiantown Cogeneration Project. The Permittee shall submit annually to TCRPC and DCA a report on the program's progress and on expected activities for the following year.
2. In the event of discovery of any archaeological artifacts during construction of the Indiantown Cogeneration Project, Permittee shall stop construction in that area and immediately notify the Division of Historical Resources, Florida Department of State (DHR). Permittee shall consult with DHR to determine appropriate action. If avoidance is not reasonably possible, the impact will be mitigated through araeological salvage excavation operation or by other methods acceptable to DHR.
3. All Brazilian pepper, Australian pine, and Melaleuca shall be removed from the entire project site, as well as within the water pipeline right-of-way. Removal shall be in a manner that minimizes seed dispersal. The maintenance of these areas shall include continual removal of these species.
4. The Permittee shall use water-saving plumbing fixtures and other water conserving devices in restrooms and employee locker rooms, as specified in the Water Conservation Act, Section 553.14, Florida Statutes.
5. At least 60 days prior to construction, ICP shall submit an upland preserve and wetland management plan to the Florida Game and Fresh Water Fish Commission and to Martin County for review and approval. This plan shall present management practices for the seven wetlands and the upland preserve areas, as designated in the Application and the PUD planned unit development (industrial) zoning agreement of Martin County, and illustrated on Figure 1. At a minimum, this plan shall include a statement of preserve management objectives; a statement of what habitat

functions the preserves are expected to provide; a description of how habitat values will be maintained, including measures such as perimeter staking, and vegetation control if controlled burning is proposed to control vegetation, a schedule of fire management through a certified burn specialist and including, but not limited to, burn conditions, burn frequency, and measures taken to avoid spread of wildfire; measures taken to remove exotic vegetation from both uplands and wetlands; legal instrument by which preserve areas and wetlands have been reserved from future developmental uses; and the entity responsible for management.

6. The Permittee will initiate construction of the southbound right turn lane from State Road 710 into the plant access road concurrent with the start of site development work and will complete construction of the right turn lane prior to the initiation of building construction.

PART VI

DEPARTMENT OF TRANSPORTATION

1. Prior to the delivery of coal to the Project Site, a constant warning time device shall be installed to control the existing railroad warning devices and gates at the crossing of the Plant Access Road and the CSX railroad. The device shall be operated to provide a constant warning time at this crossing for trains of varying speeds.
2. The permittee shall construct and maintain the access road to the pump intake structure in Okeechobee County as a private access road for purposes of crossing the CSX Railroad at this location. The Permittee shall take appropriate measures to prevent public use of this private access road, which may include signs, fencing and cables across the access road.
3. The Permittee shall construct the connection of the intake structure access road to State Road 710 in Okeechobee County at its own expense and shall conform to DOT Design Standards. The Department agrees to process the permit application for this connection within 30 days of submittal.
4. The Permittee shall maintain safe and adequate access to the Project Site during Project construction. During construction, the Permittee shall provide law enforcement officials, at its expense, to monitor left turn traffic from State Road 710 into the Plant Access Road during the AM and PM peak hours to determine if waiting left turning traffic during Project construction impedes north bound traffic on State Road 710. If such traffic is impeded, the Permittee shall provide, at its own expense, law enforcement personnel to direct traffic at the intersection during the AM and PM peak hours. If the Permittee is unable to provide officials to control traffic at this intersection, the Permittee will use other measures at its expense acceptable to DOT to maintain safe turning movements at this intersection. These measures shall be provided until no longer justified by Project construction traffic.
5. During Project construction, the Permittee shall provide public information to the local media as to its construction schedule, the expected level of traffic and any expected traffic delays or interference on local roads.
6. The Permittee is required to construct, at its own expense, a south bound right-turn lane from State Road 710 at the Plant Access Road, conforming to DOT Design Standards, as approved by the District Traffic Engineer. The Permittee shall obtain all necessary approvals and property interests from adjacent property owners, including CSX Railroad, to comply with DOT Design

Standards. The design of the right turn lane shall be compatible with any other planned or permitted improvements at the intersection. The Department agrees to process the permit application within 30 days of submittal of a sufficient application.

7. ICL shall construct at its own expense an additional right-turn lane with increased radius at the intersection of State Road 710 and the existing outlet of the new Plant Access Road. This improvement shall consist of additional paving along the eastbound lane of the Plant Access Road between State Road 710 and the railroad track to allow storage of additional right-turning traffic. These improvements shall conform to DOT Design Standards and the intent of this condition. A " Do Not Stop on Tracks" sign shall be erected at ICL's expense and as per the Manual of Uniform Traffic Control Devices (MUTCD) on the Plant Access Road south of the railroad crossing. The Department agrees to process the permit application for this connection improvement within 30 days of submittal.

PART VII

MARTIN COUNTY

1. Construction and operation of the Indiantown Cogeneration Project shall be undertaken in accordance with the planned unit development (industrial) agreement between the Permittee and Martin County, Florida, dated July 24, 1991. Said agreement is incorporated into these Conditions of Certification by this reference and shall be complied with and enforced as if the provisions of that agreement were contained in these Conditions.
2. In constructing the new site access road, the Permittee shall comply with the standards of Martin County as set forth in Chapter 30 1/2, Article II, Subdivision Regulations, Code of Laws and Ordinances of Martin County, Florida, for roads to be dedicated to Martin County for maintenance. Martin County shall issue a permit for the interconnection of the access road with any road maintained by Martin County within 30 days of the submission of a complete application for such interconnection.

PART VIII

DEPARTMENT OF COMMUNITY AFFAIRS

1. The Permittee shall endeavor to recycle the Project's combustion wastes where practicable. The Permittee shall file an annual report with the Department of Environmental Regulation detailing its progress in marketing these wastes.
2. The Permittee shall take steps to minimize the impact of noise generated during operation and construction which exceeds a day/night weighted average of 55 dBA at the nearest existing residential areas. These steps may include the use of quiet equipment, erection of noise barriers, notification to nearby landowners and daytime scheduling of particularly noisy events, and other measures as feasible.
3. The Permittee will initiate construction of the south bound right turn lane from State Road 710 to the plant access road concurrent with the start of site development work and will complete construction of the right turn lane prior to the initiation of building construction.
4. The Permittee shall assist unemployed and econmically disadvantaged persons in the Indiantown area in finding employment during construction and operation of the Project.
5. The Permittee shall seek to provide innovative arrangements such as referrals to local day care facilities to increase the access of working parents to employment at the Project.
6. At least 60 days prior to construction, ICP shall submit an upland preserve and wetland management plan to the Florida Game and Fresh Water Fish Commission and to Martin County for review and approval. This plan shall present management practices for the seven wetlands and the upland preserve areas, as designated in the Application and the PUD planned unit development (industrial) zoning agreement of Martin County, and illustrated on Figure 1. At a minimum, this plan shall include a statement of preserve management objectives; a statement of what habitat functions the preserves are expected to provide; a description of how habitat values will be maintained, including measures such as perimeter staking, and vegetation control; if controlled burning is proposed to control vegetation, a schedule of fire management through a certified burn specialist and including, but not limited to, burn conditions, burn frequency, and measures taken to avoid spread of wildfire; measures taken to remove exotic vegetation from both uplands and wetlands; legal instrument by which preserve areas and wetlands have been reserved from future developmental uses; and the entity responsible for management.

PART IX

OKEECHOBEE COUNTY

1. In construction the water pipeline across roads under the jurisdiction of Okeechobee county, the permittee shall comply with the standards of Okeechobee County as set forth in Okeechobee County ordinance 86-1, for crossing of county roads. Okeechobee County shall issue a permit for the crossing of any road maintained by Okeechobee County as set forth therein.

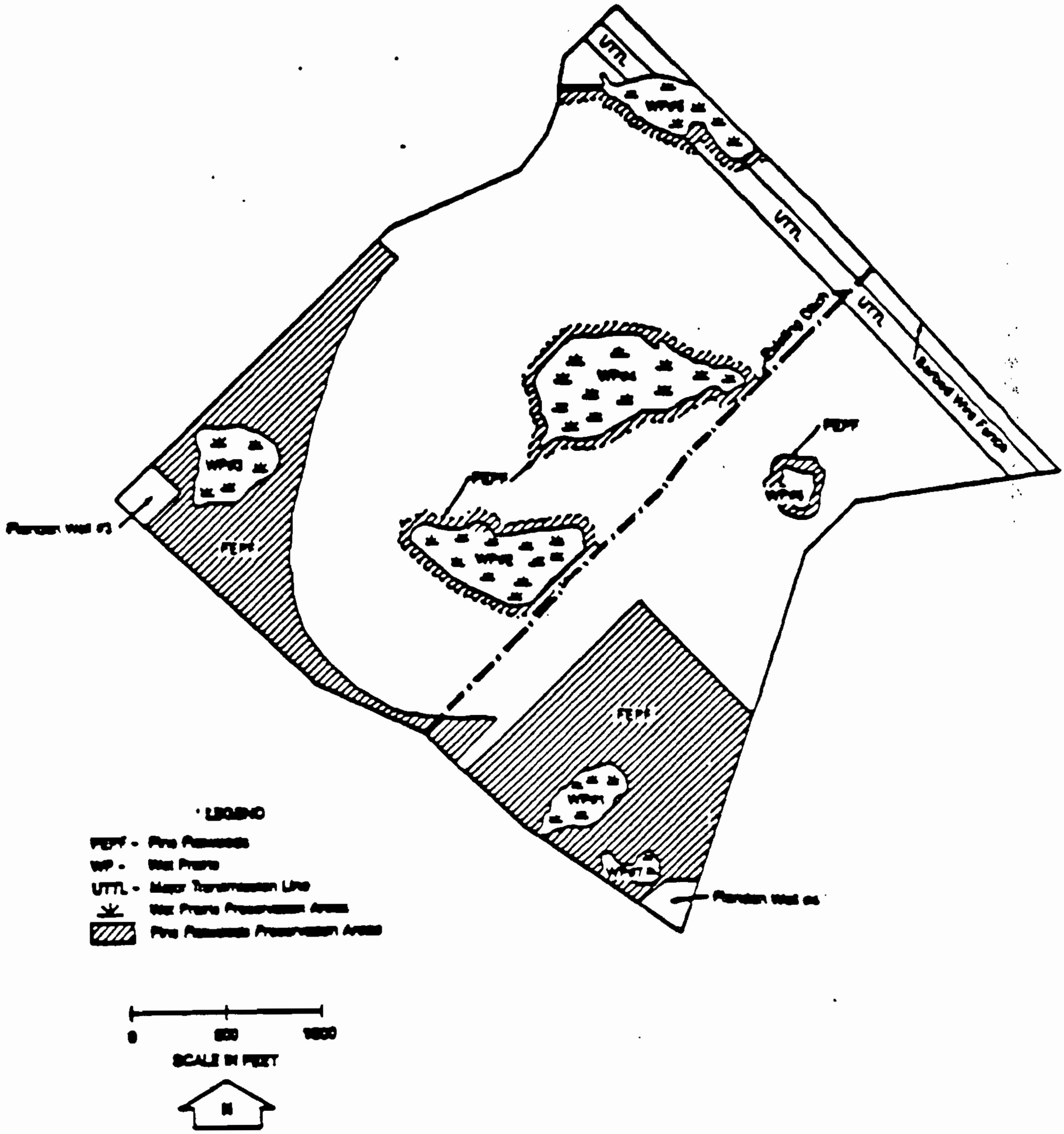
PART X

TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

1. In the event that the facilities, pipeline or improvements constructed or maintained by ICL under this certification are placed on, under, over, or across lands owned by the Board of Trustees of the Internal Improvement Trust Fund, ICL shall first obtain the consent of the Trustees for the use of such lands prior to the construction of those facilities. Such requests for consent shall be made and granted pursuant to Chapter 253, F.S., and Chapter 18-21, F.A.C. The issuance of such consent shall be based upon the information provided during the certification proceeding and such other information necessary to demonstrate compliance with Chapter 253, F.S., and Chapter 18-21, F.A.C.

Revised 12/12/91

Figure 1. Upland and wetland preserve areas on the project site.



Attachment B

Minor Source Permit Application to Construct Flue Gas Carbon Dioxide Recovery Plant

INDIANTOWN COGENERATION, L.P. MINOR SOURCE PERMIT APPLICATION TO CONSTRUCT FLUE GAS CARBON DIOXIDE RECOVERY PLANT

Submitted By:

Indiantown Cogeneration, L.P.
19140 SW Warfield Blvd.
Indiantown, FL 34956

Prepared by:

Earth Tech, Inc.
196 Baker Avenue
Concord, MA

December, 1999

TABLE OF CONTENTS

1.0 INTRODUCTION/PROJECT SUMMARY 1

1.1 Environmental Impacts and Benefits 1

1.1.1 Potential Air Emissions 1

1.1.2 Waste Streams/Co-Products 2

1.1.3 Emission Reductions/Environmental Benefits 3

1.2 Application Organization 4

2.0 PROJECT DESCRIPTION 5

3.0 REGULATORY APPLICABILITY EVALUATION 8

3.1 Chapter 62-210 Stationary Sources -General Requirements 8

3.2 Chapter 62-212 Stationary Sources - Preconstruction Review 8

3.2.1 62-212.300 General. 8

3.2.2 62-212.400 Prevention of Significant Deterioration (PSD) 9

3.2.3 62-212.500 Non-Attainment 9

3.3 Chapter 62-204 Air Pollution Control: General 10

3.3.1 62-204.800 Federal Regulations Adopted by Reference 10

3.4 Chapter 62-296 Stationary Sources-Emission Standards 10

3.4.1 62-296.320 General Pollutant Emission Limiting Standards 10

3.4.2 62-296.500 Reasonably Available Control Technology (RACT) 11

3.5 Greenhouse Gas Reduction 11

4.0 PROJECT EMISSIONS AND CONTROL TECHNOLOGY REVIEW 14

4.1 CO_2 Plant Emissions 14

APPENDICES

APPENDIX 1

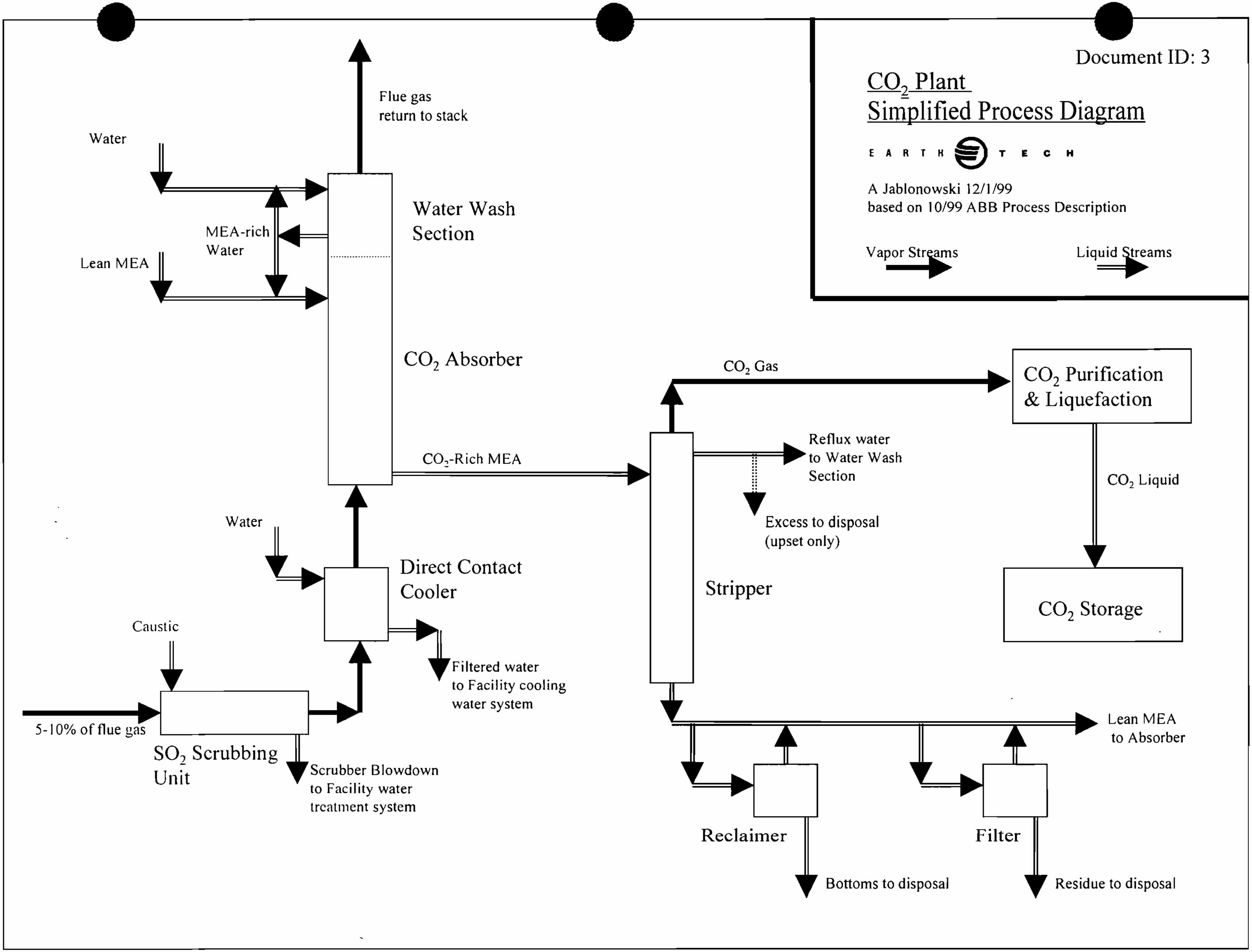
Permit Application Forms

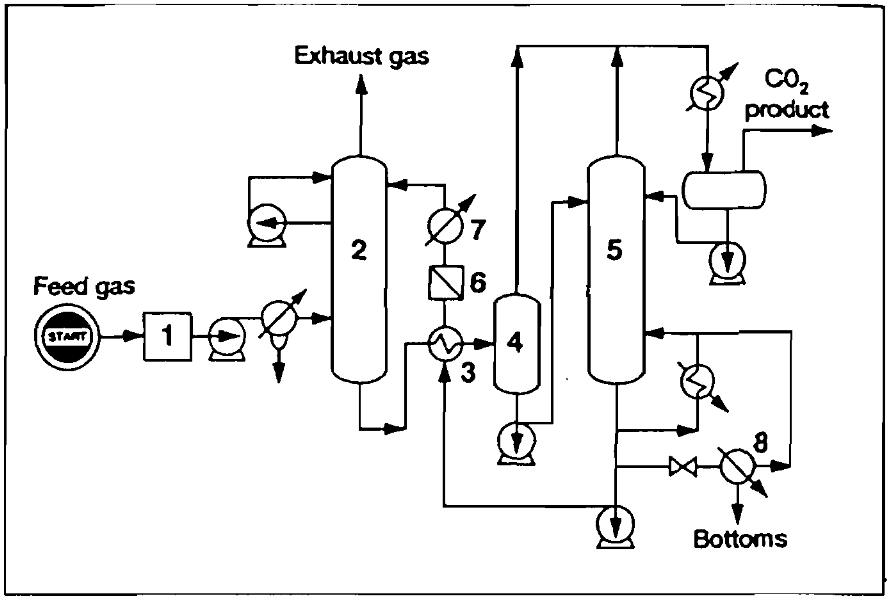
APPENDIX 2

Drawings and Vendor Process Description

APPENDIX 3

Supporting Calculations and Emission Data


Document ID: 3
CO2 Plant
Simplified Process Diagram
EARTH TECH
A Jablonowski 12/1/99
based on 10/99 ABB Process Description
Vapor Streams
Liquid Streams
Flue gas
return to stack
Water
Water Wash
Section
MEA-rich
Water
Lean MEA
CO2 Absorber
CO2-Rich MEA
CO2 Gas
CO2 Purification
& Liquefaction
Reflux water
to Water Wash
Section
Excess to disposal
(upset only)
CO2 Liquid
Water
Direct Contact
Cooler
Stripper
CO2 Storage
Caustic
Filtered water
to Facility cooling
water system
5-10% of flue gas
SO2 Scrubbing
Unit
Scrubber Blowdown
to Facility water
treatment system
Lean MEA
to Absorber
Reclaimer
Filter
Bottoms to disposal
Residue to disposal



CO_2 recovery

Application: Recover high purity CO_2 from oxygen-containing gases such as boiler flue gases, gas turbine exhausts and waste gases using Kerr-McGee/ABB Lummus Crest absorption/stripping technology.

Description: CO_2-containing feed gases are first cooled and scrubbed (1), if necessary, to reduce SO_2 levels. The gases are boosted slightly in pressure before entering the recovery system.

The system is based on absorption/stripping using a 15% to 20% monoethanolamine (MEA) solution. The feed gases are sent to an amine absorber (2) where they are scrubbed with MEA to recover CO_2. The scrubbed gases are vented to the atmosphere after water washing in the top of the absorber to minimize MEA losses. Rich solution from the MEA absorber is preheated in an exchanger (3), flashed (4) and sent to a stripper (5) where CO_2 is recovered overhead. Water condensate from the stripper overhead is returned to the system.

The lean MEA solution from the stripper (5) is cooled (3, 7), filtered (6) and returned to the absorber. Periodically, a batch reclaiming operation (8) is conducted to purge MEA degradation products and to recover MEA by decomposing heat-stable salts. The bottom from the reclaiming operation may be burned as boiler fuel.

CO_2 recovered from the stripper overhead may be compressed and used as a vapor product, or dried and liquefied using a standard ammonia refrigeration system to produce a liquid product.

Operating conditions: Operating units have exhibited availability factors in excess of 98%. Absorption and stripping operations take place at slightly above atmospheric pressure. Feed gases can contain up to 15 vol% oxygen, though economics are favored by high CO_2 and low oxygen concentrations in the feed. The process can recover CO_2 from flue gases containing from 3 to 15 vol% (dry basis) CO_2 and oxygen. Moderate levels of SO_2 and NO_x in the feed are acceptable. SO_2 prescrubbing is required only with SO_2 levels higher than 100 ppmv (dry basis).

Vendor-supplied generic process diagram

Reference: Arnold, D.S., et. al., "CO_2 Produced from Flue Gas," *Oil and Gas Journal,* Nov. 22, 1982.

Licensor: ABB Lummus Crest Inc.

1. Description

a. General

The PG&E Generating CO_2 Plant is comprised of the following sections:

- Flue Gas Pretreatment
- CO_2 Recovery
- Purification, Compression and Liquefaction
- Storage and Loading

b. Flue Gas Pretreatment

Compression & Scrubbing: The CO_2 production unit feed gas is supplied from the power plant flue gas stack. A slip stream from the power plant flue gas is boosted by the two existing Flue Gas Blowers (connected in series) and brought into contact with re-circulating caustic solution for the removal of particulate matter and SO_2. The scrubbed feed gasflows into the Direct Contact Cooler (DCC).

Corrosion Inhibitor System PA-101 - Corrosion inhibitor is continuously injected into the CO_2 absorber rich solvent bottoms outlet line, the solvent stripper bottoms outlet line and the solvent stripper top tray. This constant injection is to help control the rate of corrosion throughout the CO_2 recovery plant system. Refer to the process flow diagram for details of the corrosion inhibitor system.

d. CO_2 Purification and Liquefaction

CO_2 Purification/Liquefaction Package (PA-201) - Following is a brief description of the CO_2 Purification/Liquefaction. For additional details, refer to the process flow diagrams.

The raw, wet CO_2-rich gas from Solvent Stripper Reflux Drum is cooled in the CO_2 pre-cooler and, after removal of condensed water, sent to the first stage of the Booster Compressor. "Medium temperature" ammonia refrigerant is used to cool and condense the moisture in the CO_2 gas.

The compressed gas from the booster compressor is cooled in the CO_2 Intercooler against "High temperature" ammonia refrigerant. After removal of any condensate, the gas is further compressed in the CO_2 High Stage Compressor. This is an oil injected screw compressor furnished with oil separator, lube oil system and microprocessor controls.

Oil injected into the compressor for lubrication, sealing and cooling leaves the compressor along with the gas and some of it is carried over by the gas stream past the compressor oil separator. "High pressure" CO_2 from the high stage compressor flows through the Final CO_2/Oil Separator vessel. This vessel is designed to reduce the oil content of the gas prior to it entering the sulfur scrubber vessel for removal of hydrogen sulfide (H_2S) from CO_2.

Sulfur-free CO_2 from the zinc oxide vessel is fed through two aftercoolers installed in series. Here, the CO_2 is successively cooled against high temperature ammonia refrigerant followed by medium temperature liquid ammonia. A knockout drum is provided for removal of condensate from the gas. "Water free" CO_2 is fed to the CO_2 Aftercooler Oil Separator for a final and finer separation of the lube oil from the gas.

From the final oil separator, the CO_2 gas flows to the CO_2 Dryer. This is a packed bed of activated alumna desiccant for adsorption of water and NO_X (nitrogen oxides) sandwiched between two layers of activated carbon, for extraction of hydrocarbons and odor. Two dryers are installed in parallel. The system is designed so that one is in service while the other is being regenerated. Regeneration is done by circulating heated dry CO_2 gas through the desiccant.

Dried CO_2 from the dryer is filtered for removal of carbon or desiccant dust from the CO_2 stream. The stream then flows through a Guard Adsorber, filled with sulfur-impregnated activated carbon to remove any possible trace mercury components. A Guard Absorber Dust Filter is provided for removal of the carbon dust from CO_2.

From the filters, the CO_2 is fed to the CO_2 Reboiler, providing the heating load for the distillation process. At the reboiler, the CO_2 is cooled before going into the CO_2 condenser. After liquefaction in the condenser, the CO_2 flows to the top of the stripper column. Low temperature ammonia refrigerant provides the refrigeration for liquefaction of the CO_2.

Cold liquid CO_2 from the condenser enters the top of the CO_2 stripper column. Liquid CO_2 flows downwards through the packed column, counter-current to the "warm" CO_2 vapor from the CO_2 Reboiler. As the cold liquid and warm vapor come into contact, non-condensable and other light components are stripped away from the liquid. At the same time, CO_2 contained in the vapor stream is condensed, obtaining a CO_2 rich liquid and vapor rich in non-condensable. The vapors leave the tower through a vent connection at the top of the column.

Purified liquid CO_2 collects in the bottom of the column. A portion of this liquid flows through the CO_2 Reboiler and returns to the vapor space in the column bottom. As previously described, CO_2 gas from the CO_2 dryer dust filter provides some of the heating load for evaporation. The rest of the reboiler duty is provided by medium pressure ammonia gas flowing through an internal pipe coil in the bottom of the stripper. CO_2 vapors, along with non-condensable and light components, generated by the internal coil and external reboiler flow upward through the packing bed.

The vapor from the top of the stripping column is partially condensed in the CO_2 Vent Condenser. The condensed liquid is returned as reflux to the stripping column. The non-condensables, along with some CO_2, are purged off the condenser for disposal. Low temperature ammonia refrigerant provides the refrigeration load for the condensation.

Purified liquid CO_2 product is withdrawn from the stripping column bottom, cooled in the CO_2 Subcooler, and sent to storage. Low temperature ammonia refrigerant is used to cool the liquid CO_2.

e. Ammonia Flow Process (Refrigeration)

The ammonia refrigeration system is a two-stage mechanical refrigeration system. Three levels of refrigeration are provided: Low temperature mainly for the CO_2 condensers and sub-cooler, Medium temperature for the CO_2 pre-cooler and after cooler, High temperature for the CO_2 coolers and compressor lube oil coolers. Refer to the process flow diagrams for details of the system.

f. Storage and Shipping

Liquid CO_2 from the CO_2 Sub-cooler is stored in horizontal pressure vessel storage tanks. Refer to the process flow diagrams for details of the CO_2 transfer and loading systems.

c. CO_2 Recovery

1) Direct Contact Cooling

The Direct Contact Cooler is a packed column where the scrubbed flue gas flowing up is brought into intimate contact with a re-circulating stream of cooled water fed to the top of the packed bed.

The water leaving the bottom of the DCC is a mixture of spray water from the spray system, water feed to the top of the DCC as well as any water condensed out of the flue gas. The DCC bottoms stream is pumped and filtered to remove particulate matter. A portion of the filtered water, comprising of the water condensed from the flue gas, is sent to the cooling water return system. The rest of the filtered stream is cooled against cooling water. Part of the cooled stream is sent to the spray system and the rest is returned to the Direct Contact Cooler.

2) CO_2 Absorption

The cooled flue gas from the DCC enters the bottom of the CO_2 Absorber and flows up the tower countercurrent to a stream of 20 %wt lean Monoethanolamine. Approximately 90% of the CO_2 in the feed gas is absorbed into the MEA, and the rest leaves the top of the absorber section and flows into the Water Wash section of the tower.

The lean MEA solvent enters the top of the absorber, absorbs the CO_2 from the flue gases and leaves the bottom of the absorber along with the absorbed CO_2.

3) Water Wash Section

The purpose of the Water Wash section is to minimize MEA losses due to mechanical entrainment and evaporation. The flue gas from the top of the CO_2 Absorption section is contacted with a re-circulating stream of water for the removal of most of the lean solvent. The scrubbed gases, along with unrecovered solvent, exit the top of the wash section for discharge to the atmosphere via the existing vent stack.

The water stream from the bottom of the wash section is withdrawn from the column. A part of the solvent-rich water is returned to the CO_2 Absorber. The rest of the water is mixed with make-up water from the Solvent Striper Reflux Drum, cooled and returned to the top of the Water Wash section.

4) Rich/Lean Amine Heat Exchange System

The rich solvent from the bottom of the CO_2 Absorber is preheated by the lean solvent from the Solvent Stripper. The heated rich solvent is routed to the Solvent Stripper for the removal of the absorbed CO_2. The stripped solvent from the bottom of the Solvent Stripper, after heat exchange against the rich solvent, is successively cooled in Lean Solvent Air Cooler and Lean Solvent Water Cooler. The cooled lean solvent is returned to the CO_2 Absorber, completing the circulating solvent circuit.

Solvent Stripper - The purpose of the Solvent Stripper is to separate the CO_2 from the rich solvent feed from the bottom of the CO_2 Absorber. Steam heated reboiler provides the heat required to strip the CO_2 from the solution.

The hot wet vapor from the top of the stripper containing CO_2, steam, and solvent vapor, is partially condensed in a water-cooled exchanger. The uncondensed CO_2-rich gas is sent to the CO_2 purification section. A part of the condensed overhead liquid is used as make-up for the Water Wash section of the absorber and the rest of the liquid is refluxed back to the Solvent Stripper. The top four trays of the stripper are water wash trays designed to limit the amount of solvent vapors entering the stripper overhead system.

Solvent Reclaimer - A small slipstream of the lean solvent from the Solvent Stripper bottoms is fed to the Solvent Reclaimer for the removal of high-boiling non-volatile impurities ("Heat Stable Salts"), volatile acids and iron products from the circulating solvent solution. The solvent (MEA) bound in the HSS is recovered by reaction with caustic and heating with steam. The solvent reclaimer system reduces corrosion, foaming and fouling in the solvent system.

5) MEA Solvent System

The unit has provisions for storage of concentrated solvent, make-up water and the circulating solvent. In addition, a system for filtration of solvent is also provided. Refer to the process flow diagram for details of the system.

4. Process Waste Streams

The CO_2 Recovery process generates four waste streams.

a. Reclaimer Bottoms

The reclaimer bottoms are generated during the process of recovering MEA from heat stable salts (HSS), which are produced from the reaction of MEA with SO_2 and NO_2. The HSS accumulate in the reclaimer during the lean amine feed portion of the reclaiming cycle. The volume of reclaimer bottoms generated will depend on the quantity of SO_2 and NO_2 that is not removed in the Flue Gas Scrubber. The anticipated quantity of waste is 550,000 lb/yr. A typical composition of the waste is presented below.

Reclaimer Bottoms Composition

MEA	9.5 wt.%
NH_3	0.02 wt.%
NaCl	0.6 wt.%
Na_2SO_4	6.6 wt.%
Na_2CO_3	1.7 wt.%
Insolubles	1.3 wt.%
Total Nitrogen	5.6 wt.%
Total Organic Carbon	15.6 wt.%
pH	10.7
Specific Gravity	1.14

b. Filter Residues

A slipstream of lean amine is filtered by a pressure leaf filter. Diatomaceous earth is used as a filter-aid for precoating the leaf residue. Filter cycles depend on the rate of flow through the filter, the amount of filter aid applied, and the quantity of contaminants in the solvent. Anticipated waste quantity is 130,000 lb/yr. A typical composition of the filter residue is provided in the table below.

Filter Residue Composition

MEA	2.6 wt.%
Total Organic Carbon	1.5 wt.%
Diatomaceous earth	Balance
Water	13.0 wt.%
PH	10.0
Specific Gravity	1.0

c. Excess Solvent Stripper Reflux Water

The CO_2 Recovery Facility has been designed to operate in a manner that no excess reflux is generated. By controlling the temperature of the scrubbed flue gas to the absorber, water balance of the MEA system is kept in balance. Excess reflux can accumulate in the Make-Up Water Tank, FB-103, and reused once the system is corrected to operate in a water balance. Should reflux water need to be discarded, contaminants will include CO_2 and MEA.

d. Flue Gas Scrubber Blowdown

The Flue Gas Scrubber utilizes a circulating caustic solution to remove SO_2 from the feed gas. The active component of the scrubbing solution is sodium sulfite which reacts with SO_2 to form sodium bisulfite. A blowdown stream is drawn from the circulating solution to remove the soluble sodium salts that continually accumulate. The anticipated Scrubber Blowdown is 1700 lb/hr. A typical composition of scrubber blowdown is listed below. This spent liquid then can be used for fly ash dust suppression. All sodium sulfite will be oxidized to sodium sulfate.

Scrubber Blowdown

Na_2SO_3	3.6 wt%
Na_2SO_4	0.9 wt%
$NaHSO_3$	0.7 wt%
$NaNO_3$	0.2 wt%
$NaNO_2$	0.2 wt%
H_2O	94.4 wt%
Particulates	0.06 wt%
pH	7.0
Specific Gravity	1.06

Appendix 3

Supporting Calculations and Emission Data

ICLP CO_2 Recovery Plant Emissions Calculations
AJ/Earth Tech 12/1/99

612,115	Circulating Wash Water volume, lb/hr H_2O (from ABB mass balance)
3,583	Circulating Wash Water MEA content, lb/hr MEA (from ABB mass balance)
1,230	Circulating Wash Water volume, gal/min approx
1	lb/hr MEA typical emissions to stack, approximate from ABB mass balance
99.97%	Wash Water System design removal efficiency for MEA **(approximate only - not a permit limit)**
2	lb/hr MEA maximum emissions to stack, from ABB system description
2.5	lb VOC emissions/lb MEA emissions, typical from prior system
	(this approximation accounts for MEA products of degradation)
5	lb/hr VOC maximum emissions to stack, calculated
8,760	hours/year potential operation (year-round)
21.9	tons/year VOC maximum potential emissions to stack, calculated
10%	of stack emissions fugitive from other sources, estimate
0.5	lb/hr VOC fugitive emissions, calculated
8,760	hours/year potential operation (year-round)
2.19	tons/year VOC fugitive emissions, calculated
24.09	tons/year VOC project emissions

Attachment C

Analysis of Incremental Water Use

ANALYSIS OF INCREMENTAL WATER USE

This attachment provides a brief discussion of the existing water use at ICLP, the additional water use being proposed, a summary of the requested water allocation, and a discussion of water sources.

Existing Water Use

ICLP is permitted by the existing conditions of certification to make the following withdrawals:

Table C-1: Existing Water Allocation

Source	Maximum Annual Allocation (MGY)	Maximum Daily Allocation (MGD)
L-63N	1484.00	4.69
Upper Floridian Aquifer	195.00	2.60
Upper Permeable Zone- Lower Floridian Aquifer	147.0	2.32

From Condition Part IV B.2, Revised 3/31/95.

The daily water allocation from L-63N is equivalent to a withdrawal rate of 3,257 gallons/minute.

Additional Water Use Being Proposed

The existing allocation has been adequate to operate the ICLP Facility in its current configuration. However, the proposed additional activities will require some incremental additional water use.

Operation of the CO_2 Recovery Plant (see Section 2.1) will require the addition of approximately 220 gallons/minute. This water is used as cooling water in the Direct Contact Cooler, as stripper water at the top of the CO_2 absorption column, as input for additional steam used in the process, and as additional non-contact cooling water through the plant's existing cooling water system.

Operation of the chilled water plant (Section 2.2) will require the addition of approximately 40 gallons/minute. This water will be part of the non-contact cooling water used by the system, tentatively proposed to be supplied through the existing Facility cooling water system. Small amounts will also be used as makeup water to supplement the (closed-loop) chilled water system as needed.

Operation of the Facility at increased electrical output will require the addition of approximately 220 gallons/minute. This water is used as part of the cooling water system, steam supply makeup, and other water use needs associated with the operation of the pulverized coal boiler.

Total expected water use is summarized in Table C-2, below.

Table C-2: Expected Water Use

Existing Water Use	3257 gallons/minute
CO_2 Recovery Plant	220 gallons/minute
Chilled Water Plant	40 gallons/minute
Plant Output Rating Increase	220 gallons/minute
Total Expected Water Use	3737 gallons/minute

The total expected water use listed in Table C-2 is slightly higher than the physical capacity of the existing pipe between the L-63N water intake structure and the ICLP Facility (3,700 gallons/minute). During periods when all water uses are taking place, ICLP will draw down the water level in the cooling water storage pond. ICLP will therefore restrict total proposed water withdrawal from L-63N to 3,700 gallons per minute.

Nevertheless, to reliably conduct the proposed operations, the Facility will require more continuous water withdrawals. ICLP therefore requests that both the daily and the annual water withdrawal allocations be based on the total water withdrawal of 3,700 gallons per minute. This corresponds to 5.32 MGD, and 1943 MGY.

It should also be noted that the expected water use for the individual projects listed in Table C-2 should not be considered a strict delineation of water needs. All water used at the Facility is handled through the ICLP zero discharge system. The zero discharge system uses a holistic approach to water and wastewater, and meets all of the plant's needs without rigorous separation of individual water uses. ICLP is proposing the additional water allocation for the Facility as a whole.

Discussion of Water Sources

ICLP is permitted to withdraw from Taylor Creek (L-63N) when the elevation of the creek is above 17.5 feet NGVD. During the five years of operating experience at ICLP, there have been no periods when the Facility has needed to use its backup water supply. Nonetheless, there has been concern that the poor water quality of the on-site wells would prevent their effective use as a water source.

ICLP proposes to continue to use Taylor Creek/Nubbin Slough (L-63N) as the primary source of water for all periods when adequate water is available through L-63N. As discussed in Section 2.6 above, this includes periods when L-63N is below

17.5 feet NGVD because of actions being taken by SFWMD, rather than a water scarcity situation.

For periods when L-63N is below 17.5 feet water level because of drought conditions, ICLP will pursue backup options with SFWMD. The choice of backup option will depend on the environmental and economic constraints of the situation. Possible options include:

- Drawing water from Lake Okeechobee;
- Drawing water from the St. Lucie Canal;
- Supplementing available water with gray water from sources such as the town of Indiantown or the City of Okeechobee;
- Treating and using groundwater from the existing permitted groundwater wells;
- Withdrawing water from L-63N below the permitted 17.5 foot level; and
- Curtailing operations at the Facility.

Summary of Requested Water Allocation

The requested total water allocation is 3,700 gallons/minute, which is the physical capacity of the existing pipe between the L-63N water intake structure and the ICLP Facility. ICLP will install new impellers on the existing Goulds Vertical Pumps to provide the additional withdrawal rate.

We propose the following changes to the Conditions of Certification to reflect the increased water allocation:

Condition Part IV B.2.a, Authorized Withdrawal

Source	*Maximum Annual Allocation (MGY)*	*Maximum Daily Allocation (MGD)*
L-63N	*~~1484~~ <u>1943.00</u>*	*~~4.69~~ <u>5.32</u>*
Upper Floridian Aquifer	*195.00*	*2.60*
Upper Permeable Zone- Lower Floridian Aquifer	*147.0*	*2.32*

Condition Part IV B.2.c, Authorized Withdrawal Facilities

2 – ~~2,550~~ <u>3,700</u> GPM Surface Water Pumps in L-63N

1 – 10" x 1340' Flowing Well cased to 500' (existing well)

1 – 10" x 1265' Flowing Well cased to 750'

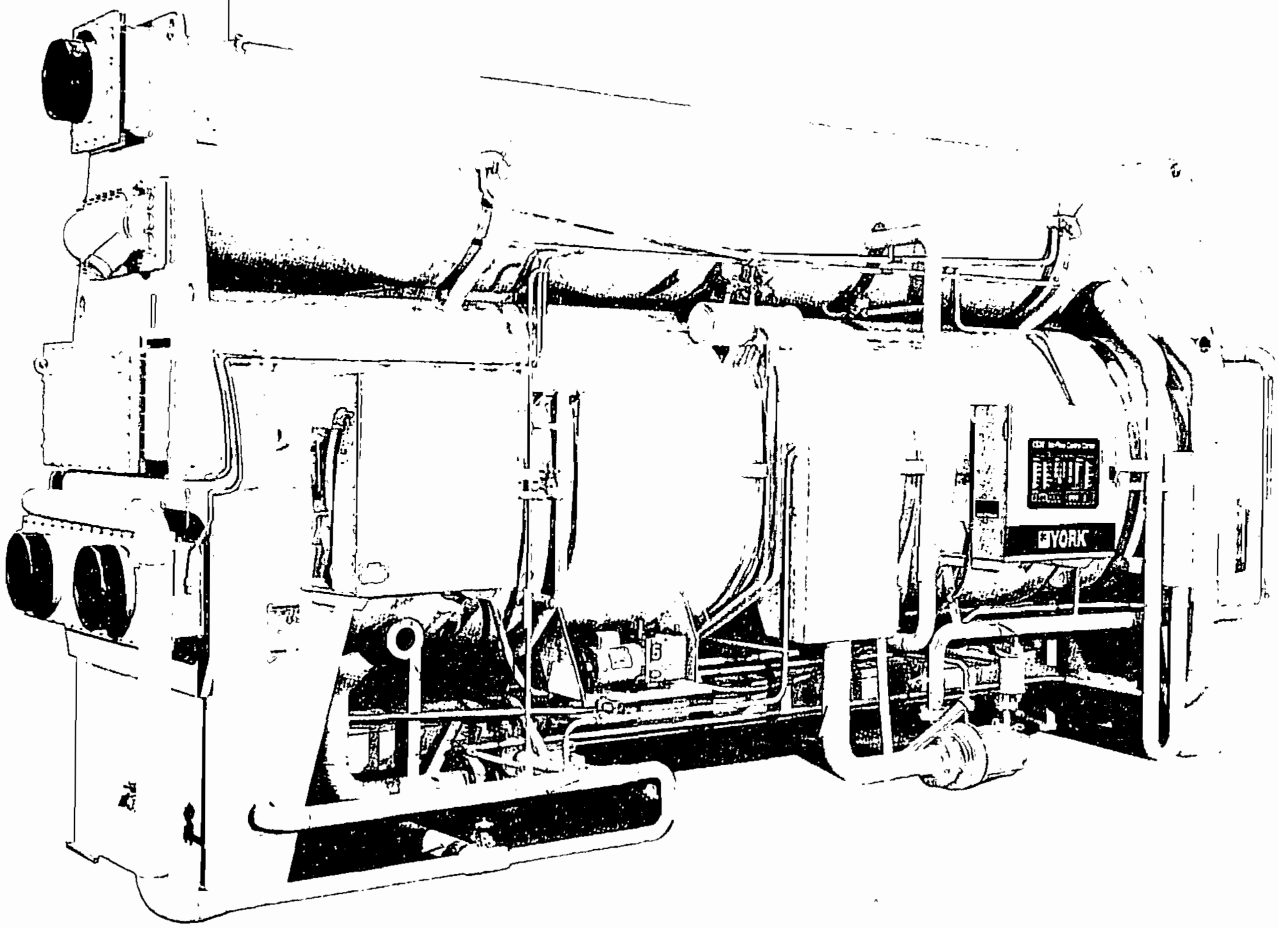
2 – 15" x 1350' Flowing Wells cased to 750'

2 – 15" x 1650' Flowing Wells cased to 1487'

Attachment D

Chilled Water Plant Vendor Description

YORK® *Millennium*™ YIA Absorption Chiller



With increasing economic pressures and environmental concerns, chiller plant designers are looking for innovative solutions to reduce electrical consumption and eliminate CFCs. These pressures are driving designers to utilize all available energy sources including waste heat.

YORK Millennium YIA Single Stage Absorption Chillers are perfectly matched for these needs. Designed to run on either low pressure steam or hot water, YIA chillers can use waste heat sources to lower overall system operating costs. And, by using water as the refrigerant, they are an environmentally responsible solution. These characteristics provide the customer with cost savings and freedom from the restrictions, excise taxes and shortages common with CFC and HCFC refrigerant chillers.

A Proven Design

YORK has been manufacturing single stage absorption chillers since the late 1950's. With over 3,000 units installed worldwide, YORK has a level of experience with the design and application of single stage absorbers that is second to none. The proven industrial-grade design with YORK's renowned Millennium controls combine to provide the customer with the highest level of performance and reliability available today.

Application Characteristics

YIA chillers are available from 120 to 1377 tons (422 to 4840 Kw) using either low pressure steam or hot water. Steam units can operate with a wide range of inlet pressures, as low as 5 psig (34 KPa) vacuum. Hot water units can operate with entering water temperatures as high as 266°F (130°C), allowing direct recovery of jacket water heat from a diesel or gas reciprocating engine. Also, a wide range of options are available including special tubes, marine water boxes, 300 psig (2.1 MPa) water boxes, special code requirements, split shipment and many others.

Our Features	Your Benefits
• Powered by steam or waste heat	• Uses readily available, "clean" energy sources for cost-effective, environmentally responsible operation
• Water used as refrigerant	• Environmentally responsible, CFC-free operation
• YORK Millennium Control Center with "plain English" data input and output	• Simple chiller control, access and data retrieval • Monitors chiller to minimize downtime • Provides safest and most efficient operation • Precise setpoint control prevents drift, saves energy
• High quality hermetic refrigerant and solution pumps with isolation valves	• 55,000 hours between service intervals • Isolation valves simplify maintenance and eliminate the chance of allowing air to enter the chiller during service
• Patented "J-Tube" design	• Automatically eleminates minor crystallization without shutting unit down
• Operation with 45°F entering tower water	• Maximizes chiller efficiency when lower tower water temperatures are available
• Two shell design	• All units can be split-shipped for rigging requirements

YORK®

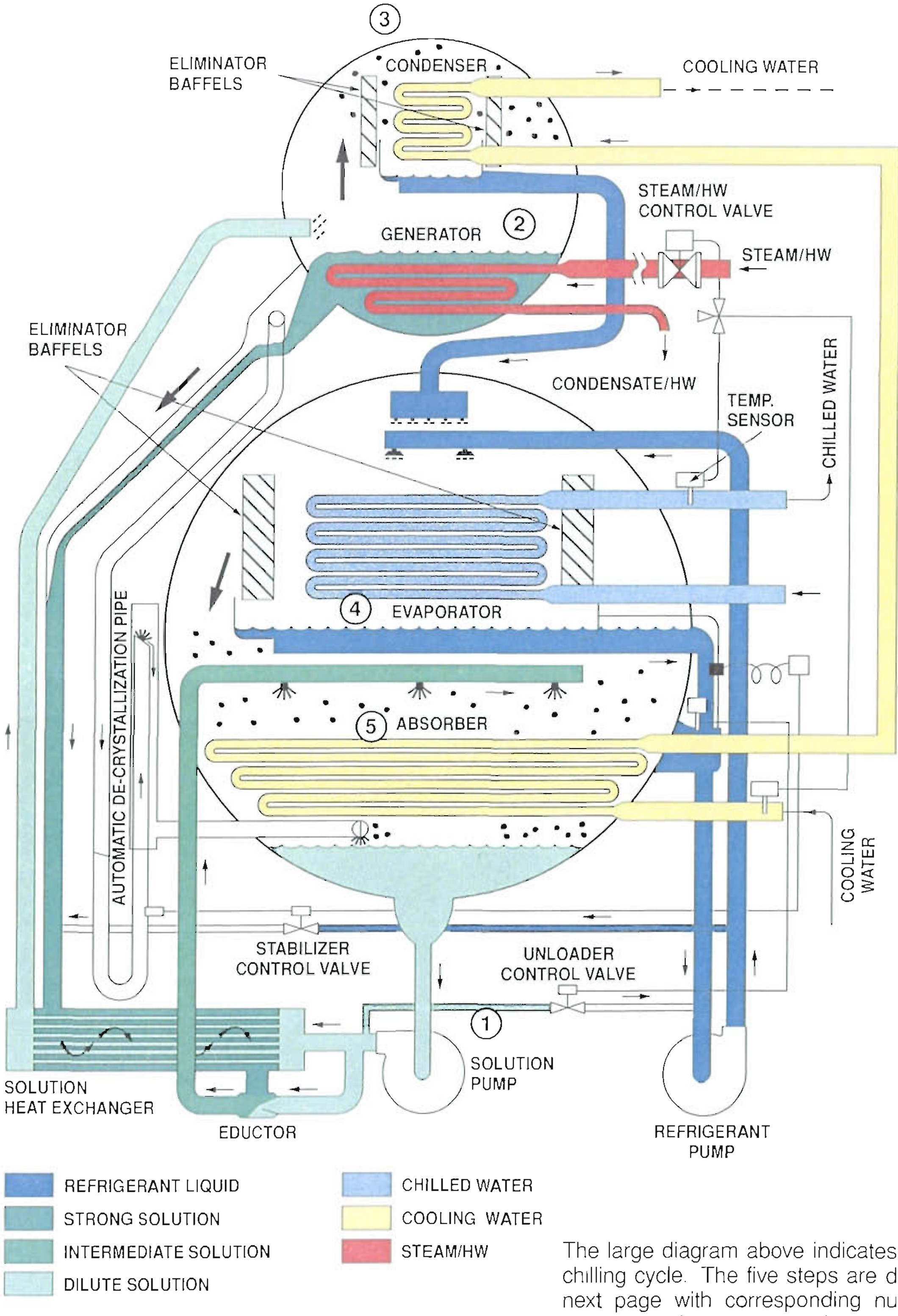
USA
Proud Sponsor of the 1998 U.S. Olympic Team
36USC380

P.O. Box 1592, York, Pennsylvania USA 17405-1592

Form 155.16-TD1(797)
Supersedes: Nothing

STR 5M 897 2.00
Code: ABS

Standard Steam/Hot Water Cycle Diagram

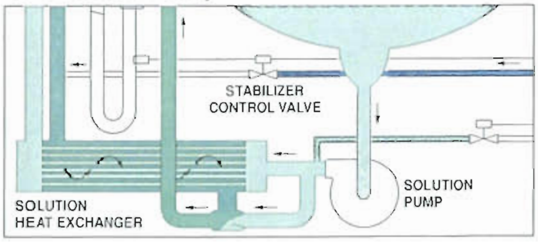


The large diagram above indicates the complete chilling cycle. The five steps are detailed on the next page with corresponding numbers in the diagram to show where each step is taking place. The cycle is continuous: however, for the sake of clarity and simplicity, it is divided into five steps.

How It Works

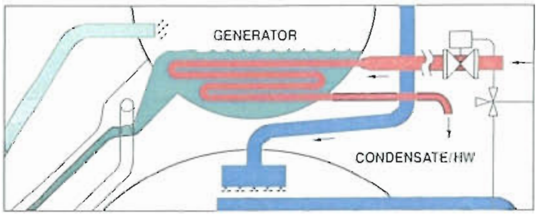
The Millennium Single Effect Absorption Chiller uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity that these two substances have for one another that makes the cycle work. The entire process occurs in an almost complete vacuum.

1. Solution Pump



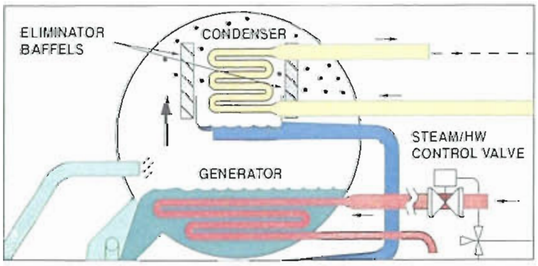
A dilute lithium bromide solution is collected in the bottom of the absorber shell. From here, a hermetic solution pump moves the solution through a shell and tube heat exchanger for preheating.

2. Generator



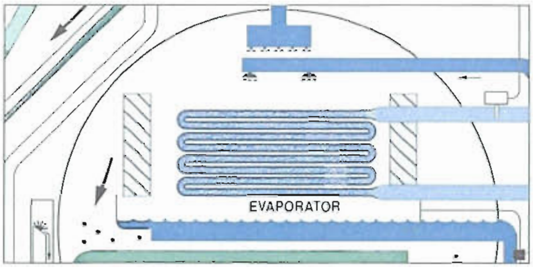
After exiting the heat exchanger, the dilute solution moves into the upper shell. The solution surrounds a bundle of tubes which carries either steam or hot water. The steam or hot water transfers heat into the pool of dilute lithium bromide solution. The solution boils, sending refrigerant vapor upward into the condenser and leaving behind concentrated lithium bromide. The concentrated lithium bromide solution moves down to the heat exchanger, where it is cooled by the weak solution being pumped up to the generator.

3. Condenser



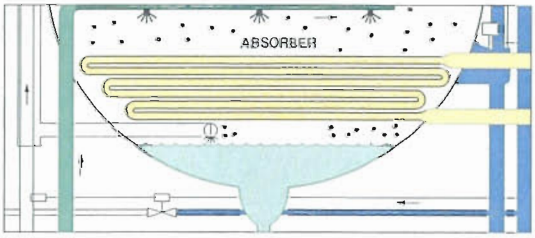
The refrigerant vapor migrates through mist eliminators to the condenser tube bundle. The refrigerant vapor condenses on the tubes. The heat is removed by the cooling water which moves through the inside of the tubes. As the refrigerant condenses, it collects in a trough at the bottom of the condenser.

4. Evaporator



The refrigerant liquid moves from the condenser in the upper shell down to the evaporator in the lower shell and is sprayed over the evaporator tube bundle. Due to extreme vacuum in the lower shell (6mm Hg (0.8kPa) absolute pressure), the refrigerant liquid boils at 39°F (3.9°C), creating the refrigerant effect. (The vacuum is created by hygroscopic action - the strong affinity lithium bromide has for water - in the absorber directly below.)

5. Absorber



As the refrigerant vapor migrates to the absorber from the evaporator, the strong lithium bromide solution from the generator is sprayed over the top of the absorber tube bundle. The strong lithium bromide solution actually pulls the refrigerant vapor into the solution, creating the extreme vacuum in the evaporator. The absorption of the refrigerant vapor into the lithium bromide solution also generates heat, which is removed by the cooling water. The now dilute solution of lithium bromide collects in the bottom of the lower shell, where it flows down to the solution pump. The chilling cycle is now completed and the process begins once again.

Attachment E

PSD Permit Application to Modify Pulverized Coal Plant

12/23/99

INDIANTOWN COGENERATION, L.P. PSD PERMIT APPLICATION TO MODIFY PULVERIZED COAL BOILER

Submitted By:

Indiantown Cogeneration, L.P.
19140 SW Warfield Blvd.
Indiantown, FL 34956

Prepared by:

Earth Tech, Inc.
196 Baker Avenue
Concord, MA

December 1999

TABLE OF CONTENTS

1.0 INTRODUCTION/PROJECT SUMMARY 1

2.0 PROJECT DESCRIPTION 4

3.0 REGULATORY APPLICABILITY EVALUATION 7

3.1 Chapter 62-210 Stationary Sources -General Requirements 7
3.2 Chapter 62-212 Stationary Sources - Preconstruction Review 7
3.2.1 62-212.300 General. 7
3.2.2 62-212.400 Prevention of Significant Deterioration (PSD) 8
3.2.3 62-212.500 Non-Attainment 11
3.3 Chapter 62-204 Air Pollution Control: General 11
3.3.1 62-204.800 Federal Regulations Adopted by Reference 11
3.3.2 Acid Rain - Title IV of CAAA 13
3.4 Chapter 62-296 Stationary Sources-Emission Standards 14
3.4.1 62-296.405 Fossil Fuel Steam Generators with more than 250 million Btu per Hour Heat Input. 14
3.4.2 62-296.711 Materials Handling, Sizing, Screening, Crushing and Grinding Operations 14

4.0 PROJECT EMISSIONS AND CONTROL TECHNOLOGY REVIEW 15

4.1 Project Emissions 15
4.2 Best Available Control Technology Evaluation 15
4.2.1 Pulverized-Coal-Fired Boiler 16

5.0 AIR QUALITY IMPACT ASSESSMENT 19

6.0 PROPOSED CHANGES TO PSD PERMIT 20

6.1 Output Rating Change Impacts 20
6.2 Auxiliary Boiler Operating Hours 20
6.3 Ambient Monitoring 21

APPENDICES

APPENDIX I

Permit Application Forms

APPENDIX II

Drawings

APPENDIX III

Supporting Calculations and Emission Data

APPENDIX IV

Original Air Dispersion Modeling Documentation

1.0 INTRODUCTION/PROJECT SUMMARY

The Indiantown Cogeneration L.P. (ICLP) facility is proposing to modify the operations at its site located along Highway 710 approximately three miles northwest of the community of Indiantown and 9 miles east of Lake Okeechobee, Florida. The facility is southwest of and abuts the Caulkins Citrus Processing facility and the Florida Steel Corporation Indiantown steel mill property. The site occupies the central portion of Section 35, Township 39 South, Range 38 East, Martin County, Florida.

The facility received authorization to construct the 330 megawatt (MW) electric and the 225,000 pound per hour process steam cogeneration facility on March 26, 1992, Permit Number PSD-FL-168. The Power Plant site certification number for the project is PA 90-13. The facility is proposing to modify the operation of the pulverized-coal-fired boiler to increase the electrical generation output to 390 MW. To achieve this output, the facility is applying to modify the existing heat input permit limitation from 3,422 million British Thermal Units per hour (MMBtu/hr) to 4,100 MMBtu/hr.

The U.S. Environmental Protection Agency (EPA) has promulgated Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) which require a permit review and approval for new or modified existing sources which emit criteria pollutants in amounts greater than the significant emission levels. Although the facility is not proposing any modification to existing pollutant emission limitations, a comparison of baseline actual emissions to the allowable maximum emission limits results in a net increase in emissions. Since the net emission increase will exceed the significant levels, the proposed modification at the ICLP plant is subject to PSD review. Based on the Florida Administration Code (FAC), Rule 62-212.400, the State of Florida has delegated authority to review and issue PSD construction permits.

The following sections include:

- A detailed description of the facility and proposed modifications (Section 2.0).
- A discussion of the regulatory rationale as it applies to the project (Section 3.0).
- A discussion of the project emissions and Best Available Control Technology (BACT) Evaluation (Section 4.0)
- A description of the technical approaches used for the various air quality impact analyses (Section 5.0 and Appendix IV).
- A description of the development of dispersion model input parameters, including model options, emission data, meteorological data, and other relevant parameters (Section 5.0 and Appendix IV).
- Results of the dispersion modeling (Section 5.0 and Appendix IV).
- A summary of the visibility impact analysis (Section 5.0 and Appendix IV).
- The analyses of other air quality related effects, including effects on soil and vegetation, cooling tower impacts, and a health effects evaluation for the state regulated air toxins (Section 5.0 and Appendix IV).

ICLP is simultaneously proposing to install and operate a flue gas carbon dioxide (CO_2) recovery plant to extract CO_2 from a portion of the flue gas exhausted from the pulverized-coal-fired boiler. This year-round cogeneration activity will be in addition to 225,000 lb/hr of process steam supplied to Caulkins Citrus Processing; during the period from November to June. The increase in MW output is a discreet activity to the proposed CO_2 recovery plant. The CO_2 recovery plant will only require approximately 3.5 MW of site power.

Additionally, ICLP wishes to clarify permit limits pertaining to the two auxiliary boilers, to clarify the maximum heat input limitation. ICLP also wished to document that the ambient air quality monitoring condition has been fulfilled.

2.0 PROJECT DESCRIPTION

This section provides an overview of the project and summarizes the basis for identifying the air quality regulations with which the project must comply.

The proposed modification will be an increase from 330 MW net to 390 MW net for the existing pulverized-coal-fired facility. Presently, the ICLP facility includes one main pulverized-coal-fired boiler and one steam generator, two auxiliary boilers operated during lightoff and startup of the main boiler or if the main boiler is down and process steam is required for Caulkins Indiantown Citrus Company, and material handling/conveying equipment. The main primary source of air emissions is the main boiler, firing pulverized coal. Exhaust gas from the main boiler is vented through a series of pollution control devices (PDCs) which include; a selective catalytic reduction (SCR) system for the control of NOx emissions, spray dryer absorbers for SO2 removal, and a multi-compartment fabric filter (baghouse) to remove particulates. Secondary air emission sources include the auxiliary boilers firing natural gas or No. 2 fuel oil and the material handling systems for coal, ash and lime. Bin vent filters are provided for material handling equipment to control visible particulate emissions. The exhaust stack is slightly below good engineering practice (GEP) stack height specifications at a height of 495 feet above grade.

Ash is removed by rail or truck for off-site disposal. Cooling at the plant is achieved by means of a mechanical draft-cooling tower.

The primary fuel is eastern bituminous coal having a maximum sulfur content of 2.0 percent. Typical sulfur content is under 1 percent. Natural gas and propane is used for lightoff and startup. A representative field analysis for these fuels is presented in Table 2-1.

Coal is delivered by rail, unloaded, and stored in an enclosed storage facility on site. An emergency coal pile, sized for 30 days storage at full load, is also provided. Lime used for sulfur capture in the flue gas cleanup system is delivered by train or in enclosed, self-unloading trucks and stored in an enclosed structure. Fugitive emissions from coal storage and material handling are controlled by enclosing most of these operations and venting through fabric filters. No modifications to the material handling equipment are being proposed.

Propane is stored in aboveground tanks, and is delivered by truck.

Presently, the main boiler heat input at full load is 3,422 MMBtu/hr. The heat input of the auxiliary boilers firing #2 fuel oil is 342 MMBtu/hr (358 MMBtu/hr firing natural gas). ICLP is proposing to increase the heat input for the main pulverized-coal-fired boiler to 4,100 MMBtu/hr, and to limit the operation of the auxiliary boilers to 1.79×10^{12} Btu per year.

TABLE 2-1
FUEL ANALYSIS [typical]

Ultimate Analysis			
	Gravimetric Breakdown (%)		
Element	Coal[a]	No. 2 Oil	Natural Gas
Carbon	65.37	87.26	73.913
Hydrogen	4.63	12.67	24.047
Oxygen	4.69	0.00	1.249
Nitrogen	1.16	0.02	0.773
Sulfur	2.00	0.05	0.018
Chlorine	0.15	--	--
Ash	12.00	--	--
Water	10.00	--	--
Total	100.00	100.00	100.00
Proximate Analysis			
Component			
Volatile Matter		99.395	99.92
Fixed Carbon		0.425	0.00
Moisture	4.8	0.05	0.00138
Ash	6	0.05	0.00
Sulfur	1	0.05	0.018
Total	100	100.00	100.00

The heat of combustion of coal, No. 2 fuel oil, and natural gas are estimated to be 13,000 Btu/lb, 19,130 Btu/lb, and 950 Btu/ft^3, respectively.

3.0 REGULATORY APPLICABILITY EVALUATION

3.1 Chapter 62-210 Stationary Sources -General Requirements

3.1.1 62-210.300 Permits Required

The owner or operator of any emissions unit which emits or can reasonably be expected to emit any air pollutant must obtain an appropriate permit from the Department of Environmental Protection (The Department) prior to beginning construction, modification, or initial or continued operation of the emissions unit unless exempted pursuant to Department rule or statute. Since the proposed modification can not meet the categorical exemptions provided in Rule 62-210.300 (3)(a) or the generic exemptions provided in Rule 62-210.300 (3)(b), the facility must obtain a preconstruction permit to prior to increasing the heat input.

3.2 Chapter 62-212 Stationary Sources - Preconstruction Review

3.2.1 62-212.300 General.

The proposed modification will take place at an existing major source. If the proposed modification at the facility resulted in a net emissions increase that exceeds the significant emission rate for a regulated pollutant, the project would be subject to major new source preconstruction review regulation. As mentioned previously and documented in Section 4.0 of this application report, the net emissions increases will exceed the significance levels for most regulated pollutants, and therefore, preconstruction review for a major modification applies and the project is applying for an air construction permit pursuant to Rule 62-212.400.

3.2.2 62-212.400 Prevention of Significant Deterioration (PSD)

The U.S. Environmental Protection Agency (EPA) has promulgated Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) which require a permit review and approval for new or modified existing sources which have the potential to emit criteria pollutants in amounts greater than the significant emission levels. Similarly, the Department has promulgated PSD preconstruction review regulations as provided in Rule 62-212.400.

Pursuant to these requirements, the Facility was issued a Permit to Construct and PSD Permit (PSD Permit/Permit to Construct), dated March 26, 1992, with revisions dated July 16, 1992 (PSD-FL-168). This permit was amended to remove the H_2SO_4 testing requirement in December, 1996. It was further amended in April, 1998 to allow opacity levels for one six minute period per hour of not more than 27 percent opacity.

Sources that are "major stationary sources" and "major modifications" located in areas designated as attainment or unclassifiable for national Ambient Air Quality Standards (NAAQS) are subject to the PSD regulations. Martin County and the surrounding counties are designated as "in attainment or cannot be classified" for all criteria pollutants.

A "major stationary source" is defined as any one of 28 specified sources which has a potential to emit 100 tons per year or more, or any other stationary source which has the potential to emit 250 tons per year or more of any regulated pollutant (40 CFR 52.21). The facility is listed as a 100-ton per year source (fossil-fuel-fired steam electric plants of more than 250 million Btu/hr heat input) having the potential to emit more than 100-tons of a criteria pollutant. Therefore, if the proposed modification to the facility results in a net emission increase above significance levels, the modification is subject to PSD review.

Under PSD, each pollutant emitted from a major source in significant quantities, as defined in Table 3-1, and for which the area is designated as "in attainment" for the pollutant, must undergo a PSD analysis. The PSD analysis involves the following:

- BACT analysis
- PSD Increment Consumption Analysis, including other increment-consuming sources in the area (if applicable)
- NAAQS impact analysis, including other significant sources in the area (if applicable)

Impacts on Class 1 PSD Areas. Any source within 100 kilometers of a Class 1 area must also demonstrate insignificant levels for air quality impacts at that area. Since the proposed facility is approximately 145 kilometers north of the Everglades National Park (the nearest Class 1 area), the proposed facility is not subject to this provision of the PSD review process.

Additional Impacts Analysis. Any source subject to the PSD regulations must also provide an analysis of any adverse air quality-related impacts to:

- Visibility
- Soils
- Vegetation
- Commercial, residential, and industrial growth that the project might cause

TABLE 3-1
TOTAL FACILITY EMISSION

	Baseline (1998) Annual Tons	Allowable Annual Tons	PSD Significance
Nitrogen Oxides	1992	2549	40
Carbon Monoxide	90	1649	100
Hydrocarbons	0	54	40
Particulate Matter	82	270	25
Sulfur Dioxide	1436	2549	40
Lead	0.02	0.28	0.6
Beryllium	0.0007	0.041	0.0004
Mercury	0.01	0.17	0.1
Fluorides	1.1	22.3	3
Sulfuric Acid Mist	0.6	6.51	7
Arsenic	0.01	0.765	0

TABLE 3-2
MAXIMUM ALLOWABLE PSD INCREMENTS
($\mu g/m^3$)

	Class I	Class II	Class III
Sulfur Dioxide			
Annual	2	20	40
24-hour	5	91	182
3-hour	25	512	700
Total Suspended Particulate Matter			
Annual	5	19	37
24-hour	10	37	75
Nitrogen Dioxide			
Annual	2.5	25	50

Source: 40 CFR 52.21(c).

TABLE 3-3

PSD SIGNIFICANT AMBIENT AIR QUALITY IMPACT LEVELS

	Averaging Time				
Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
SO_2	1 μg/m^3	5 μg/m^3	--	25 μg/m^3	--
TSP/PM_{10}	1 μg/m^3	5 μg/m^3	--	--	--
NO_2	1 μg/m^3	--	--	--	--
CO	--	--	0.5 μg/m^3	--	2 μg/m^3

Source: EPA, 1987a

Note: This table does not apply to Class I areas. A significant impact for Class I areas is 1 μg/m^3 on a 24-hour basis for PM_{10} and SO_2.

3.2.3 62-212.500 Non-Attainment

The proposed modification will take place at an existing facility located in Martin County which has been designated as "in attainment or cannot be classified" for all criteria pollutants. Therefore, non-attainment new source review is not applicable to the proposed project.

3.3 Chapter 62-204 Air Pollution Control: General

3.3.1 62-204.800 Federal Regulations Adopted by Reference

Emission standards contained in 40 CFR 60. 61. 63. 64. 72, 73, 75, 76, 77, and 78 have been adopted by reference pursuant to Rule 62-204.800

The New Source Performance Standards (NSPS) apply to new, modified, and reconstructed sources of emissions for which the U.S. EPA has promulgated standards. The EPA promulgated NSPS for fossil-fuel-fired steam generators (40 CFR 60, Subpart D) with a heat input greater that 250 MMBtu per hour in 1971.

Since its promulgation, the EPA has proposed revisions and amendments to Subpart D a number of times. One of the amendments, Subpart Da, applies to the ICLP plant. Subpart Da was proposed in 1978 and promulgated in 1979 and specifically applies to electric utility steam generating units.

Electric utility steam generating units are subject to NSPS Subpart Da provided they meet all three of the following criteria. If the plant does not meet any one of the criteria, it may still be subject to NSPS (e.g., the promulgated and proposed emission limits in Subpart Db). Subpart Da is applicable to electric steam generating units that:

- Are capable of combusting more than 73 MW (250 MMBtu/hr) heat input of fossil fuel either alone or in combination with any other fuel
- Supply more than 25 MW electricity to any utility power distribution system for sale
- Supply more than one-third of their potential electric output capacity to any utility power distribution system for sale

Table 3-4 provides a summary of the performance standards that apply to the ICLP facility.

TABLE 3-4

NSPS FOR ELECTRIC UTILITY STEAM GENERATING UNITS

Affected Facility	Pollutant	Emission Level	Requirement
Coal-fired boilers (and coal-derived fuels)	Particulate	0.03 lb/million Btu	Average of three 1-hr test runs
	Opacity	<20% except for one six-minute period/hr <27%	6-minute block average
	SO_2	0.6 lb/million Btu and 70% reduction	30-day rolling average
	NO_x	0.60 lb/million Btu	30-day rolling average

Source: 40 CFR 60, Subpart Da.

3.3.2 Acid Rain - Title IV of CAAA

Pursuant to Title IV of the CAAA of 1990 and EPA's implementing regulations regarding acid rain requirements (40 CFR Part 72), the Facility does not have any "affected" units. The PC boiler is exempt from Title IV acid rain requirements because the Facility is a qualifying cogeneration facility that had as of 11/15/90 a qualifying power purchase agreement for at least 15% of the total output capacity. This specific exemption is per 40 CFR 72.6(b)(5).

3.4 Chapter 62-296 Stationary Sources-Emission Standards

3.4.1 62-296.405 Fossil Fuel Steam Generators with more than 250 million Btu per Hour Heat Input.

This regulation limits emissions from the PC boiler. Emission limits listed in this requirement are less stringent than the existing limits in the PSD permit and the Title V operating permit. The facility will continue to comply with the existing limits in the PSD permit and the Title V operating permit.

3.4.2 62-296.711 Materials Handling, Sizing, Screening, Crushing and Grinding Operations

These regulations address solid material handling operations at ICLP. There are no changes to the capacity or operation of the solid material handling operations at ICLP. ICLP will continue to comply with this regulation through its PSD and Title V operating permits.

4.0 PROJECT EMISSIONS AND CONTROL TECHNOLOGY REVIEW

4.1 Project Emissions

As mentioned previously, the proposed modifications will not change the existing emission limits. The basis for calculating the hourly and annual emission rates has changed to reflect the increased heat input to the pulverized-coal-fired boiler.

Table 4-1 provides a summary of the existing emission limits for the pulverized-coal-fired boiler .

TABLE 4-1
FACILITY EMISSION RATES

	Full Load 100% Capacity	
Pollutant	(lb/hr)	(ton/yr)
PC BOILER		4100
Nitrogen Oxides	582	2549
Carbon Monoxide	376	1647
Hydrocarbons	12.3	54
Particulate Matter	61.6	270
Sulfur Dioxide	582	2549
Lead	0.064	0.28
Beryllium	0.0093	0.041
Mercury	0.039	0.172
Arsenic	0.175	0.765

4.2 Best Available Control Technology Evaluation

The BACT analysis shown below is repeated in bulk from the initial air permit application for the PC boiler, and updated where appropriate. The facility proposes to use the same emissions controls to meet the existing pound-per-hour and ton-per-year emission limits. This will correspond to a slight decrease in the emission rate on a pound-per-million-Btu basis.

Since the facility was permitted based on 100% capacity (8,760 hours per year), additional electrical generating capability will be made available without any increase in permitted emission rates.

4.2.1 Pulverized-Coal-Fired Boiler

The flue gas cleanup system for the PC boiler consists of spray dryer absorbers (SDAs) for desulfurization and acid gas control, and a baghouse for particulate matter (including trace metals) controls.

Flue gas from the air heater enters the two 50-percent capacity SDAs, where it is humidified and cooled by spraying with lime slurry. Simultaneously, the flue gas provides drying energy to the atomized slurry. The cooled gas, along with the entrained reaction products and fly ash, flows to the fabric filter where solids is separated from the gas.

The system uses lime (calcium hydroxide) slurry as the absorbing medium. Pebble lime is slaked in the lime preparation system, diluted and stored in the lime feed tanks. Lime slurry is pumped from the feed tank to the agitated atomizer head tank, from which the slurry is pumped to the absorbers.

Lime is delivered to the site by rail or self-unloading truck and stored in a totally enclosed structure to eliminate fugitive emissions.

Flue gas from the FGD system enters the baghouse through an inlet manifold, which distributes the gas to the bag filter compartments. Gas passes through the fabric of the bags from the inside to the outside; collected particulate is retained on the inside surface of the bags. When the particulate buildup on the surface of the bags produces a preset flue gas pressure drop, an automatic reverse-air cleaning cycle is initiated.

Hoppers below the bags collect the particulate released from the bags during the cleaning cycle. A pneumatic transfer system transports the particulate ash from the hoppers to the ash storage silo, in preparation for off-site disposal.

The facility is an emission source of nitrogen oxides, sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO), and unburned hydrocarbons (UBHC's) and other regulated pollutants. Hourly and annual emission rates are shown in Table 1-1.

For the pulverized coal boiler, the original proposed BACT level for NO_x was on the basis of 0.17 lb/MMBtu, achieved through the use of Selective Non-Catalytic Reduction (SNCR) and advanced combustion controls. The original proposed BACT level of SO_2 was on the basis of 0.17 lb/MMBtu, achieved through the use of lime spray drying. The original proposed BACT for particulate matter was 0.018 lb/MMBtu, achieved with a fabric filter. For CO and VOC, the original proposed BACT levels were on the basis of 0.11 and 0.0036 lb/MMBtu, respectively, achieved through advanced combustion controls. For beryllium, mercury, and arsenic, the original proposed BACT levels were on the basis of 2.73 x 10^{-6}, and 51.1 x 10^{-6} lb/MMBtu, respectively. Control of particulate matter through fabric filtration simultaneously achieves control of beryllium and arsenic, while control of SO_2 with spray drying also controls mercury emissions.

For the increase in allowable heat input being proposed, the facility proposes to meet the existing pound per hour and ton per year emission rates, using the existing control equipment. ICLP expects that the only physical modifications that may be needed to meet the existing permit limits at an increased load will be enhancements to the NO_x control system. All other permit limits can be met using the existing equipment (spray dryer absorber system and fabric filter baghouse).

Specific Condition 6 of the PSD permit allows the Facility "to use any technology (e.g. SNCR, SCR, or combustion controls) to achieve the NO_x limitation" for the PC boiler. ICLP will continue to meet the existing NO_x limitation. Per existing Condition of Certification (1).A.2., ICLP will provide details of the enhanced NO_x reduction system upon completion of final design, and at least 90 days prior to commencing on-site construction for the modification.

While final system design is still in progress, ICLP is considering the use of an SNCR system to augment the existing SCR system. The supplemental SNCR system would ensure compliance with the NO_x limitation at increased loads.

By meeting the existing emission rates at the higher heat input, the proposed action corresponds to a lower lb/MMBtu emission rate.

5.0 AIR QUALITY IMPACT ASSESSMENT

The bulk of the air quality impact assessment listed here is repeated from the original PSD air permit application in Appendix IV. Because maximum potential emission rates are not increasing, ambient impacts are not expected to increase. The increased airflow associated with a higher heat input rate will only increase the exit velocity, which will aid in plume rise and decrease ground-level impacts. Therefore, the facility proposes to use the modeling submitted in the original PSD permit application to document acceptable impacts from the current operation.

6.0 PROPOSED CHANGES TO PSD PERMIT

ICLP proposes the following changes to permit PSD-FL-168:

6.1 Output Rating Change Impacts

As stated above, ICLP will maintain the existing emission limits for the PC Boiler. The proposed rating change will require changes in the PSD Permit as follows.

The first sentence of Specific Condition 3 needs to be revised to read;

The maximum heat input to the PC boiler shall not exceed 4100 MMBtu/hr while firing coal.

The first sentence of Special Condition 5 needs to be revised to read;

Based on a permitted heat input of <u>4100</u> MMBTU/hr heat input, the stack emissions from the main boiler shall not exceed any of the following limitations:

6.2 Auxiliary Boiler Operating Hours

The original permit allowed one auxiliary boiler. This was amended at ICLP's request to permit the construction of two smaller boilers in place of one large boiler. The allowable hours of operation for each individual auxiliary boiler is not clear. ICLP wishes to revise the language of the PSD permit to clearly state the allowable operation for each individual auxiliary boiler. ICLP proposes to revise the second sentence of Specific Condition 4 of the PSD permit to state the following:

> *The heat input to both Auxiliary Boilers is limited to a combined total of less than 1.79×10^{12} British Thermal Units per year. The Auxiliary Boilers are each*

permitted to run 5,000 full load equivalent hours per calendar year, with no more than 1,000 hours of that period using fuel oil as the primary fuel.

This position was discussed in the ICLP original Operating Permit application in 1996, and the ICLP comments to the draft Operating Permit in 1998.

6.3 Ambient Monitoring

The Site Certification included a requirement for a pre and post-construction air monitoring program. These programs have been completed and the monitors removed based on verbal authorization from FDEP. In order to document that this requirement was successfully complied with, ICLP requests the following sentence be added to Specific Condition 26:

On [insert date], the Bureau of Air Monitoring and Assessment determined that the ambient monitoring program had been successfully completed and could be curtailed. Subsequently, the monitors as described in subsection b., above, were decommissioned and removed.

Indiantown Cogeneration Facility
Review of PSD Applicability

future potential versus current actual (1997 and 1998 annual emissions)

Pollutant	Permit Limits			Emissions		Comparison			Significant Emission Rates	
	Basis	Emission Limitation		1998	1997	future PTE to 1998	future PTE to 1997	future PTE to ave actual	PSD	PSD needed?
	(lb/MMBtu)	lb/hr	tpy	tpy	tpy	tpy	tpy	tpy	tpy	
Sulfur Dioxide	0.17	582	2549	1436.4	1385.94	1112.6	1163.06	1137.83	40	YES
Nitrogen Oxide	0.17	582	2549	1992	1959.01	557	589.99	573.495	40	YES
Particulate Matter	0.018	61.6	270	81.77	89.07	188.23	180.93	184.58	25	YES
PM10	0.018	61.6	270	81.77	89.07	188.23	180.93	184.58	15	YES
Carbon Monoxide	0.11	376	1649	89.94	97.98	1559.06	1551.02	1555.04	100	YES
Volatile Organic Compounds	0.0036	12.32	54	0	0	54	54	54	40	YES
Sulfuric Acid Mist	0.0004	1.45	6.51	0.5711	0.6235	5.9389	5.8865	5.9127	7	no
Beryllium	0.0000027	0.0094	0.041	0.0007132	0.000787	0.0402868	0.040213	0.0402499	0	YES
Mercury	0.0000114	0.039	0.17	0.010203	0.01122	0.159797	0.15878	0.1592885	0.1	YES
Lead	0.0000187	0.064	0.28	0.020406	0.02405	0.259594	0.25595	0.257772	0.6	no
Fluorides	0.0015	5.08	22.3	1.06027	1.16	21.23973	21.14	21.189865	3	YES
Arsenic	0.000051	0.18	0.77	0.010203	0.01139	0.759797	0.75861	0.7592035	0	YES

Appendix I

Permit Application Forms

Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Indiantown Cogeneration, L.P.	
2. Site Name: Indiantown Cogeneration Plant	
3. Facility Identification Number: 0850102 [ ] Unknown	
4. Facility Location: Street Address or Other Locator: 19140 SW Warfield Blvd City: Indiantown County: Martin Zip Code: 34956	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: David Burrage, Environmental Manager
2. Application Contact Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown State: FL Zip Code: 34956
3. Application Contact Telephone Numbers: Telephone: (561) 597-6500 Fax: (561)597-6520

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Permit Number:	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[ ] Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number:______________________

[ ] Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number:______________________

Operation permit number to be revised:______________________

[✓] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected:______________________

[ ] Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised:______________________

Reason for revision:______________________

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[✓] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1.	Name and Title of Owner/Authorized Representative or Responsible Official: Stephen Sorrentino, General Manager
2.	Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown State: FL Zip Code: 34956
3.	Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (561) 597- 6500 Fax: (561)597 - 6210
4.	Owner/Authorized Representative or Responsible Official Statement: *I, the undersigned, am the owner or authorized representative*(check here [ ], if so) or the responsible official (check here [✓], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.* 12/22/99 Signature Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1.	Professional Engineer Name: George S. Lipka Registration Number: 0050359
2.	Professional Engineer Mailing Address: Organization/Firm: Earth Tech Street Address: 196 Baker Avenue City: Concord State: MA Zip Code: 01742
3.	Professional Engineer Telephone Numbers: Telephone: (978)371- 4000 Fax: (978)371- 2468

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [✓], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

George P. [signature] — December 22, 1999

Signature — Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
001	Pulverized Coal Fired Main Boiler	ACM1	

Application Processing Fee

Check one: [ ] Attached - Amount: $____________________ [ ] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations: Modify PC Boiler to increase MW output to 390 MW.
2. Projected or Actual Date of Commencement of Construction: about April, 2000
3. Projected Date of Completion of Construction: about May, 2000

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone:	East (km):	North (km):	
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 27/2/20		Longitude (DD/MM/SS): 80/30/45	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911, 4961
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: David Burrage, Environmental Manager		
2. Facility Contact Mailing Address: Organization/Firm: Indiantown Cogeneration, L.P. Street Address: PO Box 1620 City: Indiantown	State: FL	Zip Code: 34956
3. Facility Contact Telephone Numbers: Telephone: (561)597 - 6500	Fax: (561)597 - 6210	

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [✓] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [✓] Major Source of Hazardous Air Pollutants (HAPs)?	
5. [ ] Synthetic Minor Source of HAPs?	
6. [✓] One or More Emissions Units Subject to NSPS?	
7. [ ] One or More Emission Units Subject to NESHAP?	
8. [✓] Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters): Major source of HAPs based on current estimates of HCL emissions.	

List of Applicable Regulations

62-210.300	62-213
62-210.350	62-273.300
62-210.370	62-297
62-210.500	62-296.405
62-210.550	62-204.800
62-210.700	40 CFR 60,Subpart Da
62-212.300	40 CFR 60,Subpart Db
62-212.400 (PSD-FL-168)	40 CFR 60,Subpart Y
62-212.410	
62-296.711	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
CO	A				
PB	B				
NOX	A				
PM	A				
PM10	A				
S02	A				
VOC	B				
SAM	B				
H021	B				
H114	B				
FL	B				
H015	B				
H106	A				

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [✓] Attached, Document ID:____1____ [ ] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [✓] Attached, Document ID:____2____ [ ] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [✓] Attached, Document ID:____3____ [ ] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
5. Fugitive Emissions Identification: [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
6. Supplemental Information for Construction Permit Application: [✓] Attached, Document ID:____4____ [ ] Not Applicable
7. Supplemental Requirements Comment: Document I.D. 1,2,3 found in Appendix II Document I.D. 4 is addressed as the main body of text.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: [ ] Attached, Document ID:________ [ ] Not Applicable	
9. List of Equipment/Activities Regulated under Title VI: [ ] Attached, Document ID:________ [ ] Equipment/Activities On site but Not Required to be Individually Listed [ ] Not Applicable	
10. Alternative Methods of Operation: [ ] Attached, Document ID:________ [ ] Not Applicable	
11. Alternative Modes of Operation (Emissions Trading): [ ] Attached, Document ID:________ [ ] Not Applicable	
12. Identification of Additional Applicable Requirements: [ ] Attached, Document ID:________ [ ] Not Applicable	
13. Risk Management Plan Verification: [ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:________) or previously submitted to DEP (Date and DEP Office:________________________) [ ] Plan to be submitted to CEPPO (Date required:________________________) [ ] Not Applicable	
14. Compliance Report and Plan: [ ] Attached, Document ID:________ [ ] Not Applicable	
15. Compliance Certification (Hard-copy Required): [ ] Attached, Document ID:________ [ ] Not Applicable	

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[✓] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Regulated or Unregulated Emissions Unit? (Check one)

[✓] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):

4. Emissions Unit Identification Number: [ ] No ID
ID: 001 [ ] ID Unknown

5. Emissions Unit Status Code: A	6. Initial Startup Date: July 1, 1995	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method): Air preheater, Low NOx burner, overfire air. Combustion control/O2 control, ammonia injection and catalytic reduction SCR system, spray dryer absorber, and fabric filter baghouse.
2. Control Device or Method Code(s): 027

Emissions Unit Details

1. Package Unit: Manufacturer:	NA	Model Number:	
2. Generator Nameplate Rating:	390	MW	
3. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:			 °F seconds °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	4100	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:	24 hours/day 52 weeks/year	7 days/week 8760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

40 CFR 60.1 – 60.15	
40 CFR 60.17	
40 CFR 60.19	
40 CFR 60.40a	
40 CFR 60.41a	
40 CFR 60.42a (a), (b)	
40 CFR 60.43a (a)(2), (b)(2), (g), (h)(2)	
40 CFR 60.44a (a), (c)	
40 CFR 60.46a (a-c, e-h)	
40 CFR 60.46a (a), (b)(3), (c-j)	
40 CFR 60.48a (a-e)	
40 CFR 60.49a (a-c, f-I)	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? Main Stack	2. Emission Point Type Code: 2	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Main Stack		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: PC boiler (001), Proposed CO2 Plant (007)		
5. Discharge Type Code: V	6. Stack Height: 495 feet	7. Exit Diameter: 16 feet
8. Exit Temperature: 140 °F	9. Actual Volumetric Flow Rate: 1123700 acfm	10. Water Vapor: 15.00 %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone:	East (km):	North (km):
14. Emission Point Comment (limit to 200 characters): Airflow in dscfm not listed because the PC boiler has no emission limits in grains/dscfm. Acfm listed are approximate.		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment __1__ of __4__

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Coal firing		
2. Source Classification Code (SCC): 1-01-001-01	3. SCC Units: Tons burned (all solid fuels)	
4. Maximum Hourly Rate: 145.00	5. Maximum Annual Rate: 1,270,200.00	6. Estimated Annual Activity Factor: 0.00
7. Maximum % Sulfur: 2.00	8. Maximum % Ash: 12.00	9. Million Btu per SCC Unit: 24
10. Segment Comment (limit to 200 characters):		

Segment Description and Rate: Segment __2__ of __4__

1. Segment Description (Process/Fuel Type) (limit to 500 characters): No.2 Oil firing		
2. Source Classification Code (SCC): 1-01-005-01	3. SCC Units: Thousands Gallons Burned (all liquid fuels)	
4. Maximum Hourly Rate: 12.70	5. Maximum Annual Rate: 111,135.00	6. Estimated Annual Activity Factor: 0.00
7. Maximum % Sulfur: 0.05	8. Maximum % Ash:	9. Million Btu per SCC Unit: 135
10. Segment Comment (limit to 200 characters): PC Boiler does not currently fire No. 2 oil. No.2 oil would be fired during startup, shutdown and load changes. Firing capacity no more than 50% rated boiler heat input.		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment __3__ of __4__

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Natural Gas firing		
2. Source Classification Code (SCC): 1-01-006-01	3. SCC Units: Million cubic feet burned (all gaseous fuels)	
4. Maximum Hourly Rate: 1.80	5. Maximum Annual Rate: 15,777.00	6. Estimated Annual Activity Factor: 0.00
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 950
10. Segment Comment (limit to 200 characters): Fired during stratup, shutdown and load changes. No more than 50% rated boiler heat input.		

Segment Description and Rate: Segment __4__ of __4__

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Propane (LPG) Firing		
2. Source Classification Code (SCC): 1-01-010-02	3. SCC Units: Thousands Gallons Burned (all liquid fuels)	
4. Maximum Hourly Rate: 18.90	5. Maximum Annual Rate: 165,617.00	6. Estimated Annual Activity Factor: 0.00
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 90
10. Segment Comment (limit to 200 characters): Burned during startup, shutdown and load changes. No more than 50% rated boiler heat input.		

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO	025	033	EL
PB	017		EL
NOX	032	065	EL
PM	017		EL
PM10	017		EL
SO2	067	017	EL
VOC	025	033	EL
SAM	067	017	EL
H021	017		EL
H114		042	EL
FL	067	017	EL
H015	017		EL
H106	067	017	EL

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:
3. Potential Emissions: 376.00 lb/hour 1,649.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: PB	2. Total Percent Efficiency of Control: 99.00%
3. Potential Emissions: 0.03 lb/hour 0.15 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
10. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: NOX	2. Total Percent Efficiency of Control: 37.00 %
3. Potential Emissions: 582.00 lb/hour 2,549.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
11. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control: 99.70
3. Potential Emissions: 61.60 lb/hour 270.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
12. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: PM10	2. Total Percent Efficiency of Control: 99.70
3. Potential Emissions: 61.60 lb/hour 270.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
13. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SO2	2. Total Percent Efficiency of Control: 95.00
3. Potential Emissions: 582.00 lb/hour 2,549.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit	
14. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

<u>Potential/Fugitive Emissions</u>

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 12.32 lb/hour 54.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit	
15. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

<u>Allowable Emissions</u> Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SAM	2. Total Percent Efficiency of Control: 95.00
3. Potential Emissions: 1.45 lb/hour 6.51 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
16. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: H021	2. Total Percent Efficiency of Control: 99.00
3. Potential Emissions: 0.01 lb/hour 0.04 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
17. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

Emissions Unit Information Section ______ of ______

Pollutant Detail Information Page ______ of ______

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: H114	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.04 lb/hour 0.17 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit	
18. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: FL	2. Total Percent Efficiency of Control: 95.00
3. Potential Emissions: 5.08 lb/hour 22.30 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
19. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: H015	2. Total Percent Efficiency of Control: 99.00
3. Potential Emissions: 0.18 lb/hour 0.77 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 3
8. Calculation of Emissions (limit to 600 characters): Limit per PSD permit Control efficiency not used to calculate potential emissions	
20. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Limit per PSD permit	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: H106	2. Total Percent Efficiency of Control: 95.00
3. Potential Emissions: 10.70 lb/hour 47.00 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ___ to ___ tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 2
8. Calculation of Emissions (limit to 600 characters): Mass balance on 2/96 grab sample test for chlorine content in coal. Chlorine weight fraction times maximum expected coal firing rate, assume all chlorine becomes HCl, assume 97% control in spray dryer/baghouse.	
21. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions ______ of ______

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ______ of ______

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment (limit to 200 characters):	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram [✓] Attached, Document ID:___3____ [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [✓] Attached, Document ID:___4____ [ ] Not Applicable [ ] Waiver Requested
3. Detailed Description of Control Equipment [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:________ [✓] Previously submitted, Date: March, 1996 [ ] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:________ [ ] Not Applicable [✓] Waiver Requested
8. Supplemental Information for Construction Permit Application [✓] Attached, Document ID:___4____ [ ] Not Applicable
9. Other Information Required by Rule or Statute [ ] Attached, Document ID:________ [✓] Not Applicable
10. Supplemental Requirements Comment: Document I.D. 3 is located in appendix II Document I.D. 4 is addressed as the main body of text.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation [ ] Attached, Document ID:________ [ ] Not Applicable
12. Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID:________ [ ] Not Applicable
13. Identification of Additional Applicable Requirements [ ] Attached, Document ID:________ [ ] Not Applicable
14. Compliance Assurance Monitoring Plan [ ] Attached, Document ID:________ [ ] Not Applicable
15. Acid Rain Part Application (Hard-copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID:________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID:________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID:________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID:________ [ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID:________ [ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID:________ [ ] Not Applicable

Appendix II

Drawings

Document ID: 3

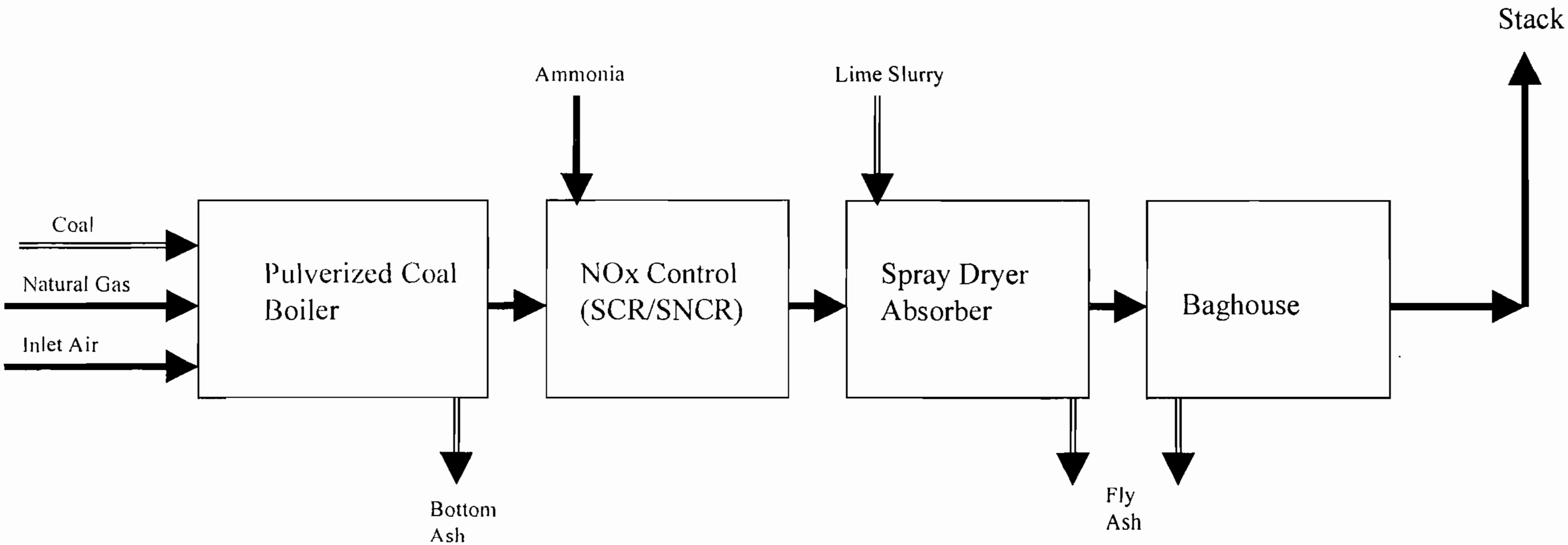
PC Boiler Plant
Simplified Process Diagram

EARTH TECH

A Jablonowski 12/23/99

Vapor Streams

Liquid/Solid Streams



Appendix III

Supporting Calculations and Emission Data

Appendix IV

Original Air Dispersion Modeling Documentation

AIR QUALITY IMPACT ANALYSIS
IN SUPPORT OF A
PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT APPLICATION
FOR THE PROPOSED
INDIANTOWN COGENERATION PROJECT

Prepared by
Bechtel Corporation
Gaithersburg, Maryland

Prepared for
Florida Department of Environmental Regulation
Tallahassee, Florida

December 1990

1.0 INTRODUCTION

The Indiantown Cogeneration L.P. (ICL) Project is proposed to be constructed at a site along Highway 710 approximately 3 miles northwest of the community of Indiantown and 9 miles east of Lake Okeechobee, Florida. The proposed site is southwest of and abuts the Caulkins Citrus Processing facility and the Florida Steel Corporation Indiantown steel mill property. The site occupies the central portion of Section 35, Township 39 South, Range 38 East, Martin County, Florida.

The U.S. Environmental Protection Agency (EPA) has promulgated Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) which require a permit review and approval for new or modified existing sources which emitted criteria pollutants in amount greater than the significant emission levels. Since the proposed source will have emissions which exceed the significant levels, the proposed ICL plant is subject to PSD review. Based on the Florida Administration Code (FAC, 17-2.510), the State of Florida has the PSD authority through the Florida Department of Environmental Regulation (FDER). A completed FDER Form 17-1.202(1) for Application to Operate/Construct Air Pollution Sources is attached.

Although part of the SCA process, this document is prepared as a complete PSD permit application. Therefore, design information and analysis required by the federal and state regulations are included in this document. The following sections include:

- o A discussion of the regulatory rationale as it applies to the project (Section 2.0)
- o A description of the technical approaches used for the various air quality impact analyses (Section 3.0)
- o A description of the development of dispersion model input parameters, including model options, emission data, meteorological data, and other relevant parameters (Section 4.0)
- o Results of the dispersion modeling (Section 5.0)
- o A summary of the visibility impact analysis (Section 6.0)
- o The analyses of other air quality related effects, including effects on soil and vegetation, cooling tower impacts, and a health effects evaluation for the state regulated air toxics (Section 7.0)

2.0 REGULATORY RATIONALE

This section provides an overview of the project and summarizes the basis for identifying the air quality regulations with which the project must comply.

2.1 PROJECT DESCRIPTION

The proposed plant will be a 330 MW net pulverized-coal-fired facility. The facility includes one boiler and one steam generator. Lightoff and startup will be with natural gas or No. 2 fuel oil. Extracting steam will be supplied to the adjacent Caulkins Citrus Processing Plant. The flue gas desulfurization (FGD) system for sulfur dioxide (SO_2) removal is proposed to be a dry scrubber. Particulate emissions will be removed from the flue gas by means of multi-compartment fabric filter (baghouse) before discharging from the plant stack. The stack will meet good engineering practice (GEP) stack height specifications.

Solid waste will be removed by rail or truck for off-site disposal. Cooling at the plant will be achieved by means of a mechanical draft cooling tower.

2.1.1 FUEL

The proposed primary fuel will be eastern bituminous coal having a sulfur content of 2.0 percent. Natural gas and No. 2 fuel oil will be used for lightoff and startup. A representative fuel analysis for these fuels is presented in Table 2-1.

Coal will be delivered by rail, unloaded, and stored in an enclosed storage facility on site. A grassed inactive coal pile, sized for 30 days storage at full load, is also provided. Lime used for sulfur capture in the flue gas cleanup system will be delivered by train or in enclosed, self-unloading trucks and stored in an enclosed structure.

Fuel oil is stored in aboveground tanks located within a diked area. No. 2 fuel oil will be delivered by truck or rail.

An emission inventory for the proposed ICL plant has been developed based on applicable New Source Performance Standards (NSPS) as well as vendor-supplied data or appropriate EPA AP-42 emission factors. The total plant flue gas discharge will be based on the following:

	Main Boiler, Coal		Aux. Boiler, Oil	
Pollutant	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu
SO_2	582.6	0.17	17.73	0.05
NO_X	582.6	0.17	68.2	0.20

	Main Boiler, Coal		Aux. Boiler, Oil	
Pollutant	lb/hr	lb/MMBtu	lb/hr	lb/MMBtu
CO	377	0.11	150(a)	47.3
Particulate	61.7	0.018	1.4	-
VOC	12.3	0.0036	0.63	-
Pb	0.035	0.00003	0.00083	-

Note: (a) Unit is ppm.

The ICL emissions with respect to regulated criteria and non-criteria air pollutants for full load (100 percent) and partial loads (75 percent and 50 percent) are presented in Section 4.0. Fugitive emissions resulting from coal handling, storage and ash handling are presented in Section 4.0.

Five scenarios were examined to determine the worst-case air quality impacts based on the emissions and the associated stack parameters. Scenarios considered are:

Case	Fuel	Load (%)
1	Coal	100
2	Coal	75
3	Coal	50
4	Gas	100
5	Oil	100

Cases 4 and 5 involve an auxiliary boiler, usually during lightoff and startup stages. However, the auxiliary boiler may be operated continuously for several months if necessary. Thus, long-term impact analysis is also performed for these two cases.

2.1.2 EMISSION CONTROL

The flue gas cleanup system consists of an FGD system and a baghouse for particulate control. The proposed FGD system for SO_2 removal will consist of a spray dryer absorber using lime slurry as the reagent. The system is designed to have a sulfur removal efficiency of 95 percent for coal with a sulfur content of 2.0 percent. Particulate emissions are removed from the flue gas by means of a multi-compartment bag filter before discharging from the plant stack. NO_X emissions from the stack are controlled by advanced combustion controls and a selective noncatalytic reduction (SNCR) technology. The emission control system proposed for the ICL plant represents the best available control technology (BACT). The BACT analysis, which is based on the "top-down" approach, is also presented.

Fugitive emissions from coal storage and material handling are controlled by enclosing most of these operations and venting through fabric filters. A summary description of emission controls for these fugitive dust sources is presented in Section 4.2.1.

2.1.4 PROJECTED CONSTRUCTION SCHEDULE

The construction schedule is preliminary, based on information available at this time. Construction is projected to take place in a single phase. Site preparation work could be initiated as early as July 1992. It is anticipated that commercial operation of the facility will begin in December 1995.

2.2 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABLE REGULATIONS

The applicability of three federal regulations promulgated as a result of passage of the Clean Air Act amendments of 1977 must be considered in the evaluation of the regulatory requirements and their applicability to the proposed ICL plant.

2.2.1 PREVENTION OF SIGNIFICANT DETERIORATION

Sources that are "major stationary sources" and "major modifications" located in areas designated as attainment or unclassifiable for National Ambient Air Quality Standards (NAAQS) are subject to the PSD regulations. Since Martin County and the surrounding counties are designated as "in attainment or cannot be classified" for all criteria pollutants (40 CFR 81.310), the task at hand is to determine whether the proposed facility would be classified as a major source under the PSD regulations. A "major stationary source" is defined as any one of 28 specified sources which has a potential to emit 100 tons per year or more, or any other stationary source which has the potential to emit 250 tons per year or more of any regulated pollutant (40 CFR 52.21).

The proposed facility is listed as a 100-ton per year source (fossil-fuel-fired steam electric plants of more than 250 million Btu/hr heat input) and has the potential to emit more than 100 tons of a criteria pollutant (see Section 2.1.2). Therefore, the proposed facility is subject to PSD review.

Under PSD, each pollutant emitted from a major source in significant quantities, as defined in Table 2-2, and for which the area is designated as "in attainment" for the pollutant, must undergo a PSD analysis. The PSD analysis involves the following:

- o BACT analysis
- o PSD Increment Consumption Analysis, including other increment-consuming sources in the area (if applicable)
- o NAAQS impact analysis, including other significant sources in the area (if applicable)

- o Nonattainment area impact analysis
- o Class I PSD area impact analysis
- o Other air quality-related impact analyses

Each of these is briefly described in the following paragraphs.

BACT Analysis. For all pollutants emitted at significant levels (see Table 2-2), a control technology must be selected and defended that will result in the maximum reduction in pollutant emissions considered achievable for the source using current technology. Energy requirements, environmental impacts, and economic impacts must be considered in the BACT analysis.

PSD Increment Consumption. An ambient air quality analysis must be conducted for total suspended particulate matter (TSP), SO_2, and nitrogen dioxide (NO_2) for those pollutants with a resultant significant impact due to the proposed facility. If required, the analysis must demonstrate that the PSD ambient air quality increments, shown in Table 2-3, are not exceeded by the proposed project. Since the facility will be located in a Class II area, only those increments apply to this project. Finally, since there are a number of other known increment-consuming sources in the site area, the increment consumption analysis for the proposed facility must include these other sources if they produce overlapping significant air quality impacts.

National and Florida Ambient Air Quality Standards. The ambient air quality analysis must also demonstrate that the project's air quality impact, plus applicable background levels, does not exceed the NAAQS and Florida Ambient Air Quality Standards (FAAQS) shown in Table 2-4. As before, the analysis is required only for those pollutants emitted in significant quantities (see Table 2-2) with a resultant significant impact due to the facility. Other major sources of the applicable pollutants (i.e., with emissions greater than 100 tons per year) must also be included if those sources produce overlapping significant impacts.

Nonattainment Area Impact Analysis. A demonstration that the proposed source will not significantly impact designated nonattainment areas must be included in the ambient air quality analysis.

Palm Beach County, about 9 kilometers south of the site, is the only nonattainment area (for ozone) in the vicinity of the proposed facility. The proposed source has VOC emissions that are greater than the PSD significant emission rate. However, as stated in the air quality modeling protocol for the proposed ICL plant submitted to FDER in July 1990, the U.S. EPA Guideline on Air Quality Models (EPA, 1986a) indicates that "the use of models incorporating complex chemical mechanisms should be considered only in a case-by-case basis with proper demonstration of applicability. These are generally regional models not designed for the evaluation of individual sources but used primarily for region-wide evaluations." This statement and the fact that the proposed facility is not located in an ozone nonattainment area preclude subjecting the proposed ICL plant to a VOC emissions impact assessment.

Impacts on Class I PSD Areas. Any source within 100 kilometers of a Class I area must also demonstrate insignificant levels for air quality impacts at that area. Since the proposed facility is approximately 145 kilometers north of the Everglades National Park (a Class I area), the proposed facility is not subject to this provision of the PSD review process.

Additional Impacts Analysis. Any source subject to the PSD regulations must also provide an analysis of any adverse air quality-related impacts to:

- o Visibility
- o Soils
- o Vegetation
- o Commercial, residential, and industrial growth that the project might cause

2.2.2 NEW SOURCE PERFORMANCE STANDARDS

The NSPS apply to new, modified, and reconstructed sources of emissions for which the U.S. EPA has promulgated standards. The EPA promulgated NSPS for fossil-fuel-fired steam generators (40 CFR 60, Subpart D) with a heat input greater than 250 MMBtu per hour in 1971. Since its promulgation, the EPA has proposed revisions and amendments to Subpart D a number of times. One of the amendments, Subpart Da, would apply to the proposed ICL plant. Subpart Da was proposed in 1978 and promulgated in 1979 and specifically applies to electric utility steam generating units.

Electric utility steam generating units are subject to NSPS Subpart Da provided they meet all three of the following criteria. If the plant does not meet any one of the criteria, it may still be subject to NSPS (e.g., the promulgated and proposed emission limits in Subpart Db). Subpart Da is applicable to electric steam generating units that:

- o Are capable of combusting more than 73 MW (250 MMBtu/hr) heat input of fossil fuel either alone or in combination with any other fuel
- o Supply more than 25 MW electricity to any utility power distribution system for sale
- o Supply more than one-third of their potential electric output capacity to any utility power distribution system for sale

The proposed project meets these three criteria and thus is subject to the NSPS requirements set forth in Subpart Da. These requirements are summarized specifically for coal-fired boilers in Table 2-5.

Section 60.46a(c), Compliance Provisions, provides that the standards for particulate matter, nitrogen oxides (NO_X), and SO_2 apply at all times, except during periods of startup, shutdown, or malfunction, or when emergency conditions exist.

2.2.3 FLORIDA AIR TOXICS NO-THREAT LEVELS

The Florida air toxics "no-threat" levels were developed by the Florida Air Toxics Working Group for controlling toxic emissions from stationary sources to levels which will not endanger public health. The impact of all toxic air contaminants emitted by new sources must be evaluated based on the air toxics permitting guidelines (Florida Air Toxics Permitting Strategy, draft, 1990). Air toxics emitted by the proposed ICL plant will be evaluated and compared with the appropriate "no-threat" levels regulated by the FDER.

Table 2-1
FUEL ANALYSIS

Ultimate Analysis

Element	Coal[a]	No. 2 Oil	Natural Gas
	Gravimetric Breakdown (%)		
Carbon	65.37	87.26	73.913
Hydrogen	4.63	12.67	24.047
Oxygen	4.69	0.00	1.249
Nitrogen	1.16	0.02	0.773
Sulfur	2.00	0.05	0.018
Chlorine	0.15	--	--
Ash	12.00	--	--
Water	10.00	--	--
Total	100.00	100.00	100.00

Proximate Analysis

Component	No. 2 Oil	Natural Gas
Volatile Matter	99.395	99.92
Fixed Carbon	0.425	0.00
Moisture	0.05	0.00138
Ash	0.05	0.00
Sulfur	0.05	0.018
Total	100.00	100.00

The heat of combustion of coal, No. 2 fuel oil, and natural gas are estimated to be 11,800 Btu/lb, 19,130 Btu/lb, and 950 Btu/ft^3, respectively.

a - Worst case fuel.

Table 2-2
PSD SIGNIFICANT EMISSION RATES AND MAXIMUM TOTAL EMISSION RATES FOR THE PROPOSED INDIANTOWN COGENERATION PROJECT

Pollutant	Significant Emission Rate (tons/yr)[a]	Maximum Total Emission Rate (tons/yr)[b]	Air Quality Analysis Required?
Particulate Matter (TSP)	25	306.1[c]	Yes
PM-10	15	276.2[c]	Yes
Sulfur Dioxide	40	2629.4	Yes
Nitrogen Oxides	40	2850.5	Yes
Volatile Organic Compounds	40	56.6	Yes
Carbon Monoxide	100	1858.4	Yes
Lead	0.6	0.152	No
Mercury	0.1	0.172	Yes
Beryllium	0.0004	0.041	Yes
Fluorides	3	22.26	Yes
Asbestos	0.007	0	No
Vinyl Chloride	1	0	No
Total Reduced Sulfur	10	0	No
Hydrogen Sulfide	10	0	No
Reduced Sulfur Compounds	10	0	No
Sulfuric Acid Mist	7	6.51	No
Any other pollutant regulated under Clean Air Act	Any rate	—	—
Benzene		0	No
Inorganic Arsenic		0.766	Yes
Each regulated pollutant	Any rate causing an impact of 1 μg/m^3 (24-hr average) or greater in any Class I area within 10 km of source.		No[d]

a - Source: 40 CFR 52.21(b).
b - Maximum total emissions are based on the maximum hourly emission rate; 8,760 hrs/yr and 1,000 hrs/yr of operation for the main and auxiliary boilers, respectively, with an annual load factor of 100 percent for both boilers.
c - Maximum total TSP and PM-10 emissions are conservatively assumed to be the same and include fugitive emission sources listed in Table 4-2.
d - The closest Class I PSD area is the Everglades National Park, located about 145 km south of the proposed ICL. Therefore, air quality analyses are not required on this basis.

Table 2-3
MAXIMUM ALLOWABLE PSD INCREMENTS
($\mu g/m^3$)

	Class I	Class II	Class III
Sulfur Dioxide			
Annual	2	20	40
24-hour	5	91	182
3-hour	25	512	700
Total Suspended Particulate Matter			
Annual	5	19	37
24-hour	10	37	75
Nitrogen Dioxide			
Annual	2.5	25	50

Source: 40 CFR 52.21(c).

Table 2-4
STATE OF FLORIDA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal NAAQS ($\mu g/m^3$)	Florida AAQS ($\mu g/m^3$)
PM[1]	24-Hour	150	150
	Annual	50	50
SO_2	3-Hour	1,300[2]	1,300[2]
	24-Hour	365	260
	Annual	80	60
NO_2	Annual	100	100
CO	1-Hour	40,000	40,000
	8-Hour	10,000	10,000
Ozone	1-Hour	235	235
Lead	Calendar Quarter	1.5	1.5

[1]Ambient air quality standards are based on PM_{10}, and PSD increments are based on TSP until such time as EPA promulgates PSD increments for PM_{10}. Compliance with PM_{10} ambient standard and PSD increments for TSP were evaluated based on TSP modeled impacts.

[2]The 3-hour average SO_2 ambient air quality standard is a secondary (welfare-related) standard. All of the other Federal and Florida ambient air quality standards are primary (health-related) standards.

Sources: 40 CFR 50.
FDER, Title 17, Part III, Chapter 17-2.300.

Table 2-5
NSPS FOR ELECTRIC UTILITY STEAM GENERATING UNITS

Affected Facility	Pollutant	Emission Level	Requirement
Coal-fired boilers (and coal-derived fuels)	Particulate Opacity	0.03 lb/million Btu 20% (27% for 6 min/hr)	Continuous Compliance
	SO_2	1.20 lb/million Btu and 90% reduction except 70% reduction when emissions are less than 0.6 lb/million Btu	Continuous
	NO_x		Continuous Compliance
	Anthr icite, bituminous, and specified lignites.	0.60 lb/million Btu	
	Subbituminous coal, coal-derived fuels, and shale oil.	0.50 lb/million Btu	
	More than 25% (wt.) coal refuse.	Exempt	

Source: 40 CFR 60, Subpart Da. Proposed 19 September 1987 (43FR 42154), promulgated 11 June 1979 (44FR 33613).

3.0 TECHNICAL APPROACH

The purpose of this section is to present the technical approach for addressing the key elements of the various air quality impact analyses discussed in this report. These key elements include: (1) determining GEP stack height; (2) defining air quality impact areas; (3) establishing the emission inventories to be analyzed; (4) estimating background air quality conditions; (5) describing the dispersion modeling methodologies to be used to estimate PSD increment consumption and compliance with ambient standards; and (6) evaluating other air quality-related impacts (e.g., visibility impairment, source growth, effects on soils and vegetation, cooling tower impacts, and the potential for adverse health effects).

3.1 GOOD ENGINEERING PRACTICE STACK DETERMINATION

A stack built to GEP height will avoid atmospheric downwash effects and eliminate this from having to be considered for dispersion modeling.

The GEP stack height (H_g) is defined by the following equation (EPA, 1985):

$$H_g = H_b + 1.5\,(L)$$

where: H_b = the height of nearby structures
L = the lesser dimension of the height or projected width of nearby structures

The length, width, and height dimensions of the adjacent boiler building and coal storage-silo bay, which are the tallest buildings on the site, and other nearby structures with the potential to cause building downwash have been considered in this evaluation. The downwind distance to which a nearby structure is presumed to have a significant influence on the stack emissions is limited to 5(L).

For the proposed ICL plant, a GEP stack height of 500 feet was determined from the above formula. This GEP stack height was calculated based on the height of the boiler building (200 feet) and the maximum projected width of the boiler building (209.3 feet). Since ICL intends to use a sub-GEP stack height of 495 feet (above grade), the dispersion modeling analyses were based on this sub-GEP stack height.

3.2 DEFINING THE IMPACT AREAS

As a conservative approach, the impact areas for each criteria pollutant, (i.e., SO_2, TSP, PM-10, NO_2 and CO) are defined as a circular area whose radius is equal to the greatest distance to which dispersion modeling shows that the proposed emissions will have a significant impact. These significant ambient air quality impact levels are given in Table 3-1 (EPA, 1987a).

Impact area determinations for each averaging period applicable to these pollutants were made using the dispersion modeling approach discussed in Section 3.5. The circle enclosing the farthest radial distance to which significant impacts are predicted defines the "modeling area" for a specific pollutant and averaging time. If there is no significant impact area for a given pollutant emitted by the proposed facility, no further modeling is needed for that pollutant. Based on the modeling results in Section 5.1, significant impact areas for the criteria pollutants subject to PSD review for the proposed ICL plant are summarized in Table 3-2. Impact areas extend to 4.25 km and 4.5 km for SO_2 (24-hour average) and NO_2 (annual average), respectively. Other pollutants have no significant impact areas calculated. The following section addresses the development of the modeled emission inventory on the basis of these results.

3.3 ESTABLISHING THE EMISSION INVENTORY

The emission inventory for the proposed ICL plant is presented in Section 2.1.2. Generally, when a proposed facility has a significant air quality impact for one or more criteria pollutants, it is necessary to identify those other sources in the area that emit those pollutants in significant amounts (i.e., 100 tons per year) or that consume available PSD increment levels. The procedure for developing these interactive and PSD increment consuming emission inventories is to identify any sources of these two types that are located in or have a significant impact on the impact area of the proposed source.

The modeling results show that there are significant SO_2 and NO_2 impacts; therefore, other sources of these pollutants need to be identified.

Emission parameters for the proposed ICL plant under different operating loads are presented in Section 4.2.

3.4 BACKGROUND AIR QUALITY DETERMINATION

Representative air quality monitoring data are needed to determine background levels for those pollutants with estimated significant impacts. EPA guidance specifies that generally 1 year of onsite air quality and meteorological monitoring data is required to support the PSD permit application (EPA, 1987a). However, the use of existing, representative data is acceptable if the impacts of the applicable pollutants: (1) are below the monitoring de minimis levels (see Table 3-3); (2) do not threaten the PSD increment or the NAAQS; or (3) do not significantly impact the nearest Class I PSD area.

The impacts of all criteria pollutants are well below the de minimis monitoring levels and do not pose a threat to either the PSD increments or the NAAQS (see Section 5.2 and 5.3). Therefore, an onsite monitoring program is not required, and existing air quality data collected adjacent to the ICL site will be used to demonstrate compliance with the air quality standards (FDER letter, July 23, 1990, see Attachment A).

Existing air quality data are available from monitoring stations operated by Florida (FDER, 1987-1989) for the criteria pollutants and by Florida Power & Light (FPL) (October 1988 - October 1989) for SO_2, NO_2, PM-10, and ozone for the Martin Coal Gasification/Combined Cycle (CG/CC) project in the immediate vicinity (within about 3 miles) of the proposed ICL plant. The criteria for determining data representativeness consider monitor location, data quality, and how current the data are (EPA, 1987a). Section 5.3.1 discusses the evaluation of data representativeness and identifies the background levels to be used.

Since recent monitoring data are available, the FDER considers it appropriate to define 3- and 24-hour average background levels based on the highest of the second-highest concentrations over the most recent 3-year measurement period. Annual average background levels are determined from the highest of the annual average values measured over the 3-year period. Total impacts are calculated as the sum of the incremental modeled concentration (see Section 3.5) and the corresponding background level. This is a conservative approach because: (1) the day associated with the incremental modeled concentration does not coincide with the day of maximum background measurement; (2) the greater of the background values, determined as above from among the regional stations considered, was used, and (3) for PM-10, incremental TSP concentrations were used.

3.5 DISPERSION MODELING ANALYSIS

3.5.1 PSD INCREMENT CONSUMPTION

TSP impacts (see Section 5.1.2) due to emissions from the ICL stacks and fugitive sources are less than the significant levels specified for annual and 24-hour averging periods and are, therefore, not considered in the PSD incremental analysis.

As indicated in Section 3.2, significant impact areas were identified for SO_2 and NO_2. Therefore, PSD increment consuming sources which emit SO_2 and NO_2 and are located in or have significant impacts on the significant impact area of the proposed source are included in the PSD incremental analysis.

3.5.2 AMBIENT AIR QUALITY STANDARD COMPLIANCE

Compliance with the applicable federal and state ambient air quality standards listed in Table 2-5 will be demonstrated through the dispersion modeling results presented in Section 5.1. These modeled concentrations were combined with representative background air quality levels determined in accordance with the technical approach outlined in Section 3.4 to determine the total impact. Again, because SO_2 and NO_2 emissions from the proposed ICL plant have their significant impact areas established, other major SO_2 interactive sources located in or having a significant impact on the impact areas of the proposed source are considered in evaluating the total combined impacts to the ambient air quality. TSP and PM-10 impacts were based on emissions only from the proposed facility for the reasons given above. Results from the separate analyses of fugitive and stack emissions were included. Lead and other pollutants that have health-related no-threat levels established by the FDER are also addressed.

SO_2 is the primary pollutant of concern for this project. Short-term impacts for other pollutants were scaled from SO_2 modeling results in proportion to their respective emission rates. Annual average NO_2, TSP, and PM-10 impacts were scaled directly from the SO_2 modeling output.

The ratios between CO and SO_2 emissions are 0.65 and 2.67 for the main boiler and the auxiliary boiler stacks, respectively. Thus, the maximum CO 1- and 8-hour impact locations do not necessarily occur at the same locations as those based on the SO_2 emissions. Consequently, 1- and 8-hour average CO impacts were modeled independently.

According to EPA modeling guidance (EPA, 1986a), it is appropriate to use the highest second-highest modeled concentration for short-term averaging periods (i.e., 1-, 3-, 8-, and 24-hour) when the analysis is based on the use of 5 years of offsite meteorological data (see Section 4.3). Annual average impacts are to be based on the maximum modeled value over the 5-year period. This guidance was followed in presenting the results given in Section 5.1.

3.5.3 MODEL SELECTION

The air quality dispersion modeling analyses required to support this PSD permit application are identified in the sections above and are described in more detail in Section 4.0. The EPA Industrial Source Complex - Short Term (ISCST) dispersion model (EPA, 1987b) was selected for these analyses because of its ability to simulate the dispersion of emissions from multiple point and area sources. In addition, the model is capable of accounting for building wake effects on dispersion, allowing for variable emission rates with time and with meteorological conditions (e.g., wind erosion), and considering the effects of particle deposition by gravitational settling. This latter phenomenon occurs with a significant fraction of the relatively large particle sizes found in fugitive dust emissions. These capabilities have resulted in EPA's designation of ISC as the preferred model for estimating concentrations from sources with these characteristics (EPA, 1986a).

The current version of the ISCST model (dated 88348) was used. This version incorporates the Schulman-Scire direction-dependent building wake algorithm and other enhancements. Current EPA guidance suggests that the ISCLT (Long Term) model not be used because of several inaccuracies in the code. As a result, annual average concentrations in these analyses were based on the "N-Days" averaging option in the ISCST model.

Output results for these dispersion modeling analyses are presented in Section 5.1.

3.6 VISIBILITY IMPACT ANALYSIS

A visibility impact analysis is one of three additional analyses required to be made in support of the air quality portion of a PSD permit application.

There are no Federal PSD Class I areas within 100 km of the proposed site. The closest PSD Class I area is the Everglades National Park located about 145 km south of the proposed site. A visibility screening analysis was performed to determine the potential visibility impairment. The FDER-suggested VISCREEN model (EPA, 1988c) was used to perform this analysis.

3.7 OTHER AIR QUALITY RELATED IMPACTS

Besides the visibility impact analysis discussed in the previous section, two additional impact analyses are required to support this PSD permit application. They are a soils and a vegetation impact analysis. In addition, two other analyses were performed. The first of these analyses addresses the potential for enhanced fogging and icing conditions resulting from the operation of the heat dissipation system (cooling tower) at the plant. The second analysis addresses the potential for adverse health effects due to the emission of air toxics from the facility.

3.7.1 GROWTH ANALYSIS

The typical elements of the growth analysis include: 1) a projection of the associated industrial, commercial, and residential growth that will occur in the area; 2) an estimate of the air pollution emissions generated by associated permanent growth; and 3) an air quality analysis which includes these estimates.

The availability of residential, commercial, and industrial services in the area was assessed first. Next, new growth which must occur to support the proposed source was predicted. The amount of residential growth depends on the size of the available work force, the number of new employees, and the availability of housing in the area. Industrial growth is growth in those industries providing goods and services, maintenance facilities, and other large industries necessary for the operation of the proposed facility. Based on the predicted growth, an estimate of the air pollution which likely would evolve from permanent residential, commercial, and industrial growth was developed. Excluded from consideration were emissions from temporary sources associated with construction activities at the ICL plant and mobile sources. Using the developed air pollution estimates for the area, a qualitative air quality impact assessment for these minor sources was performed. Section 7.1 presents the results of this analysis.

3.7.2 EFFECTS ON SOILS AND VEGETATION

For most soil classifications and vegetation found in the area, ambient air concentrations of criteria pollutants below the NAAQS and FAAQS will not result in detrimental effects. As discussed in Section 3.2, maximum ground-level concentrations of all the criteria pollutants emitted from the facility are insignificant and well below the aforementioned standards. Section 7.2 outlines potential impacts associated with the major criteria pollutants. These impacts are based on published sensitivity levels compared to the modeled impacts discussed in Section 5.1.

3.7.3 COOLING TOWER IMPACTS

A linear, mechanical draft, counter-flow cooling tower (with a bank of 10 cells) is proposed to meet the closed-loop cooling requirements of the ICL plant. The cooling tower is designed to handle a heat load of 1,655 MMBtu per hour, with a circulating water flow rate of 265,000 gallons per minute (gpm) and an air flow rate of 1,575,400 cubic feet per minute (cfm) per cell at the design condition of 80 °F ambient wet bulb temperature, a cold water temperature of 90 °F, and a hot water temperature of 103 °F.

The operation of the cooling tower could affect the vegetation in terms of salt deposition and the local climatology in terms of visible plumes, icing, and fogging in the immediate vicinity of the proposed facility.

Cooling Tower Impact Model. The environmental impacts due to operation of the proposed cooling tower were evaluated using the Seasonal/Annual Cooling Tower Plume Impact model (SACTI), which is sponsored by Electric Power Research Institute (EPRI, 1984). This numerical model is an extension of an earlier model evaluation study carried out by Argonne National Laboratory. The SACTI model uses the cooling tower effluent release parameters to determine a series of combinations of the meteorological variables that represents the full range of atmospheric conditions affecting plume dispersion and deposition. The model calculates: salt deposition rate from the plume drift; visible plume length/height; and fogging/icing for the determined meteorological conditions.

3.7.4 HEALTH EFFECTS EVALUATION FOR AIR TOXICS

The health effect evaluation for releases of air toxics to the atmosphere from this facility follows that described in the "Florida Air Toxics Permitting Strategy" (FDER, draft 1990). Only pollutants that do not have an NAAQS have been examined, since the primary NAAQS is a health-based standard. A demonstration of compliance with the primary NAAQS (i.e., for lead) is considered to adequately provide the health risk assessment. For each emitted toxic air contaminant, the model-predicted concentrations are compared to the "no-threat" levels which may be associated with various (i.e., 8-hour, 24-hour, or annual) averaging times. A set of the "no-threat" levels has been provided by the FDER. If a source does not meet the no-threat levels for each toxic air contaminant, a number of measures suggested by the FDER may be used for reevaluation.

Table 3-1
PSD SIGNIFICANT AMBIENT AIR QUALITY IMPACT LEVELS

	Averaging Time				
Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
SO_2	1 $\mu g/m^3$	5 $\mu g/m^3$	--	25 $\mu g/m^3$	--
TSP/PM_{10}	1 $\mu g/m^3$	5 $\mu g/m^3$	--	--	--
NO_2	1 $\mu g/m^3$	--	--	--	--
CO	--	--	0.5 $\mu g/m^3$	--	2 mg/m^3

Source: EPA, 1987a

Note: This table does not apply to Class I areas. A significant impact for Class I areas is 1 $\mu g/m^3$ on a 24-hour basis for PM_{10} and SO_2.

Table 3-2
SIGNIFICANT IMPACT RADII FOR THE ICL SOURCES

Pollutant	Radii (km)	Averaging Time
SO_2	0.5	Annual
	4.25	24-hr
	0	3-hr
NO_2	4.5	Annual
TSP/PM-10	0	Annual
	0	24-hr
CO	0	8-hr
	0	1-hr

Source: Bechtel, 1990

Note: Stack emissions from the main boiler and the oil-fired auxiliary boiler are both considered in the impact radii determination.

Table 3-3
PSD SIGNIFICANT MONITORING CONCENTRATIONS

Pollutant	Air Quality Concentration ($\mu g/m^3$) and Averaging Time
Carbon monoxide	575 (8-hour)
Nitrogen dioxide	14 (Annual)
Sulfur dioxide	13 (24-hour)
Particulate matter (TSP)	10 (24-hour)
Particulate matter (PM-10)	10 (24-hour)
Ozone	a
Lead	0.1 (3-month)
Asbestos	b
Beryllium	0.001 (24-hour)
Mercury	0.25 (24-hour)
Vinyl chloride	15 (24-hour)
Fluorides	0.25 (24-hour)
Sulfuric acid mist	b
Total reduced sulfur (including H_2S)	c
Reduced sulfur (including H_2S)	c
Hydrogen sulfide	0.2 (1-hour)

Source: EPA, 1987a.

a No specific air quality concentration for ozone is prescribed. Exemptions are granted when a source's VOC emissions are 100 tons/year.

[b] No acceptable monitoring techniques available at this time. Therefore, monitoring is not required until acceptable techniques are available.

[c] No acceptable monitoring techniques available at this time. However, techniques are expected to be available shortly.

4.0 DISPERSION MODEL INPUTS

Various features of the ISCST dispersion model were used to estimate air quality impacts from the proposed facility in two distinct analyses. The model was run:

- o With constant emission rates to evaluate ambient concentrations for all the receptors
- o With variable emission rates and particle settling characteristics to simulate dispersion of fugitive particulate emissions.

The purpose of this section is to describe the various model inputs required for these analyses, including model options, emissions data, meteorological data, receptor grids, and other relevant information. Since SO_2 is the primary pollutant of interest for this project, the model was run using SO_2 emission rates. Concentration values for other pollutants were scaled from these results in proportion to the respective emission rates for each pollutant.

Model input information for the visibility impact assessment is presented separately in Section 6.1. Likewise, the analysis of cooling tower impacts, which includes the dispersion of particulate material in the cooling tower drift, is discussed in Section 7.3.

4.1 MODEL OPTIONS

Each of the two modeling analyses identified above used different features of the ISCST model to estimate air quality impacts at various receptor locations. Model options were selected to meet applicable EPA criteria, to account for different pollutant dispersion characteristics, and to provide results based on different averaging durations, as required.

Model options that were selected include: 1-, 3-, 8-, and 24-hour and annual averages and rural mode (see Section 4.5). Buoyancy-induced dispersion was used because the proposed sources involve fuel combustion (EPA, 1986a). Since sub-GEP stack heights were used for the proposed sources, the gradual plume rise option was selected in conjunction with the building downwash option (EPA, 1986a). The stack tip downwash option was not used because the building downwash option was already selected (PDER, 1983; MDAQC, 1984); and the calm processing routine was used to calculate concentrations during calm periods (EPA, 1986a). The equivalent regulatory default options associated with the meteorological input data are discussed in Section 4.3.

The resultant SO_2 concentration values were used to scale 24-hour and annual average TSP and PM-10 impacts, annual average NO_2 concentrations, 1-hour and 8-hour CO concentrations, and quarterly average lead impacts.

There are numerous sources of fugitive particulate emissions within the proposed facility. They include among others: storage silos, coal unloading and reclaim hoppers, coal conveyors, crusher tower, and an inactive storage pile. Section 4.2.1 describes the emission rate characteristics of these sources in more detail. From a modeling standpoint, vent emissions were treated as point sources. Furthermore, emissions from certain sources were variable as a function of operating schedule. The physical characteristics of the emissions were also considered for some of the sources in order to account for the effects of gravitational particle settling. These aspects of the analysis, as well as the selection of other options, are discussed further in this section.

For fugitive particulate emissions, two of the more general options selected include flat terrain (see Section 4.4) and rural mode (see Section 4.5). The regulatory default option was not chosen because several of the default values were not applicable. Specifically, stack tip downwash does not apply since, by definition, fugitive emissions are those which do not pass through a stack. Likewise, since these emissions are released at ambient temperatures, buoyancy induced dispersion did not have to be accounted for. The arbitrary selection of final plume rise has essentially no effect on the dispersion calculations since all of the emissions are at ambient conditions with virtually no exit velocity. The release height of the fugitive source was used as the point source stack height. To simulate fugitive emissions without plume rise, the stack exit velocity, diameter, and temperature were assumed to be 0.001 m/s, 1 m, and 0 °C (273 °K), respectively (TACB, 1988). In the ISCST model, a stack temperature of 0 °C is a default value which sets the stack and ambient temperature (read from the sequential hourly data) to the same value for model calculations if the ambient temperature is greater than 0 °C. Since it is rare for the ambient temperature to be lower than 0 °C at West Palm Beach, the selection of 0 °C as the stack temperature will ensure that no thermal plume rise is permitted for modeling fugitive particulate sources. Processing of concentrations under calm wind conditions was also accounted for.

The inactive coal storage pile, which is covered with soil and seeded to minimize emission, has a capacity to store a 30-day supply. It will be used only if there is an interruption of supply; thus, no normal operational schedule is planned. Since the pile will not be disturbed under normal operational conditions, fugitive emissions from the inactive coal storage pile were not included in the modeling.

Emissions for the remaining fugitive sources were assumed to vary as a function of time of day. Schedules were based on typical operating experience at maximum material handling rates. An operational day of 8 hours was assumed to extend from 7 A.M. through 3 P.M., represented in the model by hours 7 through 14. This is a conservative approach from a dispersion standpoint, since relatively more stable conditions occur earlier in the day.

Finally, gravitational settling of particulate emissions was accounted for by distinguishing the amount of material in the 30- and 10-micron size ranges (i.e., the nominal TSP and PM-10 size categories, respectively). Size categories were defined based on information in the technical literature. Other settling parameters (i.e., settling velocity and reflection coefficients) were developed in accordance with ISC model users guidance (EPA, 1987b).

4.2 EMISSIONS INVENTORIES

The purpose of this section is to identify the emission characteristics of the sources included in the various modeling analyses described above. For the proposed ICL plant, both stack and fugitive emission sources are described. Characteristics of the particulate emissions resulting from operation of the plant cooling tower are discussed in Section 7.3.2.

4.2.1 PROPOSED SOURCE

Air pollutants will be emitted from a single stack at the proposed facility. Fugitive particulate emissions from a variety of material handling and storage sources will also occur. The following subsections describe these sources in more detail.

Stack Emissions. For the purpose of the modeling analyses described in this section and in Section 5.0, emissions from the ICL main stack are based on coal-firing. Emission rates and characteristics at three operating loads were considered (i.e., full or 100 percent load, 75 percent, and 50 percent). Operating parameters are presented in Table 4-1, as well as emission rates for SO_2, NO_x, particulates, lead, and CO. To be conservative, PM-10 emissions, which are a subset of TSP emissions from the stack, are assumed to be the same in these analyses. Emission rates and stack parameters for the oil/gas-fired auxiliary boiler are presented in Table 4-2. Figure 4-1 identifies the ICL plant main and auxiliary boiler stacks as Items 12 and 11, respectively.

Fugitive Emissions. Fugitive particulate emissions will occur at the proposed plant from various material (i.e., coal and lime) handling and storage (coal) operations. Figure 4-2 depicts a flow diagram for these coal operations. Emission parameters for these sources are listed in Table 4-3. Emission rates based on maximum material throughput were input to the model.

A brief description of these sources follows. Plot plan identification numbers corresponding to Figure 4-1 are also given.

- Coal Unloading Hopper and Feeder (1). Coal arrives on site via bottom-dump rail cars. The unloading facility will be enclosed with dust collection and suppression equipment and includes a side-mounted car shaker. The hopper is located below ground level.

- Coal Unloading Conveyor (2). A belt conveyor, enclosed in a tubular gallery, is provided between the unloading structure and tripper conveyor. A belt scale is also provided. The unloading conveyor will have a dust collector.

- o Stacking Tripper Conveyor (3). A tripper conveyor is provided in the coal storage building. The conveyor is equipped with a traveling carriage and discharge chute in order to form a longitudinal coal pile.

- o Active Coal Storage Pile (3). The active coal pile is rectangular in shape, about 35 feet high. It is enclosed by an A-frame building, with the stacking conveyor entering at one end. Dust collection equipment is provided for transfer points in the enclosure.

- o Inactive Coal Storage Pile. The inactive storage pile (coal storage yard) is about 45 feet high, with a 30 degree slope. The inactive pile is built up in compacted layers. The pile will be covered with soil and seeded to minimize fugitive dust.

- o Emergency Reclaim Hopper (3). The emergency reclaim hopper, located inside the coal storage building, will be used to reclaim coal from the inactive coal pile via mobile equipment.

- o Reclaim Conveyor (3). Normal reclaim is by a portal scraper reclaimer which removes coal from the side of the active pile and deposits it in the reclaim conveyor, located inside the coal storage building.

- o Emergency Reclaim Pile (4). This is an outdoor "come-and-go" type of pile sized to accommodate up to 30 carloads of incoming coal.

- o Emergency Stackout Conveyor (4). A dust collector and "lowering well" will be provided at the discharge end.

- o Crusher Feed Conveyor (Transfer Conveyor) (3,5). This conveyor, enclosed in a tubular gallery, transfers coal from the coal storage building to the crusher tower.

- o Crusher and Transfer Building (5). The crusher transfer building houses equipment to reduce the coal in size and transfer it to a conveyor system leading to the day storage silos. The building is enclosed with dust collection systems at the crusher and all transfer points.

- o Plant Feed Conveyor (5,6). This conveyor transports the crushed coal to the storage silo feed tripper. The conveyor is enclosed in a tubular gallery.

- o Silo Distribution Tripper (6). Located inside the boiler building, this system directs the crushed coal to four operating storage silos and one spare silo serving the boiler unit at the plant. A dust collection system covers all silos and coal transfer points between conveyors.

- o Coal Silos (6). These silos hold coal prior to feeding it to the boiler burner system. The silos are covered except for the opening to receive coal from the silo distribution tripper.

- o Ash Storage Silo (7). Fly ash collected from the baghouse hoppers is stored in an elevated silo. The silo has filters to collect dust as ash is loaded into the silo and from dust collected in the silo cyclone separator baghouse.

- o Recycle Ash Silo (8). Fly ash collected from the baghouse hoppers is conveyed to the recycle ash silo for use in the lime slurry plant. The silo has a vent filter. The recycle ash slurry plant below the silo is enclosed.

- o Lime Silo (9) and Lime Slurry Plant (10). Lime is pneumatically transferred from rail car or truck to silo. The silo is equipped with a filter and dust collector. The dust collector is also used for the lime feed system. The reagent pre-operation area is enclosed.

- o Soda Ash Silo (13). Soda ash for use in the circulating water system sidestream softener is stored in the soda ash silo. The silo is equipped with a vent filter. The reagent preparation area below the silo is enclosed.

4.2.2 PSD INCREMENT CONSUMING SOURCES

Sections 3.3 and 3.5.1 relate the fact that because there are significant SO_2 and NO_2 impacts due to stack emissions from the proposed ICL, a PSD increment consumption analysis is necessary. PSD sources are those sources which commenced construction after the base line date for a specific pollutant. The base line establishes which sources in the area of the proposed ICL plant will consume PSD increments. Based on the FPL Martin CG/CC Project Site Certification Application (1989), it was indicated that the base line dates established by the FDER for SO_2 are January 6, 1975 for sources greater than 100 tons/year and December 27, 1977 for sources less than 100 tons/year. For NO_2, the base line date is February 8, 1988.

A summary of the increment-consuming sources within and/or affecting the ICL plant's significant impact areas has been extracted from the SCA for the Martin CG\CC project. The Martin CG/CC project has an SO_2 significant impact area at a distance of 50 km from the Martin site. Thus, the emission inventories provided by the FDER to that project approximately covered a 50 km radius of the Martin site. The Martin CG/CC project in its SCA also applied the "Screening Threshold" method (North Carolina DNR, 1985), which is approved by both EPA and FDER, to objectively eliminate those sources in the emission inventory which are not likely to have a significant interaction with the source undergoing evaluation. The source screening procedure was applied such that sources emitting more than 25 tons/year of an applicable pollutant and located within 15 km of the Martin site and sources emitting more than 100 tons/year and located between 15 and 50 km from the Martin site were included both in the PSD increment impact and ambient background analyses. Since the proposed ICL plant is located only about 3 miles from the Martin site, the PSD-consuming sources that have been identified by the Martin CG/CC project are considered to be applicable for the ICL plant as well. Additionally, the SO_2 and NO_2 significant impact areas of the ICL plant are within distances of 4.25 km and 4.5 km, respectively from the stack; however, the significant impact areas for the Martin CG/CC project cover radii of 50 km and 7.5 km from the Martin site. Because of the short distance between the proposed ICL site and the Martin CG/CC site, it is conservative to include source inventories identified in the Martin CG/CC project in the ICL plant's impact analysis.

Furthermore, the FDER indicated in July 1990 that there are no other new PSD-increment-consuming sources in the vicinity of the ICL plant site since the submittal of Martin's SCA in 1989. Multiple-stack background facility emissions were combined and assumed to be emitted from the stack with the highest emission rate using that stack's emission parameters. A summary of the PSD increment-consuming sources for the proposed ICL impact analysis is presented in Table 4-4.

4.2.3 BACKGROUND SOURCES

A background interactive source analysis is required based on the same reason stated above. Similarly, a summary of the base line interactive sources within and/or affecting the ICL plant's significant impact area has been extracted from the SCA for the Martin CG/CC project. In the Martin CG/CC project, the screening threshold method was applied in identifying the background sources within a radius about 50 km of the Martin site (see Table 4-5). Again, since this set of base line interactive sources covers a radius of about 50 km, the use of these data is conservative for the proposed ICL plant.

4.3 METEOROLOGICAL DATA

Onsite meteorological data are not required for the proposed ICL plant. In this case, EPA modeling guidance requires modeling analyses to be based on the use of 5 years of meteorological data from the nearest monitoring location with conditions representative of the site area (EPA, 1986a).

The closest first-order National Weather Service (NWS) station is located in West Palm Beach, Florida, about 26 miles east-northeast of the proposed facility. Sequential, hourly meteorological data and twice-daily upper air soundings collected at West Palm Beach for the years 1982-1986 were provided by the FDER for use in the air quality analysis. Joint frequency distributions of wind speed, wind direction and stability are presented in Table 4-6. Five-year composite seasonal and annual wind roses are presented in Figures 4-3(a) through 4-3(e).

Default wind speed profile exponents and vertical potential temperature gradients, equivalent to those selected under the regulatory default option of ISCST, were also chosen.

4.4 RECEPTOR GRIDS

This section describes each of the receptor grids used for the two phases involved in the air quality impact analysis made with the ISCST model.

The significant impact area and the screening analyses used a polar receptor grid centered on the plant stack. The grid system consists of 36 direction radials, each separated by 10° increments. As suggested by the FDER, receptors were placed at ground level at successive 250-meter intervals. The coarse-mesh receptor grid provides sufficient resolution and downwind coverage to determine the extent of the significant impact area for each pollutant and the locations of all critical receptors to be evaluated in the refined phase of the analysis.

The refined phase of the air quality impact analysis used a fine-grid (100 m grid resolution) centered over each critical receptor identified in the screening phase analysis, such that two rings were added to either side of the critical receptor.

Impacts due to fugitive particulate emissions were estimated using Cartesian coordinate receptor grids. Fugitive dust tends to be released near ground level with insignificant plume rise. As a result, higher particulate concentrations are expected to occur at the plant property line. Therefore, discrete receptors were placed along the irregularly shaped ICL property line at each 10° azimuth direction using the main stack as the origin. In order to evaluate the expected decrease in particulate concentrations with increasing downwind distance, one downwind ring distance (100 m) was placed beyond the ICL property line. The closest site boundary is to the east-southeast of the main stack. Receptors near this section of the site boundary were selected in the same manner as in modeling TSP impact from the ICL stacks in order to assess the maximum combined impact. All receptors in the fence line and other grid points were assumed to be at ground level. Figure 4-4 shows the locations of the discrete receptors input to the model, as well as the plant stacks. Receptor identifications are shown in Figure 4-4, and their corresponding coordinates are presented in Table 4-7.

4.5 LAND USE CLASSIFICATION

An evaluation to determine whether the area is considered to be urban or rural, for the purposes of atmospheric dispersion modeling, was made based on land use characteristics and topographic features in the site area. The evaluation considers the Auer land use classification method (Auer, 1978) referenced in Section 8.2.8 of the Guideline on Air Quality Models (EPA, 1986a).

Approximately 95 percent of the area within a 3-km radius of the proposed facility has land use characteristics ascribed to a rural setting. Marshlands (Type A3) take up about 45 percent of the area. From the south of these Type A3 areas to the west of the Indiantown township, the land use is predominantly orchard (Type A2, agricultural rural). This accounts for about 35 percent of the total area evaluated. Interspersed within these two areas are woodlands, classified as A4 (undeveloped rural) and characterized as heavily wooded and having greater than 95 percent vegetation. These Type A4 areas make up about 15 percent of the entire area evaluated.

The only substantial area considered to be characteristic of an urban environment is located on the north and east-northeast of the ICL plant. The Caulkins Citrus Processing Plant and Florida Steel Corporation located here can be classified as Type I1 (heavy industrial), but make up only about 4 percent of the total area. Part of the Indiantown residential area is located about 3 km to the east-southeast of the ICL. The land use type may be classified as R2 (compact residential). However, this residential area accounts for a minimal portion (less than 1 percent) of the total area. Thus, for air quality impact modeling, the overall area is considered as rural.

Table 4-1
MAIN STACK EMISSION PARAMETERS INPUT TO ISCST

Parameter	Coal-Firing 100%	75%	50%
Stack Height (ft)	495	495	495
Stack Diameter (ft)	16	16	16
Flow Rate (acfm)	1,206,400	892,700	615,250
Exit Temperature (°F)	140	140	140
Exit Velocity (ft/sec)	100	74	51
Stack Base Elevation (ft)	12	12	12
Emission Rates (lb/hr)			
SO_2	582.6	461.5	310.2
NO_x	582.6	461.5	310.2
Particulate[a]	61.7	48.9	32.8
CO	377.0	298.6	200.7
Lead	0.034	0.027	0.018

NOTE:

a - TSP and PM-10 particulate emission rates are assumed to be the same for this analysis.

Table 4-2
AUXILIARY BOILER STACK PARAMETERS INPUT TO ISCST

Parameter	No. 2 Fuel Oil	Natural Gas
Stack Height (ft)	90	90
Stack Diameter (ft)	5.5	5.5
Exit Temperature (°F)	500	480
Exit Velocity (ft/sec)	103	102
Emission Rates (lb/hr)		
SO_2	17.7	0.61
NO_x	68.2	35.8
Particulate[a]	1.4	0.5
CO	47.3	33.6
VOC	0.63	1.35
Lead	4.155×10^{-3}	*

NOTES:

a - TSP and PM-10 particulate emission rates are assumed to be the same for this analysis.
* - Not applicable

Table 4-3
FUGITIVE EMISSIONS

Source Point	Emission Point	Discharge Height (ft)	Control Eff. (%)	Maximum Emission (lb/hr)	Hours at Max. Rate (per day)
	<u>Coal Handling</u>				
1	Coal Unloading Area				
	Unloading Hopper[C]	25	99	0.34	4
	Unloading Hopper Pit[D]	25	99.8	0.00098	4
2	Storage/Trans. Tower Area				
	Stackout Conveyor[D]	75	75	0.695	4
		75	99.8	0.00112	4
	Transfer Conveyor[D]	75	99.8	0.00088	4
3	Coal Reclaim Area[D]	75	99.8	0.000704	8
4	Emergency Reclaim Area	25	-	-	-
5	Crusher Tower Area				
	Crusher[E]	75	99.8	0.288	8
	Transfer Conveyor[D]	75	99.8	0.000704	8
6	Silo Bay Area				
	Coal Silo[F]	180	99.8	0.00032	8
	Transfer Conveyor[D]	180	99.8	0.000710	8
	<u>Ash Handling</u>				
7	Ash Silo Area				
	Discharge[B]	120	99.8	0.0648	12
	Unloading[B]	120	99.8	0.144	8
8	Ash Recycle Silo[B]	75	99.8	0.0588	12
	<u>Lime Handling</u>				
9	Lime Silo Area[A]	120	99.8	0.012	16
10	Lime Slurry Plant[A]	60	99.8	0.0012	12
13	Soda Ash Silo[A]	75	99.8	0.0024	12

References: A = EPRI, 3-59; B = UARG, 3-69; C = EPRI, 3-13; D = AP-42, 11.2.3
E = EPRI, 3-78; F = EPRI, 3-45
EPRI = EPRI, 1984; AP-42 = EPA, 1986; UARG = UARG, 1981

Table 4-4
BACKGROUND SOURCE EMISSIONS INVENTORY - PSD SOURCES

Source No. & ID	UTM Coords (km) East	UTM Coords (km) North	Stack Parameters H_s (m)	T_s (K)	V_s (m/s)	D_s (m)	Emission Rates (g/s) SO_2	PM	NO_2	Distance From Indiantown (km)
1 - Power Ventures	569.4	2975.9	19.2	422	22.6	0.9	6.8	(1)	88.1	25.8
2 - Fort Pierce Util.	566.8	3036.3	45.7	408	12.5	2.4	77.9	(1)	(1)	49.2
3 - U.S. Sugar Corp.	506.1	2956.9	45.7	340	25.2	2.2	85.7	14.7	(1)	54.0
4 - Atlantic Sugar	552.9	2945.2	27.4	339	9.7	2.0	11.8	4.8	(1)	45.7
5 - Osceola Farms	544.2	2968.0	27.4	341	16.9	1.9	33.4	7.2	(1)	23.1
6 - Sugar Cane Growers	534.9	2953.3	47.2	344	10.6	3.0	71.2	12.0	15.5	39.7
7 - U.S. Sugar Bryant Plant	538.8	2968.1	30.5	344	22.4	2.1	32.5	11.0	17.5	24.5
8 - Pratt & Whitney	558.1	2979.1	4.6	644	13.4	3.4	23.4	(1)	(1)	15.2
9 - Palm Beach	585.8	2960.2	76.2	505	24.9	2.0	44.1	(1)	(1)	48.4
10- FPL Martin CT (2)	542.9	2992.4	65.0	411	18.8	6.1	463.6	30.4	232.4	5.6
11- FPL Martin CT (2)	543.2	2992.4	65.0	411	18.8	6.1	463.6	30.4	232.4	5.3
12- FPL Martin AB (3)	543.0	2992.5	18.3	535	15.2	1.1	6.5	0.2	1.4	5.5
13- FPL Martin AB (3)	543.2	2992.5	18.3	535	15.2	1.1	6.5	0.2	1.4	5.5
14- FPL Martin DG (4)	543.0	2992.5	7.6	786	39.6	0.3	0.3	0.3	3.9	5.4
15- FPL Martin DG (4)	543.2	2992.5	7.6	786	39.6	0.3	0.3	0.3	3.9	5.4

H_s = Stack Height; T_s = Stack Exit Temperature; V_s = Stack Exit Velocity; D_s = Stack Exit Diameter
(1) No emissions data are available from FDER.
(2) Each source contains 4 units; emissions shown are the total amount (No. 2 oil @ 40 °F).
(3) Auxiliary boiler.
(4) Diesel generator.
Source: FPL Martin PSD, 1989.

Table 4-5
BACKGROUND SOURCE EMISSIONS INVENTORY - BACKGROUND SOURCES

Source No. & ID	UTM Coords (km) East	North	Stack Parameters H_s (m)	T_s (K)	V_s (m/s)	D_s (m)	Emission Rates (g/s) SO_2	PM	NO_2	Distance From Indiantown (km)
14- FPL Martin 1&2	543.1	2992.9	152.1	421	21.1	8.0	1743.8	218.0	654.0	5.64
15- Everglades Sugar	509.6	2954.2	21.9	477	10.1	1.1	40.5	(1)	(1)	53.16
16- U.S. Sugar Corp.	506.1	2956.9	22.9	344	25.3	1.9	68.3	51.6	(1)	54.0
17- Atlantic Sugar	552.9	2945.2	27.4	342	13.0	1.9	30.9	32.8	(1)	45.7
18- Osceola Farms	544.2	2968.0	27.4	341	23.6	1.9	56.4	30.1	(1)	23.1
19- Sugar Cane Growers	534.9	2953.3	24.4	336	14.4	1.6	51.6	52.8	17.1	39.7
20- U.S. Sugar Bryant Plant	538.8	2968.1	19.8	342	36.4	1.6	35.5	47.0	(1)	24.5
21- Pratt & Whitney	559.2	2978.3	15.2	533	40.2	0.9	74.0	(1)	60.5	16.5
22- FPL Riviere Plant	594.2	2960.6	90.8	408	18.9	4.9	2238.5	(1)	454.6	54.9
23- Caulkins Citrus Co.	548.1	2911.5	28.7	343	11.9	1.0	(1)	3.5	(1)	0.8

H_s = Stack Height; T_s = Stack Exit Temperature; V_s = Stack Exit Velocity; D_s = Stack Exit Diameter
(1) No emissions data are available from FDER.
Source: FPL Martin PSD, 1989.

Table 4-6
WEST PALM BEACH 1982-86 JOINT FREQUENCY TABLES

Frequency (%) of Wind Speed & Direction for Stability Class A

Surface Station No. 12844 Time Period: ANNUAL

Direction	Speed (m/s) 1.5	2.5	4.5	7.0	9.5	>11	Total
N	.0023	.0160	.0000	.0000	.0000	.0000	.0183
NNE	.0023	.0091	.0000	.0000	.0000	.0000	.0114
NE	.0023	.0114	.0000	.0000	.0000	.0000	.0137
ENE	.0000	.0114	.0000	.0000	.0000	.0000	.0114
E	.0000	.0251	.0000	.0000	.0000	.0000	.0251
ESE	.0068	.0137	.0000	.0000	.0000	.0000	.0205
SE	.0091	.0205	.0000	.0000	.0000	.0000	.0297
SSE	.0046	.0114	.0000	.0000	.0000	.0000	.0160
S	.0046	.0205	.0000	.0000	.0000	.0000	.0251
SSW	.0046	.0205	.0000	.0000	.0000	.0000	.0251
SW	.0114	.0205	.0000	.0000	.0000	.0000	.0319
WSW	.0023	.0114	.0000	.0000	.0000	.0000	.0137
W	.0023	.0228	.0000	.0000	.0000	.0000	.0251
WNW	.0000	.0023	.0000	.0000	.0000	.0000	.0023
NW	.0000	.0114	.0000	.0000	.0000	.0000	.0114
NNW	.0023	.0183	.0000	.0000	.0000	.0000	.0205
Total	.0548	.2464	.0000	.0000	.0000	.0000	

Calms = 15. hours Total Class Obs = .30%

Frequency (%) of Wind Speed & Direction for Stability Class B

Surface Station No. 12844 Time Period: ANNUAL

Direction	Speed (m/s) 1.5	2.5	4.5	7.0	9.5	>11	Total
N	.0228	.1141	.0593	.0000	.0000	.0000	.1962
NNE	.0091	.0776	.0639	.0000	.0000	.0000	.1506
NE	.0137	.0730	.1871	.0023	.0000	.0000	.2761
ENE	.0183	.0685	.1666	.0023	.0000	.0000	.2556
E	.0068	.1255	.3081	.0023	.0000	.0000	.4427
ESE	.0114	.1438	.3354	.0023	.0000	.0000	.4929
SE	.0228	.1346	.4290	.0046	.0000	.0000	.5910
SSE	.0137	.0867	.1438	.0023	.0000	.0000	.2464
S	.0342	.0844	.0730	.0000	.0000	.0000	.1917
SSW	.0160	.0844	.0753	.0000	.0000	.0000	.1757
SW	.0160	.1187	.0753	.0000	.0000	.0000	.2099
WSW	.0274	.0707	.1141	.0000	.0000	.0000	.2122
W	.0137	.0776	.0913	.0000	.0000	.0000	.1825
WNW	.0205	.0981	.0616	.0000	.0000	.0000	.1803
NW	.0205	.0867	.0639	.0000	.0000	.0000	.1711
NNW	.0114	.0936	.0776	.0000	.0000	.0000	.1825
Total	.2784	1.5380	2.3252	.0160	.0000	.0000	

Calms = 35. hours Total Class Obs = 4.16%

Table 4-6 (Contd.)

Frequency (%) of Wind Speed & Direction for Stability Class C

Surface Station No. 12844 Time Period: ANNUAL

Direction	1.5	2.5	4.5	Speed (m/s) 7.0	9.5	>11	Total
N	.0388	.1506	.3400	.0867	.0023	.0023	.6207
NNE	.0137	.0593	.2350	.1095	.0023	.0000	.4199
NE	.0228	.0685	.5796	.3103	.0205	.0000	1.0017
ENE	.0114	.0958	.6914	.4404	.0319	.0023	1.2733
E	.0091	.1209	1.0382	.6663	.0183	.0000	1.8529
ESE	.0183	.1050	1.2254	.7211	.0068	.0000	2.0765
SE	.0251	.1460	1.5152	.6458	.0114	.0000	2.3435
SSE	.0228	.1187	.6366	.2464	.0114	.0000	1.0360
S	.0730	.2191	.4153	.1118	.0068	.0000	.8260
SSW	.0502	.1004	.3126	.0776	.0000	.0000	.5408
SW	.0388	.1483	.2989	.0936	.0046	.0000	.5842
WSW	.0205	.0958	.2487	.0753	.0068	.0000	.4472
W	.0228	.0936	.2099	.0844	.0114	.0068	.4290
WNW	.0297	.0776	.2556	.0821	.0000	.0000	.4450
NW	.0297	.1164	.3537	.0730	.0091	.0000	.5819
NNW	.0365	.1346	.3423	.0753	.0000	.0000	.5887
Total	.4632	1.8506	8.6984	3.8997	.1438	.0114	

Calms = 99. hours Total Class Obs = 15.07%

Frequency (%) of Wind Speed & Direction for Stability Class D

Surface Station No. 12844 Time Period: ANNUAL

Direction	1.5	2.5	4.5	Speed (m/s) 7.0	9.5	>11	Total
N	.0548	.3674	.6846	.7142	.0662	.0023	1.8894
NNE	.0388	.1643	.3491	.8397	.0936	.0091	1.4946
NE	.0137	.1506	.6777	1.8985	.3126	.0251	3.0782
ENE	.0114	.1438	1.1615	3.4798	.5066	.0707	5.3738
E	.0274	.2168	1.7114	4.0206	.5454	.0799	6.6014
ESE	.0183	.2738	1.4718	2.0765	.0936	.0000	3.9339
SE	.0297	.4472	1.7251	1.9784	.0913	.0160	4.2876
SSE	.0365	.3217	.9675	1.1409	.0730	.0023	2.5420
S	.0388	.4267	.7918	.6731	.0479	.0000	1.9784
SSW	.0434	.2966	.4404	.2784	.0297	.0023	1.0907
SW	.0548	.3423	.4587	.3834	.0479	.0046	1.2915
WSW	.0411	.2373	.3628	.2715	.0342	.0091	.9561
W	.0411	.2350	.2921	.4039	.0844	.0228	1.0793
WNW	.0342	.2761	.3309	.5089	.1027	.0319	1.2847
NW	.0821	.3605	.7005	.8466	.0639	.0046	2.0582
NNW	.0479	.3377	.8329	.7667	.0274	.0046	2.0172
Total	.6138	4.5979	12.9587	20.2811	2.2202	.2852	

Calms = 161. hours Total Class Obs = 40.96%

Table 4-6 (Contd.)

Frequency (%) of Wind Speed & Direction for Stability Class E

Surface Station No. 12844 Time Period: ANNUAL

Direction	1.5	2.5	4.5	7.0	9.5	>11	Total
	Speed (m/s)						
N	.0525	.3286	.2510	.0023	.0000	.0000	.6344
NNE	.0251	.1232	.1689	.0000	.0000	.0000	.3172
NE	.0114	.1415	.5203	.0023	.0000	.0000	.6754
ENE	.0091	.1574	1.0976	.0137	.0000	.0000	1.2778
E	.0183	.3286	1.5243	.0160	.0000	.0000	1.8871
ESE	.0342	.4632	1.2345	.0114	.0000	.0000	1.7433
SE	.0844	.6982	1.1341	.0137	.0000	.0000	1.9304
SSE	.0434	.4678	.5568	.0046	.0000	.0000	1.0725
S	.0799	.7142	.4381	.0000	.0000	.0000	1.2322
SSW	.0616	.4427	.1734	.0023	.0000	.0000	.6800
SW	.0730	.4472	.2350	.0023	.0000	.0000	.7576
WSW	.0593	.3286	.2282	.0000	.0023	.0000	.6184
W	.0548	.3834	.2829	.0023	.0000	.0000	.7233
WNW	.0776	.4199	.2875	.0046	.0000	.0000	.7895
NW	.0685	.4723	.7553	.0000	.0000	.0000	1.2961
NNW	.0753	.5317	.5636	.0023	.0023	.0000	1.1752
Total	.8283	6.4485	9.4514	.0776	.0046	.0000	

Calms = 288. hours Total Class Obs = 16.81%

Frequency (%) of Wind Speed & Direction for Stability Class F

Surface Station No. 12844 Time Period: ANNUAL

Direction	1.5	2.5	4.5	7.0	9.5	>11	Total
	Speed (m/s)						
N	.2213	.3834	.0091	.0000	.0000	.0000	.6138
NNE	.0844	.1232	.0000	.0000	.0000	.0000	.2076
NE	.0502	.1757	.0023	.0000	.0000	.0000	.2282
ENE	.0593	.2829	.0068	.0023	.0000	.0000	.3514
E	.1050	.5317	.0068	.0023	.0000	.0000	.6458
ESE	.1666	.9949	.0137	.0000	.0000	.0000	1.1752
SE	.3012	1.2162	.0137	.0000	.0000	.0000	1.5311
SSE	.3788	.6800	.0091	.0000	.0000	.0000	1.0679
S	.4199	1.1318	.0000	.0000	.0000	.0000	1.5517
SSW	.4381	.7986	.0068	.0000	.0000	.0000	1.2436
SW	.4450	.9264	.0023	.0000	.0000	.0000	1.3737
WSW	.3719	.6777	.0205	.0000	.0000	.0000	1.0702
W	.4336	.8443	.0000	.0000	.0000	.0000	1.2778
WNW	.3742	.8123	.0023	.0000	.0000	.0000	1.1888
NW	.5043	.9858	.0068	.0000	.0000	.0000	1.4969
NNW	.3537	.7576	.0114	.0000	.0000	.0000	1.1227
Total	4.7075	11.3226	.1118	.0046	.0000	.0000	

Calms = 2277. hours Total Class Obs = 16.15%

Table 4-6 (Contd.)

Frequency (%) of Wind Speed & Direction for Stability Classes

Surface Station No. 12844 — Time Period: ANNUAL

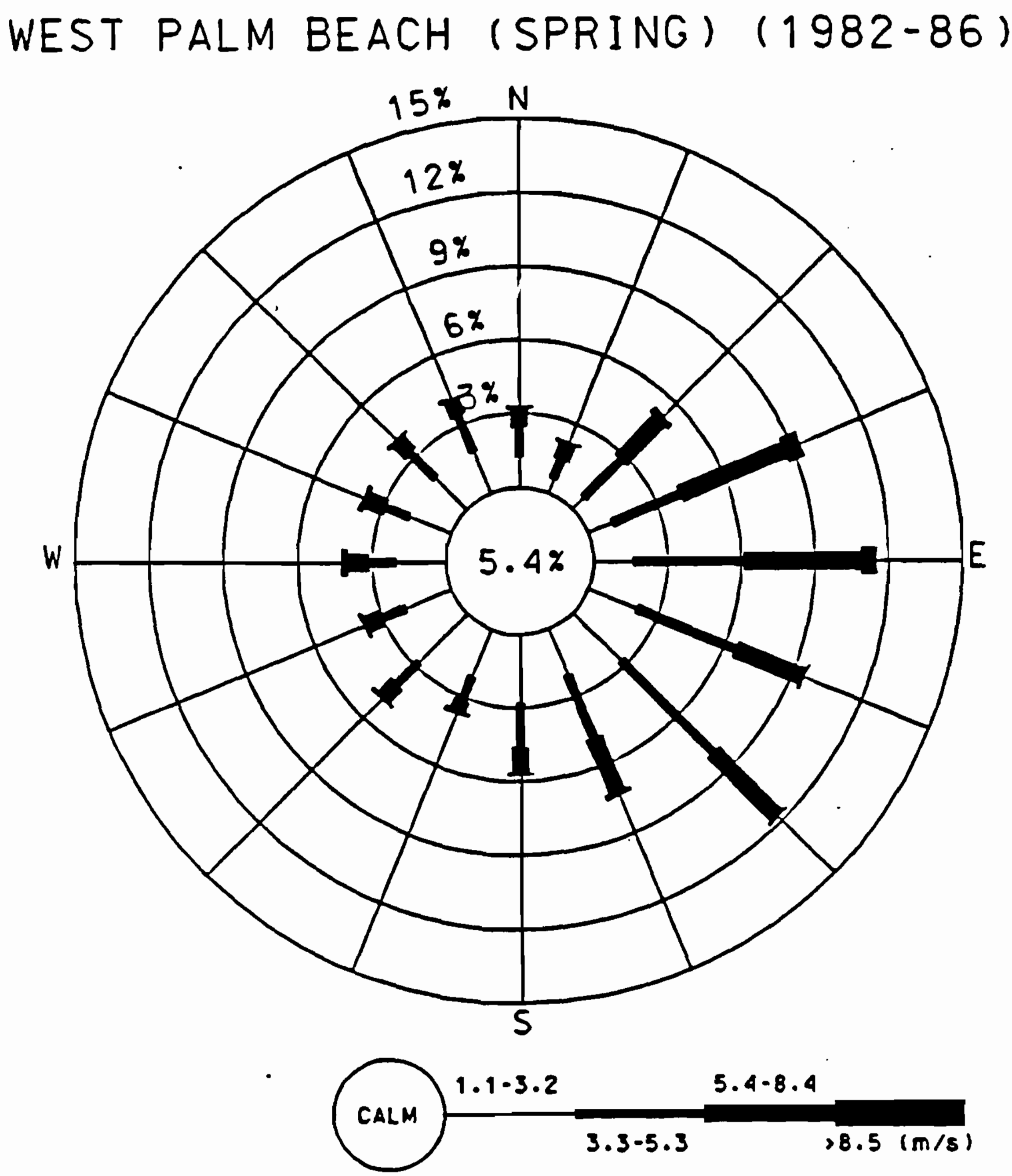
Direction	Speed (m/s) 1.5	2.5	4.5	7.0	9.5	>11	Total
N	.3925	1.3600	1.3440	.8032	.0685	.0046	3.9727
NNE	.1734	.5568	.8169	.9493	.0958	.0091	2.6013
NE	.1141	.6207	1.9670	2.2134	.3332	.0251	5.2734
ENE	.1095	.7599	3.1239	3.9385	.5385	.0730	8.5433
E	.1666	1.3486	4.5888	4.7075	.5636	.0799	11.4549
ESE	.2556	1.9943	4.2808	2.8112	.1004	.0000	9.4423
SE	.4723	2.6629	4.8170	2.6424	.1027	.0160	10.7133
SSE	.4997	1.6863	2.3138	1.3942	.0844	.0023	5.9807
S	.6503	2.5968	1.7182	.7850	.0548	.0000	5.8050
SSW	.6138	1.7433	1.0086	.3583	.0297	.0023	3.7559
SW	.6389	2.0035	1.0702	.4792	.0525	.0046	4.2488
WSW	.5225	1.4216	.9744	.3468	.0434	.0091	3.3178
W	.5682	1.6566	.8762	.4906	.0958	.0297	3.7171
WNW	.5362	1.6863	.9378	.5956	.1027	.0319	3.8906
NW	.7051	2.0331	1.8802	.9196	.0730	.0046	5.6156
NNW	.5271	1.873[illegible]	1.8278	.8443	.0297	.0046	5.1068
Total	6.9460	26.0040	33.5455	24.2789	2.3686	.2966	

Calms = 2875. hours
Missed Obs = 0 hours — Total Obs = 43824. hours
Total No. of Days Counted = 1826

Notes: 1. Total observation includes calms.
2. The total days counted are for the entire data set.
3. NCC wind speed ranges (m/s): 1.5 (0-1.8); 2.5 (1.8-3.3); 4.5 (3.3-5.4); 7.0 (5.4-8.5); 9.5 (8.5-11)
4. Calm is defined as wind speed at 1 m/s or less (for dispersion modeling purpose only).

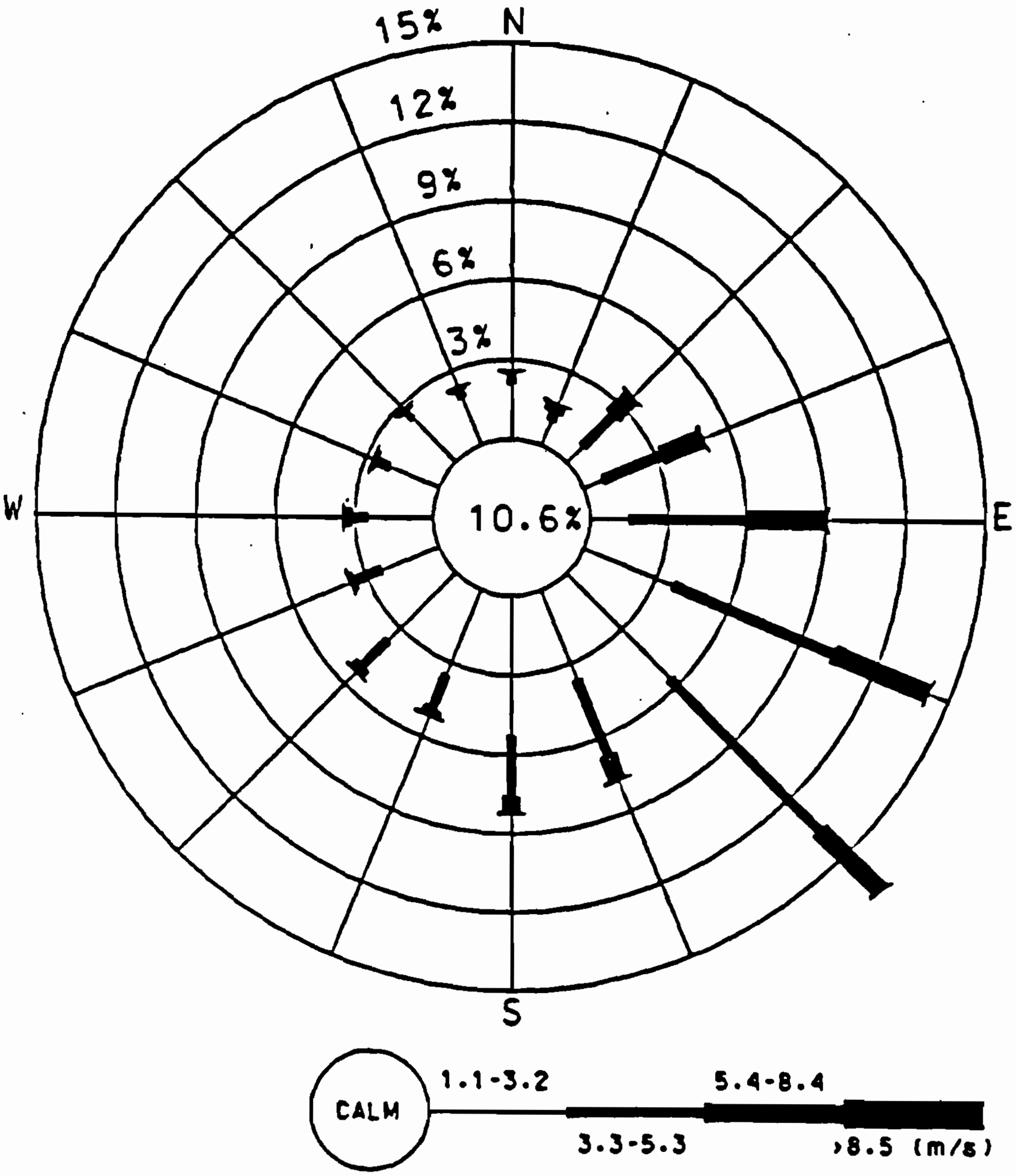
Table 4-7
DISCRETE RECEPTORS FOR FUGITIVE PARTICULATE ANALYSIS

ID	X (m)	Y (m)	ID	X (m)	Y (m)
1	74.3	388.6	40	251.5	-34.3
2	182.9	384.0	41	236.8	-77.1
3	201.2	342.9	42	223.1	-117.0
4	256.0	297.2	43	200.3	-154.4
5	310.9	256.9	44	165.5	-188.4
6	374.9	217.2	51	91.4	588.9
7	451.7	160.0	52	177.4	477.3
8	540.4	100.6	53	248.7	422.9
9	279.8	0.0	54	320.0	377.2
10	220.4	-28.6	55	388.9	320.0
11	194.3	-40.1	56	457.2	268.8
12	171.5	-96.9	57	548.6	188.4
13	160.0	-125.7	58	640.1	111.6
14	154.4	-177.4	59	383.1	0.0
15	142.9	-245.1	65	197.5	-331.5
16	131.5	-342.9	66	168.2	-434.3
17	102.9	-539.5	67	119.8	-640.1
18	0.0	-674.4	68	0.0	-777.2
19	-108.6	-634.6	69	-125.7	-731.5
20	-214.0	-582.9	70	-251.5	-680.3
21	-308.6	-531.3	71	-354.3	-617.2
22	-406.0	-474.4	72	-468.6	-554.1
23	-530.4	-449.0	73	-605.8	-511.1
24	-668.4	-377.2	74	-754.4	-426.1
25	-820.2	-285.8	75	-919.0	-320.0
26	-863.2	-137.2	76	-960.1	-157.3
27	-760.1	0.0	77	-857.3	0.0
28	-674.4	114.3	78	-777.2	131.7
29	-605.8	211.2	79	-697.2	240.0
30	-514.4	297.2	80	-599.8	342.9
31	-422.9	320.0	81	-497.4	417.0
32	-354.3	422.9	82	-411.5	497.4
33	-325.5	565.8	83	-371.2	651.5
34	-223.1	645.6	84	-256.9	743.0
35	-91.4	548.6	85	-102.9	645.6
36	0.0	485.5	86	0.0	582.9

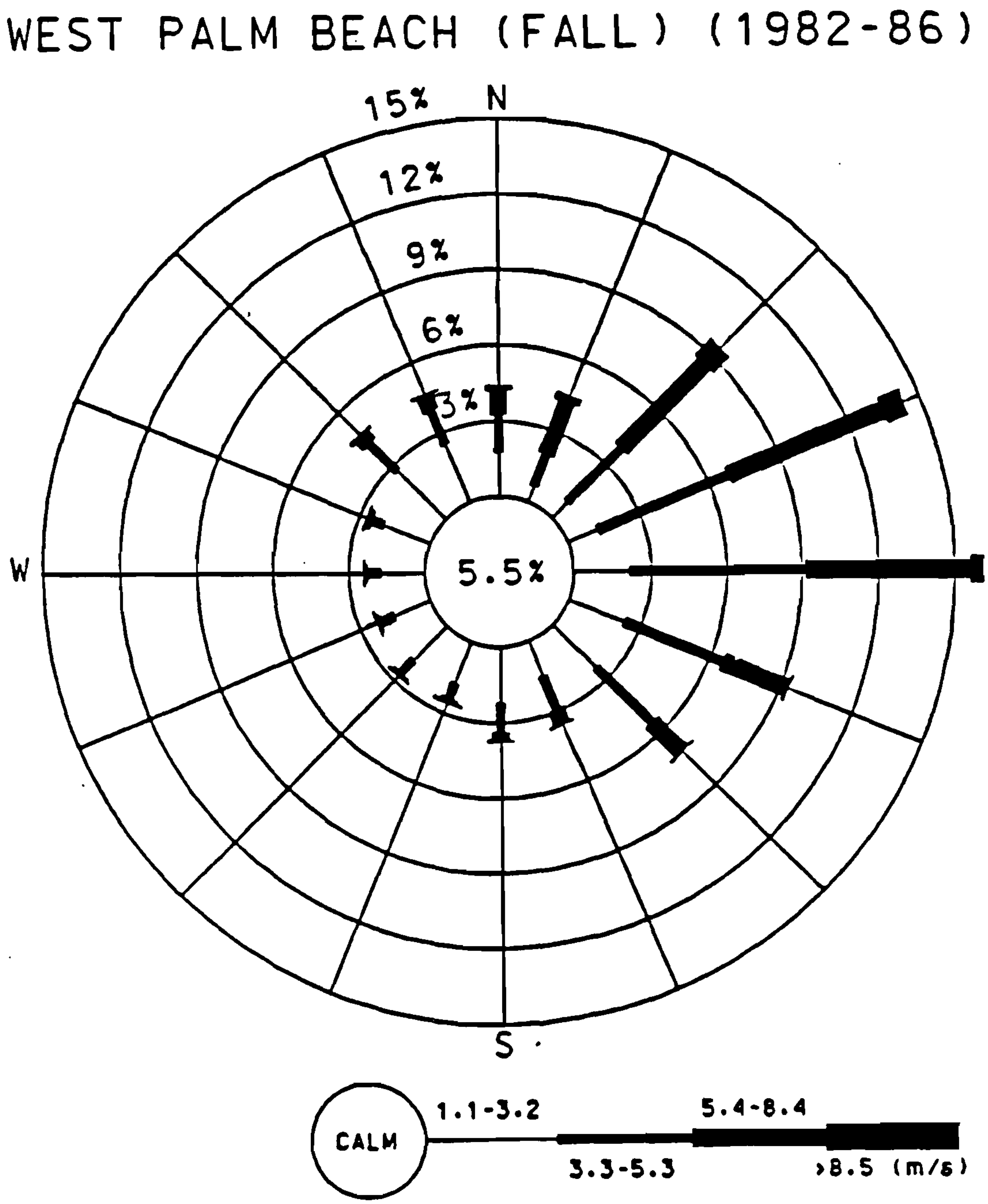


INDIANTOWN COGENERATION PROJECT
Figure 4-3(a)
SPRING WIND ROSE

WEST PALM BEACH (SUMMER) (1982-86)

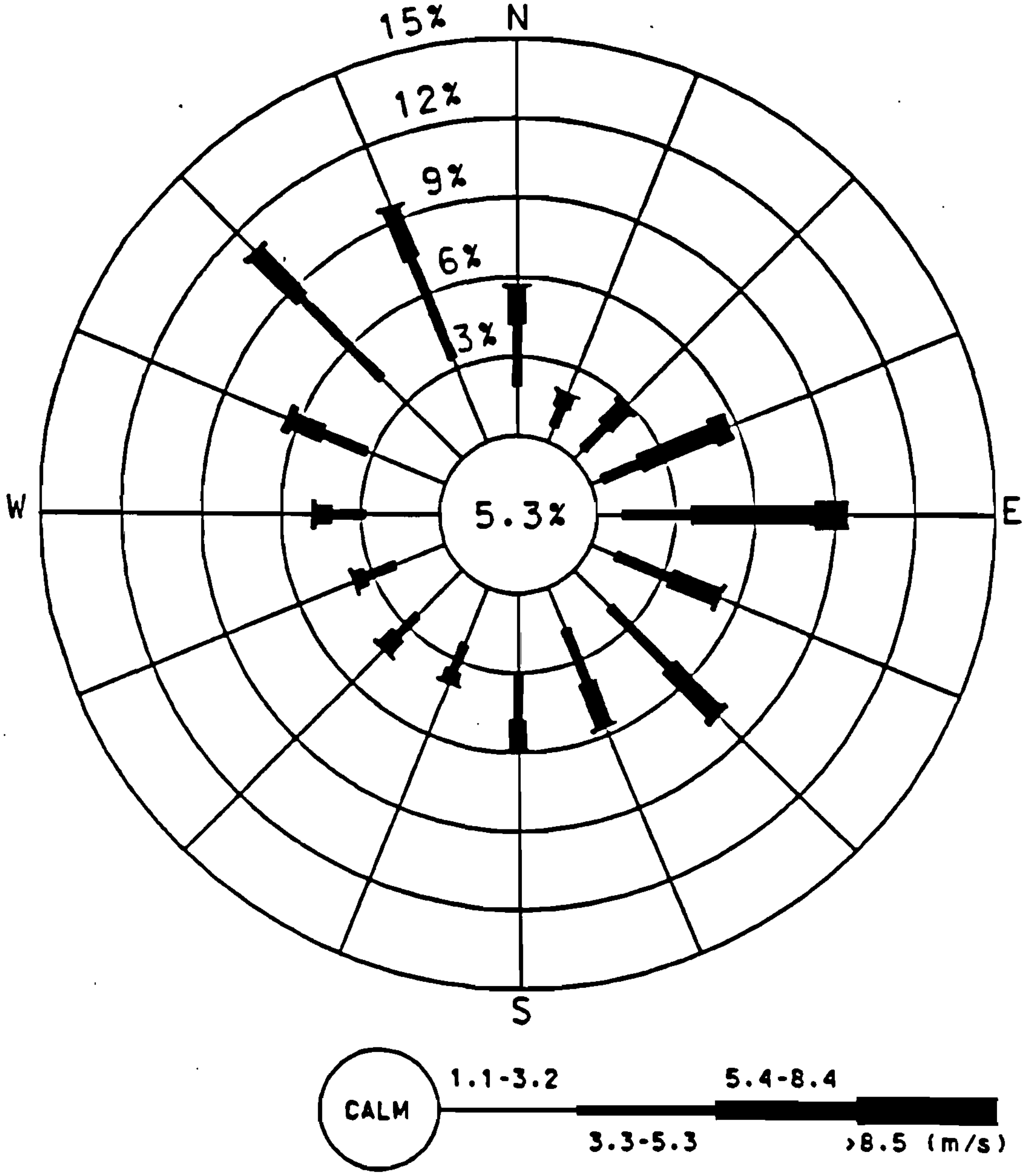


INDIANTOWN COGENERATION PROJECT
Figure 4-3(b)
SUMMER WIND ROSE



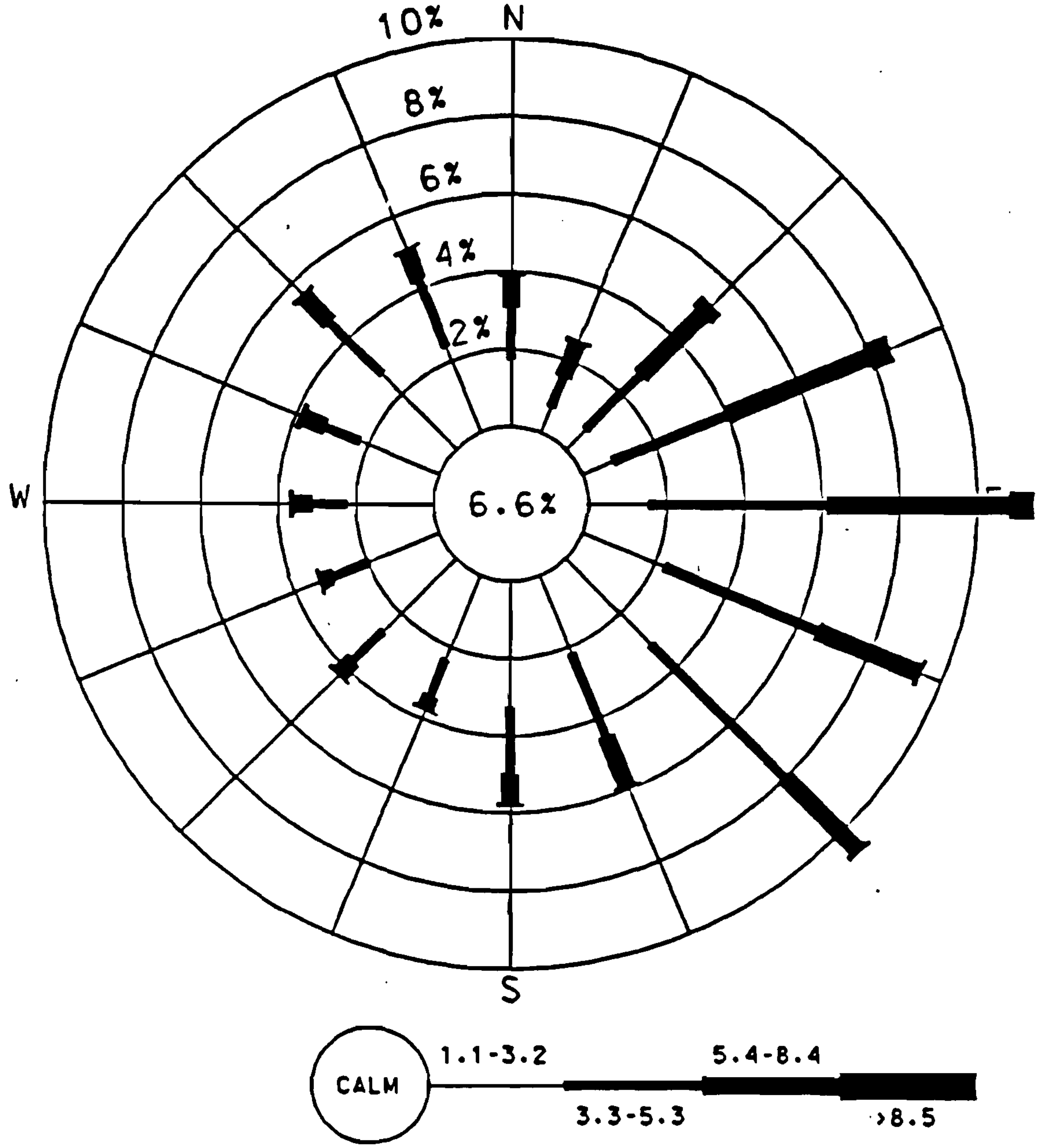
INDIANTOWN COGENERATION PROJECT
Figure 4-3(c) FALL WIND ROSE

WEST PALM BEACH (WINTER) (1982-86)

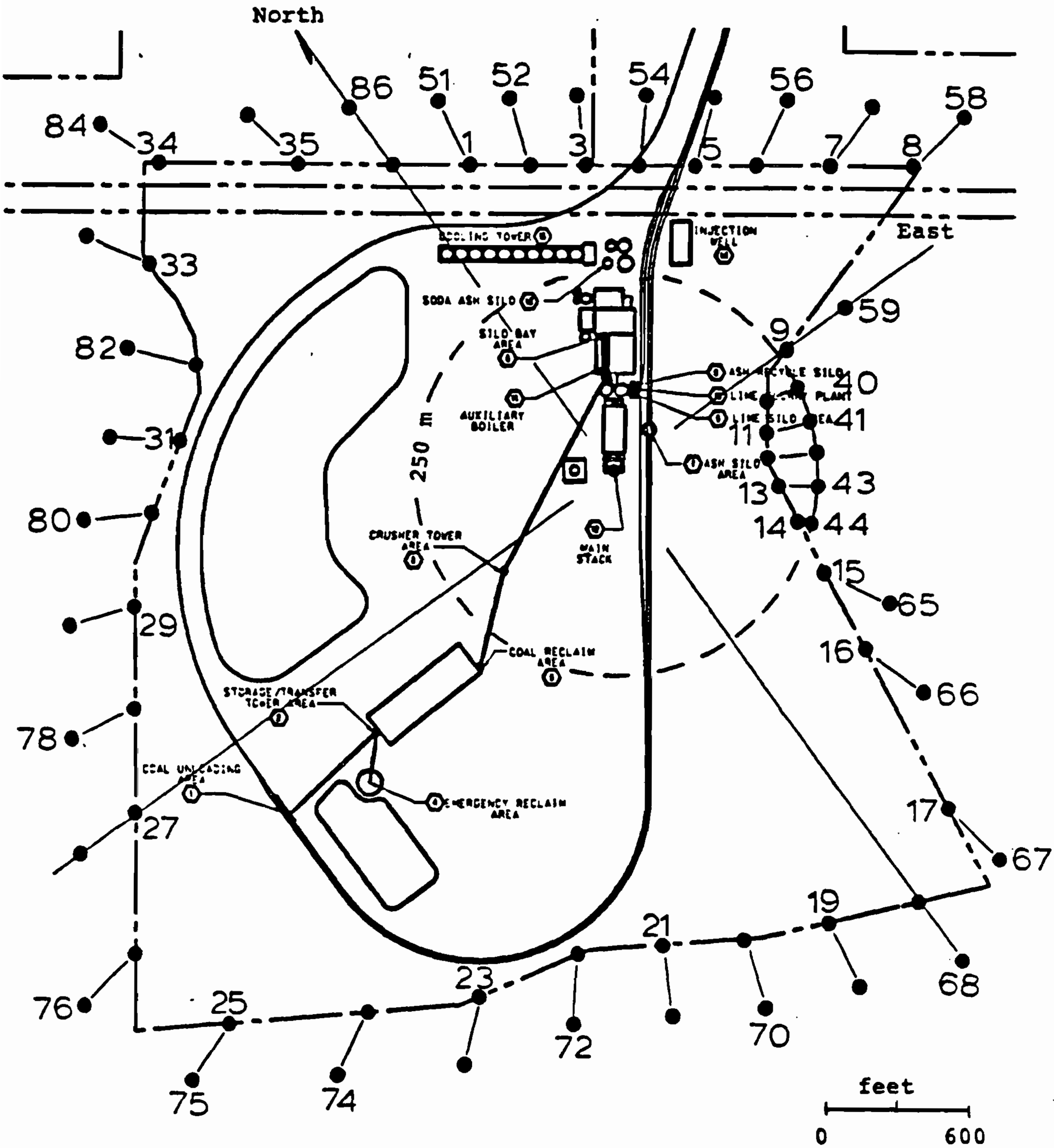


INDIANTOWN COGENERATION PROJECT
Figure 4-3(d) WINTER WIND ROSE

WEST PALM BEACH (ANNUAL) (1982-86)



INDIANTOWN COGENERATION PROJECT
Figure 4-3(e)
ANNUAL WIND ROSE



INDIANTOWN COGENERATION PROJECT

Figure 4-4
ISCST Receptor Grids for Fugitive
Particulate Impact Analysis

5.0 DISPERSION MODEL RESULTS

The purpose of this section is to present the results of the ISCST dispersion modeling analyses described in Sections 3.0 and 4.0. These analyses are used to demonstrate impacts: (1) within significant impact areas of the proposed facility due to stack emissions from the ICL plant (for all criteria and certain noncriteria pollutants) and (2) adjacent to the proposed facility due to sources of fugitive particulate emissions from material handling and storage activities. The results of a modeling analysis to evaluate particulate impacts due to cooling tower drift from the plant's cooling system are presented in Section 7.3.

5.1 IMPACTS DUE TO PROPOSED FACILITY

This section discusses the air quality impacts due to stack and fugitive emission sources at the ICL plant. The analyses consider facility operation (stack emissions) at full (100 percent) load and at partial loads of 75 and 50 percent for receptors within a 5-km radius of the facility. Results are based on the use of 5 years of meteorological data collected from the West Palm Beach NWS station (see Section 4.3), as required by the FDER.

SO_2 is the primary pollutant of concern for this project. Impacts presented for NO_2, TSP, PM-10, and lead were scaled from the modeled SO_2 concentrations in proportion to their respective emission rates. Likewise, concentrations of noncriteria pollutants released in amounts above threshold significant emission levels (i.e., beryllium and fluorides) were scaled from the SO_2 modeling results.

5.1.1 SO_2 IMPACTS

Impacts from SO_2 emissions were analyzed by the ISCST model. For short-term impacts, the highest second-highest concentrations are reported because the analyses were based on the use of 5 years of representative meteorological data. For long-term (annual) impact, the maximum concentration estimated for each year was used.

Table 5-1 presents annual, 24-hour, and 3-hour average SO_2 impacts due to the proposed ICL main boiler operating at full (100 percent) and partial (75 and 50 percent) loads. These results are based on the screening modeling for receptors within 5 km of the facility. The purpose of these screening modeling studies is to determine the worst-load case. Results indicate that impacts at partial loads are less than that at full load. The tradeoff between dispersion due to a lower exit flow rate and lower emissions at these reduced loads was apparently dominated by the latter.

Impacts from the oil/gas-fired auxiliary boiler were also analyzed to determine which fuel would have more impact to the ambient air. Table 5-2 shows that oil firing resulted in higher concentrations than gas firing for all the averaging periods considered. Therefore, the oil-firing auxiliary boiler was considered together with the coal-firing main boiler to estimate the maximum combined impacts from the proposed ICL stacks. This approach is conservative because the auxiliary boiler is only planned to be operated on a part-time basis in support of the main boiler.

Screening analyses were made using a coarse-grid (250-m interval) within 4.25 km of the facility. The screening analyses revealed that due to the relatively short auxiliary boiler stack, building downwash effects induced by the boiler building were evident near the proposed plant. Therefore, for the refined-grid (100-m interval) analyses, the receptors were placed much closer to the site. In the refined-grid analyses, the receptors were placed around the maximum impact locations predicted by the screening modeling. The closest site boundary is located to the east of the main stack, slightly more than 200 m away. In order to identify the maximum concentrations induced by building downwash, instead of 100 m, an interval of 50 m was used between the first and the second rings of the polar receptor network. Thus, the first ring distance was set at 250 m, instead of 300 m. The ICL site boundary has an irregular shape. Concentrations predicted at the receptors located on-site were excluded in the analyses. Table 5-3 presents the refined-grid modeling results for annual 1-, 3-, 8-, and 24-hour average SO_2 concentrations due to the combined impacts from the main boiler stack and the auxiliary boiler stack.

Of the 5 years modeled, the maximum annual average concentration is 1.15 $\mu g/m^3$ (occurring in 1985), only slightly more than the significance level of 1 $\mu g/m^3$. This value occurs to the east-southeast of the proposed facility (100° radial) at a distance of 250 m. The maximum 24-hour average SO_2 value (11.6 $\mu g/m^3$) also occurs at this receptor and in the same year. It should be noted that this 24-hour average value is less than the monitoring exemption level (13 $\mu g/m^3$). The maximum 3-hour average is 24.7 $\mu g/m^3$ and occurs on the 310° radial at a distance of 2 km. The maximum 8-hour and 1-hour concentrations are 19 and 61.2 $\mu g/m^3$, respectively.

As mentioned in Section 3.5.2 and elsewhere, SO_2 concentration values will be used to scale NO_2, TSP, PM-10, and lead impacts due to stack emissions and for selected non-criteria pollutants as presented in the following subsections. The ISCST-modeled results also indicated that the main boiler stack has no impacts at 250 m downwind for 3-, 8-, and 24-hour and annual averaging periods (see Table 5-4). For these averaging periods, all the impacts at this distance are due to the building downwash affecting the auxiliary boiler plume. Thus, the auxiliary boiler SO_2 emission rate was used to scale impacts of other pollutants at this distance. For the 1-hour averaging time, the main boiler and the auxiliary boiler contribute 94 percent and 6 percent to the maximum impact location (800 m downwind), respectively.

5.1.2 PARTICULATE IMPACTS

As stated in Section 5.1.1, the maximum impacts for 24-hour and annual averaging periods were contributed by the auxiliary boiler stack alone. The ratio of the hourly auxiliary stack particulate emission (1.4 lb/hr) to SO_2 emissions (17.73 lb/hr) is about 0.079. Scaling the highest annual average SO_2 concentration reported above (1.15 $\mu g/m^3$, within 4.25 km) by this ratio yields a maximum incremental annual particulate concentration of only 0.09 $\mu g/m^3$. Likewise, scaling the highest 24-hour average SO_2 concentration (11.6 $\mu g/m^3$) yields a maximum incremental 24-hour particulate concentration of only 0.92 $\mu g/m^3$. Clearly, the incremental impacts of stack-emitted particulates are well below the corresponding significance levels (1 $\mu g/m^3$ - annual; 5 $\mu g/m^3$ - 24 hour).

The highest particulate impacts due to the proposed ICL plant are a result of fugitive dust emissions from material handling and storage activities. The highest annual and 24-hour average incremental concentrations are 0.17 and 3.3 $\mu g/m^3$, respectively (see Table 5-5). The maximum 24-hour fugitive particulate impact is less then the significant impact level (5 $\mu g/m^3$). This value occurs at the ICL property line, 600 feet from the coal unloading area, and decreases farther downwind of the boundary.

As stated in Section 5.1.1, the main boiler stack has no contribution to receptors located at the property line for 24-hour or annual averaging periods. Therefore, the combined impacts of fugitive and auxiliary boiler stack emissions were analyzed. The maximum 24-hour particulate impact from these stack emissions is 0.92 $\mu g/m^3$, which occurred on Julian day 10 in 1982 (see Table 5-4). The impact of fugitive emissions on this date and at the same location was estimated by the ISCST model to be only 0.075 $\mu g/m^3$. Similarly, based on the maximum 24-hour particulate impact produced by the fugitive emissions, the stack impact at the same location and date was also analyzed. The resultant combined impacts are presented below.

Year	Julian Day	Fugitive ($\mu g/m^3$)	Aux. Boiler ($\mu g/m^3$)	Total ($\mu g/m^3$)
1982	10	0.075	0.916	0.991
1986	164	3.33	0.014	3.347

The results show that the maximum combined 24-hour impact (3.3 $\mu g/m^3$) is below the significant level of 5 $\mu g/m^3$. It is also less than the monitoring exemption level of 10 $\mu g/m^3$. For annual particulate impacts, the highest values for stack and fugitive sources are 0.09 (see Table 5-4) and 0.17 $\mu g/m^3$ (see Table 5-5), respectively. These two maximum impacts do not overlap. However, since they are relatively small, it is conservative to use their sum (0.26 $\mu g/m^3$) as the total maximum annual incremental impact. This sum is less than the significant level of 1 $\mu g/m^3$.

5.1.3 NO_2, CO, AND LEAD IMPACTS

As stated above, the main boiler stack has no contribution to the maximum 8-hour, 24-hour, and annual impact locations. The ratio of maximum hourly auxiliary boiler stack emissions of NO_2 (68.2 lb/hr) to SO_2 (17.73 lb/hr) is about 3.847. Scaling the highest annual average SO_2 concentration reported above (1.15 $\mu g/m^3$) by this ratio yields a maximum incremental annual NO_2 concentration of 4.42 $\mu g/m^3$. This value is below the corresponding monitoring exemption level (14 $\mu g/m^3$) for NO_2.

As stated in Section 3.5.2, for the auxiliary boiler stack, the CO emission rate is about 2.7 times of the SO_2 emission. However, for the main boiler stack, the CO emission rate is only about 0.65 times the SO_2 emission. Therefore, the maximum 1- and 8-hour CO impacts do not necessarily occur at the same locations as those predicted by the SO_2 emissions. As a result, ISCST modeling was independently made for 1-hour and 8-hour CO impact analyses. The modeling results showed that the maximum 1-hour CO impact is 78.2 $\mu g/m^3$, which occurred on Julian day 11, 1983. The maximum 8-hour CO impact is 50.9 $\mu g/m^3$, which occurred on Julian day 21, 1985. Both of these maximum impacts occurred at 250 m downwind from the main boiler stack. It is evident that these values are contributed by the auxiliary boiler stack due to plume downwash. The maximum 1-hour value is about 25 times less than the 1-hour significant impact level (2,000 $\mu g/m^3$). The maximum 8-hour value is about 10 times less than the 8-hour significant impact level (500 $\mu g/m^3$). As stated in Section 5.1.1, the maximum 1-hour SO_2 impact occured at 800 meters, instead of 250 meters, downwind from the main stack. This confirmed the necessity for modeling CO impacts independently.

The total lead emission of the ICL stacks is less than the significant emission level (see Table 2-2); thus, no air quality analysis for lead is required.

5.1.4 NON-CRITERIA POLLUTANTS

In addition to the air quality impacts of criteria pollutants (i.e., those for which an NAAQS has been established) discussed in the previous subsections, an impact analysis is also required for noncriteria pollutants. Table 2-2 identified the following noncriteria pollutants which are trace elements emitted by the ICL plant in significant amounts: beryllium, fluorides, inorganic arsenic, and mercury.

Significant ambient air quality impact levels have not been established for these pollutants. However, as mentioned in Sections 2.2.3 and 3.7.4, the Florida Air Toxics Working Group, composed of FDER and local county air toxics staff, has developed a list of "no-threat" levels that can be used for a health-effects evaluation. As stated earlier, the main boiler stack has no contribution at the locations of maximum 8-hour, 24-hour, and annual averaging periods. The trace element emissions of the main stack are in general two orders of magnitude greater than those of the auxiliary stack, except SO_3 mist, which is only one-and-one-half times greater. As a result, for the health-effects analysis, the main stack SO_2 emission rate should be used to scale emissions of trace elements in predicting their maximum concentrations. Results of the maximum impacts produced by the main boiler stack alone are presented in Table 5-6. The maximum SO_2 8-hour, 24-hour, and annual impacts from the main boiler stack are 13.1, 5.7, and 0.56 $\mu g/m^3$, respectively.

The ratio of the estimated hourly main boiler stack emission rate for beryllium (0.0094 lb/hr) to SO_2 (582.6 lb/hr) is about 1.61 x 10^{-5}. Scaling the maximum 8-hour, 24-hour, and annual average SO_2 concentrations (see Table 5-6) by this ratio yields 2.11 x 10^{-4}, 9.20 x 10^{-5}, and 9.04 x 10^{-6} $\mu g/m^3$, respectively. These values are two orders of magnitude less than the corresponding FDER "no-threat" levels of 0.02, 0.005, and 0.0004 $\mu g/m^3$.

The ratio of the main boiler stack fluoride emission rate (5.08 lb/hr) to SO_2 (582.6 lb/hr) is about 0.0087. Scaling the maximum 8-hour and 24-hour average SO_2 concentrations by this ratio yields 0.114 and 0.050 $\mu g/m^3$, respectively. These values are much less than their corresponding FDER "no-threat" levels of 25 and 6 $\mu g/m^3$, respectively. No annual fluoride "no-threat" level is available.

The ratio of the main boiler stack emission rate for inorganic arsenic (0.175 lb/hr) to the corresponding SO_2 emission level is 3.00 x 10^{-4}. Scaling the maximum 8-hour, 24-hour, and annual average SO_2 impacts by this ratio yields 3.93 x 10^{-3}, 1.50 x 10^{-3}, and 1.68 x 10^{-4} $\mu g/m^3$, respectively. The 8-hour and 24-hour values are two orders less than the corresponding FDER "no-threat" levels of 2 and 0.5 $\mu g/m^3$. The annual value is 84 percent of its corresponding "no-threat" level (0.0002 $\mu g/m^3$).

The ratio of the main boiler stack emission for mercury (0.067 lb/hr) to the corresponding SO_2 emission level is 1.15 x 10^{-4}. Scaling 8-hour and 24-hour average SO_2 impacts by this ratio yields 1.51 x 10^{-3} and 6.56 x 10^{-4} $\mu g/m^3$, respectively. These values are two orders of magnitude less than the corresponding FDER "no-threat" levels of 0.1 and 0.024 $\mu g/m^3$. No annual "no-threat" level is available for this pollutant.

As indicated in Table 2-2, since sulfuric acid mist emissions (6.35 tons/year) are less than the significant emission level (7 tons/year), no air quality analysis is required for this pollutant.

5.2 PSD INCREMENT CONSUMPTION DETERMINATION

A PSD increment consumption analysis is required for the proposed ICL on the basis of significant impacts due to stack SO_2 and NO_2 emissions (see Sections 3.5.1 and 5.1). However, TSP impacts are below the significance levels for both annual and 24-hour averaging periods. As a result, a TSP increment consumption analysis was not required.

5.2.1 SO_2 INCREMENT CONSUMPTION

PSD sources of SO_2 emissions in the vicinity of the ICL plant have been established and presented in Table 4-4. The Martin CG/CC project has eight combustion turbines, and each of them ducts to a separate stack. These eight stacks are about 530 m apart and are grouped into two combined sources, instead of a single co-located source, in order to simulate them more accurately in dispersion modeling. These two combined sources are shown in Table 4-4 as

Sources 10 and 11. Two auxiliary boiler stacks for the same project are separated by about 230 m and are modeled as two separate sources (Sources 12 and 13 in Table 4-4). Similarly, two diesel generator stacks are about 230 m apart and are modeled as two sources (Sources 14 and 15 in Table 4-4). Thus, for modeling purposes, there are 15 SO_2 PSD interactive sources for the proposed ICL plant. Results of the SO_2 PSD increment consumption analysis are presented in Table 5-7. The 3-hour, 24-hour, and annual average SO_2 combined incremental concentrations are about 35 percent, 54 percent, and 20 percent of the corresponding maximum allowable PSD increment levels. The proposed ICL plant has no contribution to the combined 3-hour and 24-hour maximum impact locations and contributes only about 13 percent to the annual combined maximum impact location. This is an indication that the proposed ICL sources emit relatively small amounts of SO_2 compared to other nearby interactive SO_2 sources.

5.2.2 NO_2 INCREMENTAL CONSUMPTION

In Section 4.2.2, PSD sources of NO_2 emissions in the vicinity of the ICL plant have been established and presented in Table 4-4. Similar to the SO_2 increment consumption analysis, eight combustion turbines, two auxiliary boilers, and two diesel generators at the Martin CG/CC project were also included as NO_2 interactive sources. Thus, for modeling purposes, there are 11 NO_2 PSD interactive sources for the proposed ICL plant. Results of the NO_2 increment consumption analysis are presented in Table 5-7. The highest annual NO_2 combined incremental concentration (6.53 $\mu g/m^3$) is about 26 percent of the corresponding PSD incremental allowable (25 $\mu g/m^3$). The proposed ICL plant contributes about 68 percent to the annual combined maximum impact location.

5.3 AMBIENT AIR QUALITY COMPLIANCE DEMONSTRATION

It is necessary for the project to demonstrate compliance with the federal and state air quality standards shown in Table 2-4. For SO_2 this determination is based on the combination of ambient background concentrations (see Section 5.3.1), impacts due to background interactive sources, and the incremental impacts due to the proposed facility (see Section 5.1). Interactive source analyses are required because the facility has been shown to produce significant air quality impacts for SO_2 and NO_2. For TSP, PM-10, CO and lead, only the combination of ambient background levels and the ICL concentrations were considered to demonstrate compliance with the appropriate air quality standards.

5.3.1 BACKGROUND AIR QUALITY

As mentioned in Section 3.4, on-site monitoring is not required because the estimated impacts for all pollutants requiring an air quality analysis are well below the corresponding significant monitoring concentrations. Based on the ISCST modeling results, a summary of this finding is presented in Table 5-8. Additionally, the FDER indicated that the existing monitoring data from the adjacent FPL Martin site are representative of the proposed ICL area (see Appendix A, FDER letter). For the purpose of compliance demonstration in this permit application, ambient air quality data collected by the FDER for the ICL site vicinity and those collected by the Martin CG/CC project and by the nearby historical Martin site monitoring network are considered to establish background air quality levels.

FDER Air Quality Monitoring Network

Most of the state-run monitoring stations within a 50 km radius of the ICL site measure particulate matter only. In Palm Beach County, ambient CO, O_3, NO_2, and SO_2 data are also collected. The available state-operated air quality monitoring sites located within this area are presented in Table 5-9. A summary of the FDER air quality monitoring data collected during the most recent 3 years (1987-89) is presented in Table 5-10. Values presented in the table are the highest second-highest measured concentrations for short-term averages and the highest measured concentrations for the annual average.

The highest recorded 8-hour CO level (5 ppm) is about 56 percent of the federal and state standard (9 ppm), while the highest annual NO_2 level (25 $\mu g/m^3$) is 25 percent of the applicable standards (100 $\mu g/m^3$). The highest SO_2 measurements for short-term averaging periods are lower than those recorded by FPL existing monitors, while the highest annual average is equal to that recorded by FPL (see Table 5-11). The highest 24-hour TSP level measured at the FDER monitor at Martin County is 103 $\mu g/m^3$ (see Table 5-10), 69 percent of the state standard (150 $\mu g/m^3$). This value is also lower than that recorded by the FPL monitors (see Table 5-11).

Historical Martin Site Monitoring Network

The historical Martin site monitoring program as described in the Martin CG/CC PSD permit application is briefly discussed. Background SO_2, NO_2, and TSP measurements have been made by FPL at four sites (Nos. 1, 2, 3, and 4) in the vicinity of the Martin Plant on a once-every-sixth-day basis since October 1973. These data were supplemented in 1979-1980 with two sites (Nos. 5 and 6) monitoring SO_2 and NO_2 with continuous analyzers and a seventh site (No. 7) monitoring TSP. Only about 1 year of continuous SO_2 and NO_2 monitoring data exists at Site Nos. 5 and 6. A summary of FPL historical ambient air quality monitoring data for the Martin site vicinity for the period available (1973-1988) is presented in Table 5-11. Figure 5-1 shows the location of these historical monitoring sites. However, the historical SO_2 and NO_2 data were based primarily on "bubbler" type samplers, and 1 year of continuous analyzer monitoring data were collected in 1980. Therefore, they render only a general idea of the existing air quality levels in the vicinity of the ICL site.

Martin CG/CC Project Monitoring Network

The Martin CG/CC project conducted a 12-month (October 1988 through September 1989) on-site monitoring program. Four pollutants (SO_2, NO_2, O_3, and particulate matter) were measured. This monitoring program consists of two sites. One was located east of the Martin Plant location, and the other was located to the west. Nine months (October 1988 through June 1989) of the measurements were presented in the Martin CG/CC PSD permit application. Measurements for the rest of the 3 months (July 1989 through September 1989) were presented in the Final Data Report for the Martin CG/CC project. A summary of the 12-month measurements is presented in Table 5-12. Figure 5-1 shows the locations of these air quality monitoring sites. As shown in the table, data collected by the Martin CG/CC PSD program are in good agreement with those measured in the FPL existing monitoring network and the FDER monitors. Data reported in Table 5-12 are most current and meet the PSD monitoring data recovery rate and quality assurance requirements.

Background Determination

The two Martin CG/CC PSD monitoring sites are approximately 4.2 and 10.2 km west-northwest of the proposed ICL site, respectively. Because of the proximity of these monitoring stations to the proposed site and the currentness of the data, measurements for the Martin CG/CC project are considered to be the most representative data for the ICL site area. These data have been used to determine the background air quality levels for SO_2, NO_2, and PM-10. Background air quality levels for other criteria pollutants (CO and TSP) were determined using the existing FDER monitoring data. The background air quality levels determined for the proposed ICL site and their corresponding federal/state standards are presented in Table 5-13.

The following section presents total impacts for TSP, PM-10, SO_2, and NO_2 based on the modeled incremental concentrations in Section 5.1 and the assumed background values above.

5.3.2 INTERACTIVE BACKGROUND SOURCES

Interactive background sources are described in Section 4.2.3 and presented in Table 4-5. As stated in Section 3.5.2, SO_2 and NO_2 have significant impacts on the ambient air. Thus, SO_2 and NO_2 interactive background sources were included in the ISCST modeling to estimate the maximum background levels. Background levels estimated by modeling were added to the measured background levels established in Section 5.3.1 to determine the total background levels. Since the measured background levels already include impacts from these interactive background sources, the approach of using the total background levels (measured background + modeled background) is conservative. The combined maximum interactive impacts (ICL stack sources + background interactive sources) are presented in Tables 5-14 and 5-15 for SO_2 and NO_2, respectively.

5.3.3 CRITERIA AIR POLLUTANTS

From Section 5.1.1, based on the ICL stack emissions, the highest PSD incremental SO_2 concentrations were 1.15 $\mu g/m^3$, 11.6 $\mu g/m^3$, and 24.7 $\mu g/m^3$ for annual, 24-hour, and 3-hour averaging periods, respectively (see Table 5-3). However, detailed modeling has shown that the ICL SO_2 stack emissions have no contribution to the maximum interactive background impact locations for both 3-hour and 24-hour averaging periods within a study area of 4.25 km radius centered at the ICL main stack. On an annual basis, the ICL stack emissions contribute only about 1.6 percent (0.11 $\mu g/m^3$) to the maximum interactive background impact location within the studied area. When combined with the corresponding monitored background values identified in Table 5-16, the resultant total impacts are 8.18 $\mu g/m^3$, 61.1 $\mu g/m^3$, and 243 $\mu g/m^3$ for annual, 24-hour, and 3-hour averaging periods, respectively. These values are all well below the respective federal and state ambient air quality standards (see Table 5-16).

The highest modeled TSP impacts due to the combination of the ICL stacks and fugitive particulate emissions are 0.26 $\mu g/m^3$ (annual) and 3.3 μg/m3 (24-hour) within 4.25 km of the proposed facility (see Section 5.1.2). The corresponding background values from the previous subsection are 13.3 $\mu g/m^3$ and 39 $\mu g/m^3$, respectively. Total impacts are 13.56 $\mu g/m^3$ and 42.3 $\mu g/m^3$ for annual and 24-hour averaging periods, respectively. These values are likewise well below the primary and secondary state TSP standards. For this analysis, it has been assumed that both modeled and monitored TSP data would conservatively represent PM-10 impacts. Thus, the total "particulate (PM-10)" annual (13.56 $\mu g/m^3$) and 24-hour (42.3 $\mu g/m^3$) impacts are still below the corresponding primary and secondary NAAQS of 50 $\mu g/m^3$ and 150 $\mu g/m^3$, respectively. The conservatism lies in the assumed background level, in that it is a value for TSP; the PM-10 value would be less.

Total annual NO_2 impact is 11.5 $\mu g/m^3$ (Table 5-16) based on the modeling results in Section 5.1.3 and the monitored background value. This concentration is only about 11% of the corresponding federal and state standard (100 $\mu g/m^3$).

Incremental CO impacts reported in Section 5.1.3 were several orders of magnitude below the corresponding federal and state standards. The maximum 1- and 8-hour concentrations which occur near the site boundary (250 m downwind of the main stack) are contributed solely by the downwash plume from the auxiliary boiler stack.

The maximum incremental 24-hour lead concentration was shown above to be 0.015 $\mu g/m^3$. This maximum 24-hour value is so far below the quarterly average lead standard (1.5 $\mu g/m^3$) that compliance is unquestionable.

Overall, it has been demonstrated that compliance with the federal and state ambient air quality standards will occur during operation of the proposed ICL for all criteria air pollutants.

Table 5-1
FULL AND PARTIAL LOAD SO_2 IMPACTS FROM MAIN STACK

Averaging Period	Year	Load (%)	Concen.[a] ($\mu g/m^3$)	Location[b] (Dist, Dir)
Annual	1982	100	0.56	3.0, 310
		75	0.52	3.0, 310
		50	0.42	2.5, 310
	1983	100	0.46	3.0, 310
		75	0.43	3.0, 310
		50	0.35	2.5, 310
	1984	100	0.36	3.5, 300
		75	0.34	3.0, 310
		50	0.27	2.5, 310
	1985	100	0.45	3.0, 310
		75	0.42	3.0, 310
		50	0.34	2.5, 310
	1986	100	0.41	3.5, 270
		75	0.37	3.0, 270
		50	0.30	3.0, 270
24-Hour	1982	100	5.6	3.0, 310
		75	5.2	3.0, 310
		50	4.0	3.0, 310
	1983	100	4.4	1.0, 350
		75	4.0	2.0, 300
		50	3.2	2.5, 300
	1984	100	4.8	2.5, 280
		75	4.4	2.5, 280
		50	3.6	2.0, 280
	1985	100	4.6	3.5, 290
		75	4.2	3.0, 290
		50	3.4	3.0, 290
	1986	100	4.4	2.0, 250
		75	3.9	2.0, 250
		50	3.0	1.5, 260
3-Hour	1982	100	19.8	3.0, 300
		75	17.8	2.5, 300
		50	14.2	2.5, 300
	1983	100	19.9	2.0, 300
		75	19.4	1.0, 320
		50	15.7	2.0, 300
	1984	100	22.2	2.0, 310
		75	20.7	2.0, 310
		50	16.4	1.5, 310

Table 5-1 (Continued)

Averaging Period	Year	Load (%)	Concen.[a] ($\mu g/m^3$)	Location[b] (Dist, Dir)
	1985	100	19.7	2.0, 270
		75	18.7	2.0, 270
		50	14.9	2.0, 270
	1986	100	20.5	1.5, 250
		75	17.8	1.5, 250
		50	13.8	1.0, 270

a - Maximum annual concentration, or highest second-highest average concentration from ISCST (3- and 24-hr).

b - Receptor coordinates: distance in kilometers, direction in degrees relative to ICL main stack.

Table 5-2
AUXILIARY BOILER SO_2 IMPACTS

Year	Fuel	Annual ($\mu g/m^3$)	3-Hour ($\mu g/m^3$)	24-Hour ($\mu g/m^3$)
1982	Oil	1.09 (0.5, 330)	13.9 (0.75, 350)	6.3 (0.5, 320)
	Gas	0.04 (0.5, 330)	0.5 (0.75, 350)	0.2 (0.5, 320)
1983	Oil	0.81 (0.5, 320)	14.0 (0.5, 50)	7.2 (0.5, 330)
	Gas	0.03 (0.5, 320)	0.5 (0.5, 50)	0.3 (0.5, 330)
1984	Oil	0.82 (0.5, 320)	14.1 (0.5, 360)	7.0 (0.5, 350)
	Gas	0.03 (0.5, 320)	0.5 (0.5, 360)	0.2 (0.5, 350)
1985	Oil	0.80 (0.5, 320)	14.8 (0.5, 360)	6.7 (0.5, 330)
	Gas	0.03 (0.5, 280)	0.5 (0.5, 280)	0.2 (0.5, 330)
1986	Oil	0.87 (0.5, 280)	14.7 (0.5, 310)	6.1 (0.5, 320)
	Gas	0.03 (0.5, 280)	0.5 (0.5, 310)	0.2 (0.5, 320)

Notes: Concentrations are in $\mu g/m^3$.

Shown within parentheses are distance (km) and direction (degree) relative to the main boiler stack.

Table 5-3
ANNUAL AND SHORT-TERM AVERAGE SO_2 IMPACTS
(MAIN BOILER AND AUXILIARY BOILER COMBINED)

Averaging Period	Year	Concen.[a] ($\mu g/m^3$)	Location[b] (Dist, Dir)
Annual	1982	0.92	0.6, 320
	1983	1.06	0.25, 110
	1984	0.85	0.25, 120
	1985	1.15	0.25, 100
	1986	1.04	0.25, 110
24-Hour	1982	11.6	0.25, 110
	1983	9.9	0.25, 110
	1984	11.1	0.25, 120
	1985	11.3	0.25, 110
	1986	9.0	0.25, 100
8-Hour	1982	17.1	0.25, 100
	1983	17.0	0.25, 110
	1984	16.2	0.25, 120
	1985	19.0	0.25, 110
	1986	16.8	0.25, 100
3-Hour	1982	24.7	0.25, 100
	1983	22.2	0.25, 110
	1984	23.7	2.0, 310
	1985	22.5	0.25, 110
	1986	22.4	0.25, 110
1-Hour	1982	57.6	0.8, 100
	1983	59.9	0.8, 30
	1984	57.8	0.8, 250
	1985	61.2	0.8, 80
	1986	58.1	0.8, 270

a - Maximum annual concentration, or highest second-highest concentrations (1-, 3-, 8-, and 24-hr).

b - Receptor coordinates: distance in kilometers, direction in degrees relative to ICL main boiler stack.

Table 5-4
RELATIVE CONTRIBUTIONS AT MAXIMUM IMPACT LOCATIONS
(ICL STACK SOURCES ONLY)

Pollutant	Averaging Period	Main Boiler	Aux. Boiler	Total	Year	Dist. (km)	Dir. (deg.)	Julian Day
SO_2	1-Hour	57.6	3.5	61.2	1985	0.8	80	201
	3-Hour	0.0	24.7	24.7	1982	0.25	100	15
	8-Hour	0.0	19.04	19.04	1985	0.25	110	21
	24-Hour	0.0	11.6	11.6	1982	0.25	110	10
	Annual	0.0	1.15	1.15	1985	0.25	100	-
PM	24-Hour	0.0	0.92	0.92	1982	0.25	110	10
	Annual	0.0	0.09	0.09	1985	0.25	100	-
NO_2	Annual	0.0	4.42	4.42	1985	0.25	100	-
CO	8-Hour	0.0	50.9	50.9	1985	0.25	110	21
	1-Hour	0.0	78.2	78.2	1983	0.25	100	11

Notes: Concentrations are in $\mu g/m^3$.
Distance and direction shown are in km and degree, respectively, relative to the ICL main stack.

Table 5-5
PARTICULATE IMPACTS DUE TO ICL FUGITIVE EMISSION SOURCES

Year	Annual[a] ($\mu g/m^3$)	Location[b] (x, y)	24-Hour[c] ($\mu g/m^3$)	Location[b] (x, y)
1982	0.17	-760.1, 0	2.6	-760.1, 0
1983	0.16	-760.1, 0	2.4	-760.1, 0
1984	0.14	-760.1, 0	1.6	-674.4, 114.3
1985	0.13	-760.1, 0	1.3	-863.2, -137.2
1986	0.17	-760.1, 0	3.3	-760.1, 0

a - Maximum annual average concentration.
b - x, y coordinates in meters relative to ICL plant stack.
c - Highest second-highest 24-hour average concentration.

Table 5-6
MAIN BOILER STACK MAXIMUM SO_2 IMPACTS

Year	Annual ($\mu g/m^3$)	3-Hour ($\mu g/m^3$)	8-Hour ($\mu g/m^3$)	24-Hour ($\mu g/m^3$)
1982	0.56	20.3	12.1	5.7
	(3.2, 310)	(2.9, 300)	(2.6, 310)	(3.2, 310)
1983	0.46	20.1	12.2	4.8
	(3.1, 310)	(2.75, 300)	(0.9, 350)	(0.9, 350)
1984	0.36	22.2	10.7	4.8
	(3.2, 300)	(2.0, 310)	(2.6, 280)	(2.6, 280)
1985	0.44	19.8	10.6	4.6
	(3.1, 310)	(2.1, 270)	(3.6, 290)	(3.4, 290)
1986	0.41	20.5	13.1	4.4
	(3.4, 270)	(1.5, 250)	(2.1, 250)	(2.1, 250)
Maximum	0.56	22.2	13.1	5.7

Note: Shown within parentheses are distance (km) and direction (degrees) of impact relative to the ICL main boiler stack.

Table 5-7
PREDICTED PSD INCREMENT CONSUMPTION

Pollutant	Averaging Time	ICL Incremental Concentration	Combined Incremental Concentration	Maximum Allowable PSD Increment
SO_2	3-Hour	0 (3.6, 310)	176.8 (3.6, 310)	512
	24-Hour	0 (3.0, 280)	49.4 (3.0, 280)	91
	Annual	0.527 (3.5, 270)	3.98 (3.5, 270)	20
NO_2	Annual	4.42 (0.25, 100)	6.53 (0.25, 100)	25

Notes: All concentrations are in $\mu g/m^3$.

Shown within parentheses are distance (km) and direction (degrees) relative to ICL main boiler stack.

Table 5-8
PSD SIGNIFICANT MONITORING CONCENTRATIONS FOR EXEMPTION AND CORRESPONDING MODELED IMPACTS FOR THE PROPOSED ICL PLANT

Pollutant	Averaging Time	Significant Concentration[a] ($\mu g/m3$)	Modeled Concentration[b] ($\mu g/m3$)
Carbon Monoxide	8-Hour	575	50.9
Nitrogen Dioxide	Annual	14	4.42
Sulfur Dioxide	24-Hour	13	11.6
TSP	24-Hour	10	3.3
PM-10	24-Hour	10	3.3
Ozone	d	--	--
Lead	3-Month	0.1	0.0003[e,f]
Asbestos	g	--	0.0[f,h]
Beryllium	24-Hour	0.001	<<0.001[i]
Mercury	24-Hour	0.25	<<0.001[f,j]
Vinyl Chloride	24-Hour	15	0.0[f,h]
Fluorides	24-Hour	0.25	0.05
Sulfuric Acid Mist	24-Hour[g]	--	0.014[f]
Total Reduced Sulfur	k	--	0.0[f,h]
Reduced Sulfur	k	--	0.0[f,h]
Hydrogen Sulfide	1-Hour	0.2	0.0[f,h]
Benzene	l	--	0.0[h]
Radionuclides	l	--	--
Radon 222	l	--	--
Arsenic	8-Hour[j]	--	0.0039

Table 5-8 (Continued)

a - Source: PSD Monitoring Guidelines (Table A-2) (EPA, 1987).

b - Except as noted, based on maximum annual average concentration, or highest second-highest 24-hour average, or maximum 1-hour average.

d - No specific concentration for ozone is prescribed. Exemptions are granted when a source's VOC are <100 tons/year.

e - The 3-month average concentration for lead was not estimated because the maximum 24-hour average value was about 300 times less than the corresponding 3-month significance level.

f - Under the PSD regulations, an air quality impact analysis is not required for this pollutant because its emission is below the applicable significance level.

g - No acceptable monitoring techniques available at this time. Therefore, monitoring is not required until acceptable techniques are available.

h - No impacts. There are no emissions expected for this pollutant.

i - The maximum 24-hour average concentration for beryllium is 4.75×10^{-5} ug/m^3, about 20 times less than the corresponding significance level.

j - The maximum 24-hour average concentration for mercury is 1.44×10^{-4} ug/m^3, about 10 times less than the corresponding significance level.

k - No acceptable monitoring techniques available at this time. However, techniques are expected to be available shortly.

l - No monitoring techniques, significant concentration, or averaging period specified in the PSD Monitoring Guidelines.

Table 5-9
FDER AIR QUALITY MONITORING SITES USED FOR THE ICL PLANT VICINITY

County	Site ID	TSP	SO_2	NO_2	CO	O_3
Palm Beach	017 J02		x			
	003 G02		x			
	004 G02		x			
	004 G01	x		x	x	
	006 G03					x
	007 G01					x
	004 J02	x				
	005 J02	x				
	006 J02	x				
	006 J09	x				
	007 G01	x				
	001 G01	x				
	002 G01	x				
	003 G01	x				
	001 G01	x				
	002 J03	x				
	005 G01	x				
	006 G01	x				
	008 J02	x				
	009 J02	x				
	010 J02	x				
	011 J02	x				
	012 J02	x				
	013 J02	x				
	014 J02	x				
	015 J02	x				
	001 G01	x				
	003 G01	x				
	002 J02	x				
Martin	004 F02	x				
	002 F01	x				
	002 G01	x				
	002 G09	x				
	003 G01	x				
Hendry	002 f01	x				
	002 J02	x				
Highlands	001 F03	x				
Okeechobee	002 F03	x				
St. Lucie	004 F01	x				
	004 F09	x				
	009 F02	x				
	001 F01	x				
	001 F09	x				

Source: FDER, 1987, 1988, 1989.

Table 5-10
SUMMARY OF FDER AIR QUALITY DATA FOR THE ICL SITE VICINITY

Pollutant	County	Averaging Period	Maximum Concentration 1987	1988	1989	NAAQS	FAAQS
SO2(a)	Palm Beach	3-hr	52	58	68	1300	1300
		24-hr	12	11	27	365	260
		Annual	3	3	8	80	0
	Palm	1-hr	152	137	117	-	-
		Annual	22	25	24	100	100
CO(b)	Palm Beach	1-hr	6	7	7	35	35
		8-hr	4	5	4	9	9
Ozone(b)	Palm Beach	1-hr	0.091	0.107	0.106	0.12	0.12
TSP(a)	Palm Beach	24-hr	251	250(e)	161	260(c)	150
		Annual	50	50	128	75(d)	60
	Hendry	24-hr	650	576(f)	73	260	150
		Annual	42	36	47	75	60
	Highlands	24-hr	50	143	35	260	150
		Annual	20	20	26	7560	
	Martin	24-hr	98	103	78	260	150
		Annual	39	39	40	75	60
	Okeechobee	24-hr	52	72	105	260	150
		Annual	26	26	28	75	60
	St. Lucie	24-hr	457	189(g)	219	260	150
		Annual	72	67(g)	82	75	60
PM-10(a)	Palm Beach	24-hr	-	-	78	150	150
		Annual	-	-	33	50	50
		24-hr	-	-	65	150	150
		Annual	-	-	23	50	50

(a) Concentration in $\mu g/m^3$.
(b Concentration in ppm.
(c) Primary standard specified with a secondary standard of 150 $\mu g/m^3$.

Table 5-10 (Continued)

(d) Primary standard specified with a secondary standard of 60 $\mu g/m^3$.
(e) FDER indicated that this exceedance was caused by a fugitive dust event associated with a sugar cane transfer station operated 12/17/88 (Source: Martin CG/CC PSD Application, 1989).
(f) FDER indicated that this exceedance was caused by reentrained particulate matter due to sugar cane harvesting activities and occurred on 12/17/88 (Source: Martin CG/CC PSD Application, 1989).
(g) FDER indicated that these exceedances were due to fugitive dust from a nearby cement plant and an asphalt plant and heavy vehicle traffic on 8/1/88 (Source: Martin CG/CC PSD Application, 1989)

Table 5-11
FPL HISTORICAL AIR QUALITY MONITORING DATA FOR THE MARTIN SITE VICINITY (1973-1988)

Pollutant	Averaging Period	Station Number	Concen.(a) ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	FAAQS ($\mu g/m^3$)
SO_2	3-Hour	5	105	1,300	1,300
	24-Hour	5	61	365	260
	Annual	6	8	80	60
NO_2	24-Hour	1	158	-	-
	Annual	5	16	100	100
TSP	24-Hour	3	200(c)	150(b)	150
	Annual	-	N/A	60(b)	60

(a) Highest concentration.
(b) Federal secondary standard.
(c) This exceedance occurred in 1986 and is considered uncharacteristic of the overall TSP monitoring data recorded for the Martin site.

Source: FPL Martin CG/CC PSD Application, 1989.

Table 5-12
FPL MARTIN CG/CC PROJECT ON-SITE AIR QUALITY MONITORING DATA (OCTOBER 1988 THROUGH SEPTEMBER 1989)

Pollutant	Averaging Period	Monitored Concen. ($\mu g/m^3$)	Site	NAAQS ($\mu g/m^3$)	FAAQS ($\mu g/m^3$)
SO_2					
	3-Hour	61	East	1300	1300
	24-Hour	12.6	East	365	260
	Annual	1.3	East	80	60
NO_2	1-Hour	62	West	-	-
	Annual	5.4	East	100	100
Ozone	1-Hour	165	East	235	235
	Annual	47	Both	-	-
PM-10	24-Hour	39	East	150	150
	Annual	13.3	West	50	50

Sources:
FPL Martin CG/CC PSD Application, 1989.
Envirosphere Company, Final Data Report for Martin CG/CC, 1989.

Table 5-13
BACKGROUND AIR QUALITY LEVELS FOR THE ICL SITE VICINITY

Pollutant	Averaging Period	Monitored Concen. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	FAAQS ($\mu g/m^3$)
SO_2 (1)	3-Hour	61	1,300	1,300
	24-Hour	12.6	365	260
	Annual	1.3	80	60
NO_2 (1)	1-Hour	62	-	-
	Annual	5.4	100	100
PM-10 (1)	24-Hour	39	150	150
	Annual	13.3	50	50
TSP (2)	24-Hour	105	260	150
	Annual	40	75	60
CO (3)	1-Hour	7	35	35
	8-Hour	5	9	9

Sources:
(1) FPL Martin CG/CC PSD Monitors, 1989.
(2) FDER monitors at Martin and Okeechobee, highest recorded among the two stations within 3 years (1987-1989).
(3) FDER monitor at Palm Beach, concentration in ppm.

Table 5-14
INTERACTIVE BACKGROUND SO_2 IMPACTS
(Including ICL Stack Sources)

Year	Annual	3-hour	24-hour
1982	6.88 (4.25, 170)	182.0 (4.1, 300)	43.5 (0.6, 310)
1983	5.98 (0.25, 110)	179.5 (4.2, 300)	48.5 (4.25, 180)
1984	6.27 (4.25, 180)	167.1 (4.25, 290)	37.7 (4.2, 180)
1985	6.21 (0.25, 100)	162.4 (4.0, 310)	37.6 (4.25, 150)
1986	5.71 (4.25, 180)	159.9 (0.8, 270)	37.0 (1.0, 240)

Notes: Concentrations are in $\mu g/m^3$.

Shown within parentheses are distance (km) and direction (degree) relative to ICL main boiler stack.

Table 5-15
INTERACTIVE BACKGROUND NO_2 IMPACTS
(Including ICL Stack Sources)

Year	Annual	Distance (m)	Direction (degree)
1982	5.58	600	320
1983	5.71	250	110
1984	5.07	250	120
1985	6.10	250	100
1986	5.33	250	110

Notes: Concentrations are in $\mu g/m^3$.

Table 5-16
SUMMARY OF AIR QUALITY ANALYSIS

Pollutant	Averaging Period	Year (Julian Day, Period)	ICL Sources	Interactive Background Sources	Monitored Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	FAAQS ($\mu g/m^3$)
SO_2	3-Hour	1982 (164,4)	0.0	182.0	61.0	243	1,300	1,300
	24-Hour	1983 (96)	0.0	48.5	12.6	61.1	365	260
	Annual	1982	0.11	6.77	1.3	8.18	80	60
NO_2	Annual	1985	4.42	1.68	5.4	11.5	100	100
PM[a]	24-Hour	1986 (164)	3.3	None	39.0	42.3	150	150
	Annual	1982	0.26	None	13.3	13.56	50	50
CO	1-Hour	1983 (11,11)	78.2	None	8,001	8,079.2	40,000	40,000
	8-Hour	1985 (21,1)	50.9	None	5,715	5,765.9	10,000	10,000

a - Stack and fugitive emissions combined.

6.0 VISIBILITY IMPACT ANALYSIS

An analysis was performed to assess the degree of visibility impairment to the nearest PSD Class I Area (Everglades National Park) associated with operation of the proposed ICL. The analysis was made in accordance with technical guidance provided in the Workbook For Plume Visual Impact Screening and Analysis (EPA, 1988b), as discussed in Section 3.6. Specifically, this evaluation quantified the visual impairment in terms of atmospheric discoloration from NO_X, particulates, and secondary aerosols and the visual range reduction (increased haze) from particulates and sulfates.

6.1 MODEL INPUT

The VISCREEN model was used to assess visibility impacts. Model inputs include particulate and NO_X stack emissions; distance from the ICL plant to the impact area; source-observer distance; the typical background visual range; and the hypothetical worst case meteorological conditions. These inputs are summarized as follows:

o	Maximum Stack Emissions	
	Particulates	61.65 lb/hr
	NO_X	582.6 lb/hr
o	Background Visual Range	40 km (EPA, 1980, p. 59)
o	Distance to Everglades NP	140 km (minimum distance)
o	Meteorological Conditions	Pasquill Stability Class F Wind Speed = 1 m/s

6.2 IMPACT ASSESSMENT

Using the data described above, the Level-1 model generates critical indexes for plume perceptibility (Delta E) and plume contrast against the sky or terrain.

If the absolute value of any one of these indexes is greater than 2 or 0.5 for Delta E or plume contrast, respectively, the emission source fails the Level-1 visibility screening test and continued evaluation using the Level-2 procedure is necessary. Results of the Level-1 visibility screening test are discussed in this section.

Emissions from the proposed ICL plant will be reduced by pollution control equipment such that only SO_2 and NO_2 have significant impact areas within 4.25 km and 4.5 km radii from the main stack, respectively. In addition, the opacity of emissions from the facility are limited to 20 percent. Therefore, impairment to visibility in the Everglades National Park, which is about 145 km to the south of the proposed facility, is expected to be minimal. However, the Class I visibility analysis has been made to demonstrate that no significant effects will be observed.

Various VISCREEN runs were also made to identify the optimum source-observer distance so that maximum visual impacts inside and outside the Class I area do not exceed the screening criteria. Two screening runs shown in Tables 6-1(a) and (b) are with different source-observer distances, 60 and 65 km, respectively. Table 6-1(b) shows that the optimum source-observer distance is 65 km. Since all of the indexes are below the corresponding screening limits, the proposed ICL plant passes the Level-1 visibility screening test. This indicates that, when operational, the facility will have insignificant visibility impairment during the worst meteorological conditions and that no significant visibility impairment will be observed in the Everglades National Park.

Table 6-1(a)
VISUAL EFFECTS SCREENING ANALYSIS FOR SOURCE: INDIANTOWN COGENERATION CLASS I AREA: EVERGLADES NATIONAL PARK

*** Level-1 Screening ***

Input Emissions for

Particulates	61.65	lb/hr
NO_X (as NO_2)	582.60	lb/hr
Primary NO_2	.00	lb/hr
Soot	.00	lb/hr
Primary SO_4	.00	lb/hr

**** Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	40.00 km
Source-Observer Distance:	60.00 km
Min. Source-Class I Distance:	140.00 km
Max. Source-Class I Distance:	145.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	161.	140.0	8.	2.00	.002	.05	.000
SKY	140.	161.	140.0	8.	2.00	.001	.05	.000
TERRAIN	10.	161.	140.0	8.	2.00	.006	.05	.000
TERRAIN	140.	161.	140.0	8.	2.00	.002	.05	.000

Table 6-1(a) (Continued)

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	60.	54.9	109.	2.00	2.480*	.05	-.004
SKY	140.	60.	54.9	109.	2.00	.862	.05	-.017
TERRAIN	10.	45.	51.0	124.	2.00	.508	.05	.008
TERRAIN	140.	45.	51.0	124.	2.00	.156	.05	.007

Table 6-1(b)
VISUAL EFFECTS SCREENING ANALYSIS FOR
SOURCE: INDIANTOWN COGENERATION
CLASS I AREA: EVERGLADES NATIONAL PARK

*** Level-1 Screening ***

Input Emissions for

Particulates	61.65	lb/hr
NO_X (as NO_2)	582.60	lb/hr
Primary NO_2	.00	lb/hr
Soot	.00	lb/hr
Primary SO_4	.00	lb/hr

**** Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	40.00 km
Source-Observer Distance:	60.00 km
Min. Source-Class I Distance:	140.00 km
Max. Source-Class I Distance:	145.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	159.	140.0	9.	2.00	.003	.05	.000
SKY	140.	159.	140.0	9.	2.00	.002	.05	.000
TERRAIN	10.	159.	140.0	9.	2.00	.008	.05	.000
TERRAIN	140.	159.	140.0	9.	2.00	.002	.05	.000

Tab;e 6-1(b) (Continued)

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE NOT Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	65.	60.6	104.	2.00	1.971	.05	-.003
SKY	140.	65.	60.6	104.	2.00	.682	.05	-.013
TERRAIN	10.	50.	56.8	119.	2.00	.374	.05	.006
TERRAIN	140.	50.	56.8	119.	2.00	.113	.05	.005

7.0 OTHER AIR-QUALITY-RELATED IMPACTS

7.1 POTENTIAL GROWTH IMPACTS

7.1.1 CURRENT LAND USE IN THE AREA

The proposed site is to be located 9 miles east of Lake Okeechobee within Indiantown Township, Martin County, Florida. The site is southwest of and abuts the Caulkins Citrus Processing Plant and the Florida Steel Corporation Indiantown steel mill property.

The site is currently zoned as industrial but has historically been used for agricultural purposes (grazing cows). This is consistent with the area surrounding the site as well. An aerial survey of the site area revealed patterns associated with a rural agricultural land use, multiple wetlands, and a few isolated rural residential pockets and industrial facilities. No areas of special value, scenic vistas, or recreational areas exist within the immediate site area.

7.1.2 PROJECTED GROWTH

The proposed facility will be capable of producing up to 225,000 pounds per hour of steam that will be sold to the Caulkins Citrus Processing Plant for use in its facility immediately to the northeast. The electric power that will be produced will be sold to FPL.

Construction of the proposed facility will require a work force averaging approximately 800 workers over an approximately 42-month period. An adequate work force now exists in an area of about 60-100 miles around the site to support this construction without importation of workers. As a result, there is very little projected influx of workers into any adjacent communities. A few workers will be expected to relocate temporarily during construction, and there will be some permanent relocation associated with operation. However, these numbers will be within planned area growth projections and will not be the cause of any increased development.

7.1.3 POTENTIAL IMPACTS

Minimal associated growth is anticipated as a result of the construction and eventual operation of the ICL plant and is within the growth projected to occur within the area. As a result no air-quality-related impacts directly attributable to the growth associated with the proposed plant are anticipated. Conversely, the construction and operation of the plant will eliminate the agricultural activity that currently occurs on the site.

7.2 POTENTIAL IMPACTS ON SOILS AND VEGETATION

Section 7.1.1 briefly discusses existing land use patterns found in the site area. As is stated in that section, the area is relatively rural and exhibits a mixed pattern of agricultural use for grazing and citrus groves, rural residential, industrial development and undeveloped woodland, open field, and wetland.

The 232-acre site is characterized by three vegetation communities: pine flatwoods, freshwater marsh (wet prairie), and ruderal lands (disturbed). Pine flatwoods occupy approximately 200.7 acres (87 percent); freshwater marsh and ditch occupy 23.3 acres (10 percent); ruderal lands (roads, trails, clearings, and existing transmission corridor) are found on approximately 8 acres (3 percent of the site).

7.2.1 SOILS

Soils are capable of removing sulfur dioxide and nitrogen dioxide directly from the atmosphere (Abeles, et al., 1971; Ghiorse and Alexander, 1976). Calculations indicate that soils in the United States have the capacity to accommodate the total sulfur dioxide and nitrogen oxide production rate current in the United States (Mudd and Kozlowski, 1975). Sulfur dioxide, when absorbed by the soil, is primarily converted to sulfite and sulfate; however, some may also be converted to organic sulfur. Nitrogen dioxide absorbed by the soil is likewise converted to nitrite and nitrates. This conversion, in contrast to that occurring with the sulfur compounds, may be aided by nitrifying micro-organisms in the soil (Ghiorse and Alexander, 1976). Nitrogen, in contrast to sulfur, is also a primary plant nutrient.

The primary effect of sulfur dioxide and nitrogen dioxide deposition and absorption by soils is the resultant lowering of the soil pH. Low soil pH will have an influence on most chemical and biological reactions in the soil. It accelerates mineral weathering and the release of phytotoxic ions to the soil solution. It will affect the migration of clay and organic materials down through the soil-profile development process, and it will affect the level and availability of most plant nutrients in the soil solution.

Aluminum and manganese mobility is also a primary area of concern, relative to heightened soil acidity. The presence of soluble aluminum in the soil is generally a result of acid weathering of clay materials. The solubility of soil minerals at low pH is of considerable importance to plant growth and is also a consideration when assessing the potential for the transport of ions to aquatic systems. Heavy metals that may be present in the soil will also be more readily available for uptake by vegetation at lower soil pH levels.

Trace elements absorbed to particulates emitted from coal-fired power plants reach soils by direct deposition, the washing of plant or any other particulate intercepting surfaces by rainfall, and the decomposition of plant litter. The potential for toxicity from particulate deposition on soils depends on the specific elements present and whether or not those elements are present in the soil in states that can be readily absorbed and assimilated by rooted growing plants. This availability is dependent on a variety of factors, including the physicochemical properties of the trace elements, the soil chemistry, the vegetation present, the biological characteristics of the soil, and any other affecting environmental parameter, such as temperature and precipitation.

Considerable work has been done on the effects of carbon monoxide on man and animals; however, little has been done in regard to potential impacts to soils and vegetation. It is known that soil micro-organisms will use carbon monoxide as a carbon source (Bennett and Hill, 1950).

Site Soils

According to the Martin County Soil Survey, soils on the proposed ICL site include: Lawnwood fine sand; Lawnwood fine sand, depressional; Waveland sand; Waveland sand, depressional; Basinger fine sand, Basinger fine sand, depressional; Sanibel muck; and Placid sand.

The three most common soil types are Waveland sand, Lawnwood fine sand, and Basinger fine sand. All are nearly level, poorly drained soils supporting pine flatwoods. The remaining soil types are hydric soils associated with the wet prairies. These are nearly level, poorly drained soils of depressions in the flatwoods. These soils are ponded for 6 or more months of the year.

Potential Impacts to Soils

Particulate deposition may affect soils by altering pH and by potentially increasing the availability of heavy metals in the soil for plant uptake. It has also been determined that uptake by vegetation will not increase dramatically unless the deposited trace elements were considerably more available than the endogenous forms. Those levels are projected not to be surpassed. In regard to the sizes of the deposited particles and the relationship of that particle size distribution to potential impacts, if it can be determined that the impact to soils of the total particulate deposition is insignificant, then the related impact of a portion of that total (particles less than 10 microns in diameter, or PM-10) would likewise be insignificant.

As to the potential for impact from emissions of carbon monoxide, the levels expected from the proposed plant (see Section 5.1.3) will not result in the potential for any significant adverse impacts to soils in the site area.

7.2.2 VEGETATION

This section discusses the potential for detrimental effects to vegetation associated with operation of the proposed ICL plant. General information concerning the variability of plant response to air pollution, types of injury, and characteristics of injury is presented to establish a background for consideration of the results of the analysis. Background land use and vegetational data are discussed to establish which plant species are to be considered in the analysis. Specific data relating to the sensitivity of important plants to SO_2, NO_2, and particulates is also provided.

The response of individual plant species to air pollutants varies not only with the concentration to which they are exposed and the duration of exposure, but with a wide range of environmental, physiological, and genetic factors as well. For example, SO_2 injury may be less likely for a plant's growth in sulfur-deficient soils. Under these conditions, SO_2 may even have a fertilizing effect (EPA, 1976). In general, factors which enhance plant growth may also increase injury.

The effects of air pollutants on vegetation can be placed into three broad categories: acute, chronic, and long-term. In the first case, injury is due to exposure to high concentrations over a relatively short period of time. Chronic injury is the result of exposure to relatively low concentrations over a longer period of time, whereas long-term injury includes abnormal changes in ecosystems and subtle physiological alterations of plants. Effects can be caused by both direct exposure to air pollutants and secondary factors such as changes in soil pH (FWS, 1978).

Air pollution may also affect entire ecosystems, as well as individual plants (Smith, 1974). Effects will, of course, vary, depending upon the pollutant load to which the system is subjected and the ecosystem in question.

Site Vegetation

Approximately 200 acres of pine flatwoods and 24 acres of wet prairie and ditch are present on the proposed plant site. An additional 8 acres of ruderal or disturbed land also occur within the proposed site as an existing transmission line right-of-way, clearings, roads, and trails. The ruderal land component of the proposed site contains a diverse array of opportunistic weedy plants, such as common ragweed, bahia grass, beggar's ticks, and dropseeds.

The wet prairies wetlands on the project site vary slightly in size, configuration, topographic relief, and hydroperiod. These natural features tend to regulate species composition and structure, together with other environmental factors such as drainage, rainfall, cattle/hog perturbations, edaphic conditions, and exotic species invasion. For comparative purposes, two hydrologically isolated wet prairies were sampled: a 0.45-acre, shallow depression located in the northeastern corner of the site and an 8.16-acre, deeper wetland located in the center of the property.

Both of the wet prairies sampled were relatively undisturbed. The smaller wet prairie was dominated by big carpetweed, blue maidencane, and bushy goldenrod, in order of magnitude. These three species are indicative of a transitional hydroperiod (i.e., dry most of the year with saturated to inundated conditions seasonally). The surface soil within the depression was dry at the ground surface during the sampling period. Species composition was uniform across the relatively flat system.

The larger wetland was moist at the upland/wetland interface (saw palmetto edge) and contained 6 to 14 inches of water in the center. Transitional wetland species occurred in a somewhat homogeneous fashion along the more landward reaches of the wetland. However, the ponded center of the wetland supported more obligate hydrophytes, such as pickerelweed, maidencane, frog's-bit, and mermaid's weed.

The zonation of obligate and facultative wetland species within the wetland conformed to the hydroperiod and soil types. The center of the wetland is ponded for 2 to 6 months in the rainy season and has a poorly drained, organic surface layer (Sanibel muck), while the wetland fringe is drier and is supported by a more sandy, poorly drained hydric soil (Lawnwood fine sand, depressional). The dominant wetland species of the larger wet prairie included blue maidencane, big carpetweed, shortspike bluestem, and maidencane, in order of magnitude.

The physiognomy of the pine flatwoods was rather homogeneous throughout. The herbaceous layer was dominated by wiregrass and other typical flatwoods species such as broomsedge, bottlebrush threeawn, dichanthelium grass, St. John's wort, and gallberry seedlings.

The shrub strata was dominated by the conspicuous saw palmetto. Woody components of the shrub layer in order of magnitude include gallberry, staggerbush, dwarf live oak, pawpaw, and tarflower. The canopy was open and consisted solely of south Florida slash pine. The south Florida slash pine sampled ranged in diameter-at-breast-height from 4 to 16.5 inches.

Potential Impacts to Vegetation from SO_2 Emissions

Since research on acute effects of SO_2 on vegetation has been carried out for a number of years, it is possible to classify various plants with respect to their sensitivity to this pollutant (FWS, 1978). Plants have been ranked as sensitive, intermediate, or resistant in this regard. Table 7-1 lists the sensitivity of 47 plants, trees, and important agricultural crops which have been identified as sensitive to SO_2 emission. Dose-response curves have been presented for each sensitivity class and may be used to determine the possibility of SO_2 injury (see Figures 7-1 to 7-3). As noted in the figures, the lowest 3-hour concentration expected to cause injury or damage to sensitive vegetation is about 0.15 ppm (390 $\mu g/m^3$).

The highest second-highest incremental 3-hour ground-level SO_2 concentration predicted to result from operation of the ICL plant is 24.7 $\mu g/m^3$, occurring 0.25 km east of the site (see Section 5.3.2). Since this concentration is well below threshold values for sensitive species, it is not expected to result in vegetation injury. Even considering the combined 3-hour maximum impact (ICL + interactive background sources + monitored background), the concentration is 242 $\mu g/m^3$ which is only about 62 percent of the injury threshold level (390 $\mu g/m^3$) for sensitive vegetation.

Potential Impacts to Vegetation from NO_2 Emissions

Of the various oxides of nitrogen, NO and NO_2 are important air pollutants. In relation to air pollution injury to vegetation, NO_2 is of primary concern, since NO is oxidized to NO_2 in the atmosphere. While the database is not as extensive for NO_2 as for SO_2, plant sensitivity ratings have nonetheless been developed for this pollutant (EPA, 1976). As with SO_2 response, plants have been ranked as sensitive, intermediate, or resistant with respect to their susceptibility to injury from NO_2. Table 7-2 categorizes plants which are important agricultural or forest species, with respect to NO_2 sensitivity.

A dose-response curve has also been developed for NO_2; this may be used to determine the possibility of injury to vegetation Figure 7-4). As shown in the figure, threshold levels for 3-hour and 24-hour exposures are about 1.0 and 0.4 ppm (1,890 and 750 ug/m^3), respectively. The maximum 3-hour and 24-hour NO_2 impacts calculated for the ICL area are 95 and 44.5 $\mu g/m^3$, respectively. Since the maximum expected levels are several orders of magnitude below the threshold levels, no injury to vegetation from this pollutant is expected.

Potential Impacts to Vegetation from Particulate Emissions (TSP/PM10)

In comparison with the effects of SO_2 and NO_2 on plants, less is known concerning particulate matter. Particulate matter varies greatly in size and chemical composition. However, most studies fail to define one or both of these parameters when discussing effects on vegetation. Thus, dose-response curves, such as those utilized for SO_2 and NO_2, have not been generated.

Studies relating to particulates have addressed a number of pollutant sources and specific particles; however, most data pertain primarily to the effects of settlable dusts. Studies have shown that cement kiln dust, which is higher in lime than coal combustion particulates (Jones, et al., 1979), does have an affect on both fir trees and bean plants (Mudd and Kozlowski, 1975; Darley, 1966). Limestone dust in concentrations averaging 824 $\mu g/m^3$ has also been shown to affect tree growth, disease susceptibility of plants, and forest composition (Brandt and Rhodes, 1972, 1973; Manning, 1971). This average concentration, however, is several times greater than either of the applicable federal or state particulate standards to which the plant will be held (see Table 2-5). The highest second-highest predicted 24-hour ground level concentration from the ICL facility is 3.3 $\mu g/m^3$ (for TSP) at the site boundary (42.3 $\mu g/m^3$ with background) (see Section 5.3.2). It can therefore be concluded that particulate emissions from the ICL plant are not anticipated to cause injury in vegetation.

As with impacts to soils, the fact that impacts to vegetation are expected to be insignificant from deposition of all potential particulate emissions supports the expectation that impacts from the deposition particles in the PM-10 size range will likewise be insignificant.

Potential Impacts to Vegetation from CO Emissions

In comparison with other pollutants, relatively little research has been accomplished regarding the effects of CO on vegetation. Available information indicates that a potential does exist for impacts to vegetation, but only at levels of concentration far in excess of those expected from operation of the ICL. The maximum incremental 1-hour CO concentration expected is 78.2 $\mu g/m^3$. At this level, vegetation damage is not anticipated. Furthermore, soil micro-organisms can use carbon monoxide as a carbon source (Bennett and Hill, 1950).

7.3 COOLING TOWER IMPACTS

This section addresses impacts associated with the operation of the ICL cooling tower. Potential effects of long-term salt deposition, due to cooling tower drift, on nearby soils and vegetation are discussed. Additionally, climatological impacts (i.e., enhanced potential for fogging and icing conditions) in the site vicinity are also summarized.

General tower design and performance data are provided, as well as input to the cooling tower drift model used for these analyses (see Section 3.7.3). The results from these analyses are summarized in the following subsections.

7.3.1 COOLING TOWER DESIGN

A mechanical draft, counter-flow cooling tower with a bank of 10 cells is proposed to meet the closed-loop cooling requirements of the ICL plant. Design data for the cooling tower are presented in Table 7-3. The drift rate of the proposed cooling tower is 0.002 percent, or 5.3 gpm. The total dissolved solids of the system is about 2,800 milligrams per liter (mg/l).

7.3.2 MODEL INPUT

The SACTI mathematical model (see Section 3.7.3) incorporates the tower performance, which relates exit air temperature to ambient wet bulb temperature, and drift rate, which is expressed as a percentage of the total circulating water flow, as discussed above. The model also requires a drift droplet size distribution. The distribution input to the model is based on a study of mathematical models that characterize plume and drift behavior from cooling towers (EPRI, 1980), and is listed in Table 7-4.

Meteorological data used by the model were from the NWS station in West Palm Beach, (see Section 4.3). To assess the impacts of cooling tower operation with respect to salt deposition rates and enhanced fogging and icing conditions in the site vicinity, a 5-year composite meteorological data set (1982-1986) from West Palm Beach was used.

The SACTI model calculations used a polar coordinate receptor grid system. The grid system was centered on the center cell of the proposed cooling tower.

Receptors were placed at 22.5-degree intervals at downwind distances ranging from 0.1 to 10 km at successive 100-meter intervals for salt deposition estimates. For the visible plume analysis, receptors ranged from 50 to 5,000 m at successive intervals of 50 meters.

7.3.3 IMPACT ASSESSMENTS

The environmental impacts addressed include an assessment of the potential effects on nearby soils and vegetation from salt drift deposition. Climatological impacts are discussed in terms of the potential for enhanced fogging and icing in the vicinity of the plant and possible related impacts to traffic.

Soil/Vegetation Impacts

Seasonal and annual salt deposition rates were calculated in units of kg/km^2/month. By applying a factor of 0.0089, this unit can be converted to lb/acre/month. Table 7-5 shows that the majority of the drift is deposited on site, within 100 meters of the cooling tower on an annual basis. The maximum off-site salt deposition rate is about 18.1 lb/acre/month. This value occurs 200 m north of the cooling tower during the summer season. The Caulkins Citrus Processing Plant and Florida Steel Corporation are located to the north and east of the ICL cooling tower, respectively; thus, the maximum off-site salt deposition rate occurs within the Caulkins Citrus property. Beyond the property boundaries of the neighboring facilities, the maximum salt deposition rate in all directions is 2.8 lb/acre/month, occurring 600 m to the west of the cooling tower. This maximum impact occurred during the fall season.

One mechanism for the impact of saline drift on plants is through the absorption of salt accumulated in the soil. Accumulation will occur if the annual deposition of salt exceeds the rate at which salt is washed from the soil by rainfall. The results of studies (MPPSP, 1979, pp. 4-18 to 4-23) with sandy loam soil suggest that a deposition rate of about 89 lb/acre/month (100 kg/Ha/month) of NaCl can cause some accumulation of salt in the soil. As stated above, the maximum off-site salt deposition rate is 18.1 lb/acre/month. This value is much lower than the monthly threshold value that causes salt accumulation in soil. Therefore, no significant soil impacts are expected. The annual average rainfall rate at the ICL site area is considerably higher than the Chalk Point, Maryland area in the quoted study. Therefore, the threshold value used in the analysis is conservative.

Direct salt damage to vegetation is due to the absorption of salt from drift that is deposited on a plant's leaves. The absorbed salt can cause immediate damage or accumulate in the woody tissue of perennial plants until it reaches toxic levels.

An investigation of the potential effects of cooling tower drift on vegetation was conducted in which predicted salt deposition rates (i.e., an estimated amount of salt deposited over a unit area per season and year at a certain direction and "distance" away from the tower) were compared to available salt injury thresholds.

Near the edge of the proposed power plant site boundary, salt deposition rates on an annual basis (i.e., the equivalent rate in lb/acre/month times 12 months per year) range from 0.42 to 216.9 lb/acre/year. The greatest concentrations are generally located to the north and east of the proposed power plant, where existing industrial facilities are located. Citrus, a potentially sensitive plant to salt deposition, is present in large groves from the south-southeast clockwise through the southwest and also to the northwest of the cooling tower. The closest groves are about 4,000 feet to the southwest and about 4,200 feet to the south of the cooling tower. At these locations the highest levels of salt deposition over an annual period are about 0.6 lb/acre/year and 1.1 lb/acre/year, respectively; this should not result in any significant foliar, shoot, or fruit damage or any long-term reductions in growth, yield, or photosynthesis.

Cooling tower drift will also deposit salt on the surrounding improved pasture, truck crops, dairy farms, and sugar cane agricultural land and in the area around the proposed cogeneration plant site, but at distances from the tower much greater than to the citrus groves. The agricultural land around the proposed plant should not be affected by these emissions, since the maximum amount of salt deposited will only amount to about 1 lb/acre/year at the closest distance to agriculture near the site (i.e., the citrus groves). A cautionary limit of 100 lb/acre/year can be used for agricultural areas based upon known salt injury thresholds to crops. e.g., tobacco, 214 lb/acre/year; corn, 107 lb/acre/year; and soybean, 107-154 lb/acre/year (Mulchi, Wolf, and Armbruster, 1978). Therefore, the proposed plant operation would not cause the cautionary limit to be approached or exceeded within agricultural areas.

Based upon a literature review, one of the most sensitive native plant species to salt injury is flowering dogwood (Cornus florida). The lowest injury threshold for flowering dogwood is reported at 81 lb/acre/year (Curtis, et al., 1978). Although flowering dogwood is only naturally occurring much further north of Martin County, a similar dogwood species, stiff cornell (Cornus foemina) would be expected within the mixed and cypress swamps in the immediate area (approximately 2,900 feet southeast of the cooling tower).

On the basis of the reported injury threshold and a predicted maximum annual salt deposition rate of 2.7 lb/acre/year in the vicinity of forested wetlands offsite, no adverse effects to dogwood or other indigenous vegetation is expected at this location. Native vegetation associated with pine and wet prairies does occur on the site and along property boundaries. Salt deposition could, at a maximum, range from 172.8 to 216.9 lb/acre/year on the northern property boundary and at higher rates within the site, possibly resulting in plant injury. Furthermore, the "units" of the modeling results shown in Table 7-5 (whether kg/km^2/month or lb/acre/month) imply that the deposition rate value applies uniformly over the entire unit area; for example, a square kilometer. However, the value is actually determined for the specific receptor point; if the rate of deposition at the point were the same over the entire unit area, then the reported value would result. But, as the values in Table 7-5 show, there is a large gradient in deposition rates between adjacent direction sectors and successive downwind distances. Therefore, the numerical results are generally conservative, and so it is not known to what degree and over what period any adverse effects to plant physiology would be evidenced.

Based upon the assumption that ambient salt deposition rates in the region are minimal, salt deposited from the cooling towers should have no significant adverse effect on natural vegetation or crops just outside site boundaries or in the region of the proposed cogeneration plant.

Climatological Impacts

Local climatological data from the West Palm Beach NWS station were used to characterize ambient fogging and icing conditions in the absence of the proposed cooling tower (DOC, 1972). On average, heavy fog conditions (i.e., with visibility at 1/4 mile or less), which are generally in response to synoptic-scale meteorological conditions, occur about 8 days per year. Because of the prevailing subtropical conditions, no snow was observed during the 29-year period.

In this study, 5 years of hourly surface data and twice-daily mixing height data for the NWS station at West Palm Beach (1982 to 1986) were input to the model to describe ambient atmospheric conditions. The model sorts the hourly meteorological data into classes defined by wet-bulb temperature, relative humidity, and wind speeds for the 16 compass directions (i.e., north, north-northeast, northeast, etc.). The maximum downwind horizontal extent of the elevated visible cooling tower plume is more than 5 km at a height of 1 km above the ground. The highest frequency of this condition occurred 0.73 percent of the time in the northeast direction. The frequency and vertical extent of visible plume occurrence resulting from the operation of the cooling tower is presented in Table 7-6 for all 16 directions out to 5 km.

In view of the small frequency of the occurrence (64 hours/year) of the visible plume in any given direction, the impact of the cooling tower on local climatology is expected to be insignificant.

Potential Traffic Impacts

The visible plume may reduce visibility if it crosses the path of ground-based or air traffic. The only nearby public road is U.S. Route 710. Its closest approach to the plant site is at least 750 meters to the northeast. At this distance, the plume height is about 150 meters above the ground (see Table 7-6(c)). Since terrain around the plant site is essentially flat, visibility on nearby roads is not expected to be degraded by the formation of this elevated visible plume. With respect to potential visibility impacts to air traffic, the Circle T Ranch airport, located about 5 miles to the east-northeast of the plant site, is the closest airport to the proposed facility that is open to the general public. The visible plume length in the ENE direction of the ICL cooling tower is only 150 meters. Therefore, the visible plume will not hinder the safe operation of aircraft during takeoff or landing at the Circle T Ranch airport. The nearest private airport is located 2.5 miles north of the plant site. The visible plume length in the north direction of the ICL cooling tower is only 150 meters. Thus, the visible plume will not have adverse impact on the safe operation of aircraft during takeoff or landing. Two major airports, West Palm Beach and Stuart, are more than 20 miles away from the ICL site. No significant visible plume impacts are expected at these distant airports.

Induced ground-level fogging will occur during plume downwash conditions. This locally induced fog will be dissipated rapidly due to the high winds associated with plume downwash conditions. Most of the plume fogging events occurred within 300 meters of the cooling tower (see Table 7-7). Plume fogging is estimated to occur up to 1.25 kilometers from the tower for the south and south-southeast directions only. Since the northwest-southeast oriented Route 710 is more than 750 meters from the plant, the building-induced ground fog occurred in the south and south- southeast directions will never obstruct the traffic flow on that road. Similar to the climatological data, the SACTI model predicted no occurrence of icing in this subtropical area. The frequency of fogging and icing occurrences resulting from the operation of the cooling tower is presented in Table 7-7.

Table 7-1
RELATIVE SENSITIVITY TO SO_2 OF PLANTS IDENTIFIED ON SITE AND OF IMPORTANT AGRICULTURAL CROPS AND FOREST TREES[a]

SPECIES	SENSITIVITY RATING[b]
Trees and Shrubs	
Blackberry	S
Black willow	S
Blueberry	S
Green ash	S
Large-toothed aspen	S
Staghorn sumac	S
Tulip poplar	S
Virginia pine	S
Cottonwood	I
Red maple	I
Rose	I
White oak	I
Beech	R
Black gum	R
Black locust	R
Pin oak	R
Red oak	R
Smooth sumac	R
White dogwood	R
Herbaceous Plants	
Bindweed	S
Black mustard	S
Broomgrass	S
Cocklebur	S
Dandelion	S
Goldenrod	S
Iris	S
Lambs quarters	S
Nightshade	S
Orchard grass	S
Prickly lettuce	S
Ragweed	S
Sour dock	S
Sweet clover	S, I[c]

Table 7-1 (Continued)

SPECIES	SENSITIVITY RATING[b]
Violet	S
Cordgrass	I
Milkweed	I
Deptford pink	R
Barley	S
Cucumber	S
Herbaceous Plants (Continued)	
Lima bean	S
Pea	S, I[c]
Rye	S
Crops and Vegetables	
Soybean	S
Spinach	S
Wheat	S
Irish potato	I
Corn	R

NOTES:

a - Sources: (Anderson, 1979; Ghiorse and Alexander, 1976).

b - S = sensitive, I = intermediate, R = resistant

c - This species is noted in two categories since the source list was compiled from the data of numerous researchers.

Table 7-2
RELATIVE SENSITIVITY TO NO_2 OF PLANTS IDENTIFIED IN THE SITE AREA AND OF IMPORTANT AGRICULTURAL CROPS AND FOREST TREES[a]

SPECIES	SENSITIVITY RATING[b]
Trees and Shrubs	
Black locust	R
Hornbean	R
Oak	R
Pine	R
Herbaceous Plants	
Black mustard	S
Dandelion	I
Lamb's quartersR	
Pigweed	R
Crops and Vegetables	
Apple tree	S
Barley	S
Bean	S, I[c]
Pea	S
Corn	I
Tomato	I
Wheat	I
Asparagus	R

a - Source: EPA, 1976.

b - S = sensitive, I = intermediate, R = resistant

c - This species is rated in two categories since several varieties are involved.

Table 7-3
ICL MECHANICAL-DRAFT COOLING TOWER DESIGN PARAMETERS

Number of Cells	10
Heat Load	1,655 MMBtu/hr
Circulating Water Flow Rate	265,000 gpm
Design Wet Bulb Temperature	80 °F
Approach	10 °F
Range	83 °F - 108 °F
Air Flow Rate Per Cell	1,575,000 acfm/cell
Drift Rate	0.002%
Tower Dimension	60 ft x 600 ft x 56 ft
Fan Diameter	32.8 ft

Table 7-4
COMPOSITE COOLING TOWER DRIFT EMISSION SPECTRUM[a]

Interval	dl (μm)	d_u (μm)	Mass Fraction(%)
1	0	10	0.00
2	10	20	0.53
3	20	30	4.43
4	30	40	7.41
5	40	50	6.51
6	50	60	5.48
7	60	70	3.51
8	70	90	3.26
9	90	110	1.78
10	110	130	0.95
11	130	150	0.76
12	150	180	1.10
13	180	210	1.17
14	210	240	1.32
15	240	270	1.41
16	270	300	1.82
17	300	350	2.67
18	350	400	2.33
19	400	450	2.29
20	450	500	1.51
21	500	600	4.33
22	600	700	3.51
23	700	800	3.82
24	800	900	2.73
25	900	1000	1.71
26	1000	1200	3.19
27	1200	1400	3.32
28	1400	1600	6.43
29	1600	1800	2.21
30	1800	2000	3.07
31	2000	2200	15.4

a - Source:EPRI, 1984.
b - Droplet diameter lower (d_l) and upper (d_u) size range in microns (um) for given interval.

TABLE 7-5. COOLING TOWER SALT DEPOSITION

************************************ PLUME SALT DEPOSITION TABLE (KG./(KM.**2-MO.)) ************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

DISTANCE FROM TOWER (M)	WIND FROM																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	14275.	9260.	20325.	29540.	58567.	32095.	33592.	19129.	22912.	8524.	9615.	8029.	12659.	9890.	13048.	11616.	19567.
200.	1220.	811.	1648.	2432.	4783.	2309.	2425.	1618.	2031.	1135.	1247.	709.	1132.	752.	989.	1024.	1642.
300.	355.	189.	368.	626.	1222.	641.	681.	424.	552.	306.	332.	210.	338.	212.	274.	317.	440.
400.	155.90	96.79	185.59	302.16	607.37	376.13	398.54	215.03	276.18	152.30	167.71	92.40	145.42	137.64	182.63	130.66	226.40
500.	112.58	44.19	84.58	150.72	307.94	187.54	205.79	132.92	197.61	72.64	80.82	70.61	111.35	48.03	62.36	106.76	123.53
600.	86.71	19.36	33.76	111.32	224.80	143.09	156.47	94.10	141.12	38.27	42.48	54.99	87.23	40.59	53.27	84.55	88.26
700.	40.49	14.31	25.33	68.80	137.59	111.68	121.19	50.23	67.68	24.14	27.51	23.41	36.79	32.73	41.81	34.50	53.64
800.	26.35	8.65	13.97	30.49	62.18	74.86	82.44	28.58	44.64	19.16	21.46	16.12	26.15	22.03	29.61	25.87	33.29
900.	17.79	5.45	8.69	21.67	42.54	46.63	53.01	16.99	24.76	11.74	13.02	9.95	16.54	18.80	25.19	16.77	21.85
1000.	15.45	3.94	6.25	20.88	40.77	44.66	50.22	15.49	21.44	8.49	9.47	8.33	13.74	17.80	23.43	14.02	19.65
1100.	18.58	3.21	4.99	18.81	37.24	40.36	44.53	15.44	27.17	7.17	7.95	12.08	20.93	14.30	18.10	18.99	19.37
1200.	23.52	4.59	5.93	16.86	32.89	36.44	40.44	15.73	36.24	14.22	15.35	17.48	31.64	12.28	15.42	26.54	21.60
1300.	10.34	3.75	4.78	12.42	24.36	26.30	29.60	9.37	14.34	11.93	12.80	5.62	9.62	7.83	10.04	10.25	12.71
1400.	21.07	1.63	2.84	20.06	47.09	18.41	19.82	30.39	41.71	2.80	3.24	11.69	17.61	3.89	5.52	13.51	16.33
1500.	14.12	1.48	2.68	15.65	35.62	18.36	19.75	21.52	28.55	2.47	2.82	7.66	11.43	3.87	5.50	8.51	12.50
1600.	3.34	.80	1.23	6.08	11.61	16.80	18.23	3.60	4.72	2.03	2.30	1.80	3.04	3.65	5.28	3.16	5.48
1700.	3.31	.51	.61	5.86	11.34	13.06	14.11	3.56	4.70	1.79	2.03	1.79	2.99	3.26	4.78	3.15	4.80
1800.	3.20	.49	.60	5.82	11.28	5.31	5.66	3.49	4.58	1.74	1.95	1.75	2.93	2.72	3.93	3.06	3.66
1900.	3.17	.48	.58	5.80	11.26	5.18	5.49	3.48	4.56	1.69	1.87	1.74	2.91	2.47	3.45	3.03	3.57
2000.	3.16	.46	.56	5.80	11.24	4.95	5.18	3.46	4.52	1.64	1.83	1.73	2.89	2.02	2.66	3.02	3.45
2100.	3.15	.41	.50	5.80	11.22	4.88	5.06	3.45	4.52	1.47	1.67	1.73	2.89	1.93	2.49	3.01	3.39
2200.	2.55	.37	.45	3.08	5.98	4.56	4.76	2.32	3.64	1.31	1.47	1.51	2.53	1.88	2.45	2.76	2.60
2300.	2.39	.34	.41	3.02	5.88	1.58	1.92	2.20	3.42	1.18	1.34	1.43	2.40	1.17	1.60	2.56	2.05
2400.	2.00	.29	.36	2.91	5.63	1.28	1.56	1.95	2.86	.94	1.09	1.18	2.00	.66	1.00	2.01	1.73
2500.	1.55	.26	.33	2.75	5.31	1.23	1.49	1.70	2.30	.80	.88	.85	1.43	.63	.97	1.38	1.49
2600.	1.27	.25	.32	2.68	5.17	1.05	1.25	1.59	2.01	.77	.83	.66	1.09	.59	.92	1.00	1.34
2700.	1.15	.23	.30	2.41	4.83	.76	.90	1.51	1.87	.74	.80	.57	.92	.46	.76	.87	1.19
2800.	1.10	.23	.30	2.40	4.80	.76	.90	1.48	1.79	.73	.80	.54	.86	.43	.73	.82	1.17
2900.	.95	.16	.21	2.34	4.63	.76	.90	1.36	1.51	.54	.62	.45	.69	.43	.73	.68	1.06
3000.	.73	.14	.19	1.63	3.18	.76	.89	.94	1.05	.47	.55	.34	.55	.43	.72	.57	.82
3100.	.40	.13	.17	.21	.44	.35	.46	.34	.58	.41	.49	.23	.37	.40	.68	.43	.38
3200.	.36	.12	.17	.19	.41	.33	.41	.31	.53	.39	.46	.21	.34	.38	.63	.39	.35
3300.	.34	.11	.15	.18	.40	.32	.40	.30	.52	.35	.40	.20	.33	.38	.62	.38	.34
3400.	.34	.11	.15	.18	.40	.32	.40	.30	.52	.35	.40	.20	.33	.38	.62	.38	.34
3500.	.34	.10	.13	.18	.40	.32	.40	.30	.52	.28	.35	.20	.33	.38	.62	.38	.33
3600.	.34	.09	.12	.18	.40	.32	.40	.30	.52	.21	.27	.20	.33	.38	.62	.38	.32
3700.	.34	.08	.10	.18	.40	.32	.40	.30	.52	.20	.26	.20	.33	.38	.62	.38	.31
3800.	.34	.04	.05	.18	.40	.32	.40	.30	.52	.11	.15	.20	.33	.38	.62	.38	.30
3900.	.34	.03	.04	.18	.40	.27	.32	.30	.52	.06	.07	.20	.33	.29	.46	.38	.26
4000.	.32	.02	.04	.16	.37	.24	.28	.28	.50	.06	.07	.20	.32	.23	.33	.36	.23
4100.	.30	.02	.04	.14	.34	.23	.27	.26	.48	.06	.07	.20	.31	.19	.28	.35	.22
4200.	.30	.02	.04	.14	.34	.22	.26	.26	.47	.06	.06	.19	.31	.19	.27	.35	.22
4300.	.30	.02	.03	.14	.34	.21	.24	.26	.47	.06	.06	.19	.31	.17	.25	.35	.21
4400.	.30	.02	.03	.14	.34	.17	.18	.26	.47	.05	.06	.19	.31	.13	.17	.35	.20
4500.	.24	.02	.03	.09	.21	.17	.18	.16	.34	.05	.06	.16	.26	.12	.17	.32	.1
4600.	.24	.02	.03	.09	.20	.16	.17	.16	.33	.05	.06	.16	.26	.12	.16	.32	.1
4700.	.24	.02	.03	.09	.20	.16	.17	.15	.32	.05	.06	.16	.25	.12	.16	.31	.1
4800.	.24	.02	.03	.09	.20	.16	.17	.15	.32	.05	.05	.16	.25	.12	.16	.31	.1
4900.	.24	.02	.03	.09	.20	.16	.17	.15	.32	.05	.05	.16	.25	.12	.16	.31	.1
5000.	.20	.02	.03	.08	.17	.16	.17	.13	.27	.05	.05	.13	.20	.12	.16	.25	.1

TABLE 7-5. COOLING TOWER SALT DEPOSITION (Contd.)

************************************ PLUME SALT DEPOSITION TABLE (KG./(KM.**2-MO.)) ************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

NCE	**********							WIND FROM	**********								
OM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
ER	**********							PLUME HEADED	**********								
)	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
00.	.20	.02	.03	.08	.17	.16	.17	.13	.27	.05	.05	.13	.20	.12	.16	.25	.14
00.	.20	.02	.03	.08	.17	.16	.17	.13	.27	.05	.05	.13	.20	.12	.16	.25	.14
00.	.19	.02	.02	.08	.17	.16	.17	.12	.25	.05	.05	.12	.19	.12	.16	.24	.13
00.	.17	.02	.02	.07	.16	.16	.17	.10	.23	.05	.05	.11	.18	.12	.16	.21	.12
00.	.16	.02	.02	.07	.15	.16	.17	.10	.22	.05	.05	.11	.17	.12	.16	.20	.12
00.	.13	.02	.02	.06	.14	.16	.17	.09	.18	.05	.05	.08	.14	.12	.16	.16	.11
00.	.12	.02	.02	.06	.13	.16	.17	.09	.18	.05	.05	.08	.13	.12	.16	.14	.10
00.	.10	.02	.02	.06	.12	.16	.17	.08	.15	.05	.05	.07	.12	.12	.16	.12	.10
00.	.09	.02	.02	.05	.12	.16	.16	.07	.14	.05	.05	.06	.11	.10	.14	.11	.09
00.	.09	.02	.02	.05	.12	.15	.16	.07	.14	.05	.05	.06	.11	.09	.12	.11	.09
00.	.09	.02	.02	.05	.12	.15	.16	.07	.14	.05	.05	.06	.11	.09	.12	.11	.09
00.	.09	.02	.02	.05	.12	.15	.16	.07	.14	.05	.05	.06	.11	.09	.12	.11	.09
00.	.09	.02	.02	.05	.12	.15	.16	.07	.14	.05	.05	.06	.11	.09	.12	.11	.09
00.	.09	.02	.02	.05	.12	.15	.16	.07	.14	.05	.05	.06	.11	.09	.11	.11	.09
00.	.09	.02	.02	.05	.11	.15	.16	.07	.14	.05	.05	.06	.11	.08	.11	.11	.09
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.05	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.05	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.05	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.04	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.04	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.04	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.04	.05	.06	.11	.07	.09	.10	.08
00.	.09	.02	.02	.05	.11	.14	.15	.07	.14	.04	.05	.06	.11	.07	.09	.10	.08
00.	.08	.02	.02	.05	.11	.14	.15	.06	.13	.04	.05	.06	.10	.07	.09	.09	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.05	.06	.09	.07	.10	.08	.08
00.	.07	.02	.02	.05	.11	.14	.15	.06	.12	.04	.04	.05	.09	.07	.10	.08	.08
00.	.06	.02	.02	.05	.10	.14	.15	.05	.11	.04	.04	.05	.09	.07	.10	.08	.07
00.	.06	.02	.02	.05	.10	.14	.15	.05	.11	.04	.04	.05	.09	.07	.09	.08	.07
00.	.06	.02	.02	.05	.10	.14	.15	.05	.11	.04	.04	.05	.09	.07	.09	.08	.07
00.	.06	.02	.02	.05	.10	.14	.15	.05	.11	.04	.04	.05	.09	.07	.09	.08	.07
00.	.06	.02	.02	.05	.10	.14	.14	.05	.11	.04	.04	.05	.09	.07	.09	.08	.07
00.	.06	.02	.02	.05	.10	.14	.14	.05	.11	.04	.04	.05	.08	.06	.09	.07	.07
00.	.06	.01	.02	.04	.10	.14	.14	.05	.10	.04	.04	.04	.07	.06	.08	.07	.07
00.	.05	.01	.02	.04	.08	.13	.14	.04	.08	.03	.04	.04	.07	.06	.07	.06	.06
00.	.05	.01	.02	.04	.08	.13	.13	.04	.08	.03	.04	.04	.07	.04	.05	.06	.06
00.	.05	.01	.02	.04	.08	.13	.13	.04	.08	.03	.04	.04	.07	.04	.05	.06	.06
00.	.05	.01	.02	.04	.07	.13	.13	.03	.07	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.11	.11	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05
00.	.04	.01	.02	.03	.07	.10	.10	.03	.06	.03	.03	.03	.05	.04	.05	.05	.05

TABLE 7-6(a). VISIBLE PLUME FREQUENCY

1 ************************************ PLUME LENGTH FREQUENCY TABLE ************************************
INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)
SEASON=ANNUAL

DISTANCE FROM TOWER (M) — WIND FROM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
PLUME HEADED	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	5.30	2.44	4.80	7.74	15.68	9.62	10.42	6.05	8.35	3.53	3.95	3.23	5.09	3.76	5.10	4.93	100.00
100.	.34	1.75	3.62	.81	1.02	.30	.39	.16	.22	2.17	2.57	.17	.40	.37	.40	.33	15.02
150.	.12	.44	.53	.77	.98	.13	.18	.13	.09	1.69	1.96	.05	.18	.30	.29	.05	7.89
200.	.02	.37	.41	.01	.04	.13	.18	.00	.00	1.51	1.79	.00	.00	.30	.29	.01	5.08
250.	.02	.25	.25	.01	.04	.13	.18	.00	.00	1.15	1.41	.00	.00	.30	.29	.01	4.05
300.	.00	.21	.19	.00	.00	.03	.03	.00	.00	.99	1.21	.00	.00	.20	.24	.00	3.10
350.	.00	.17	.15	.00	.00	.03	.03	.00	.00	.82	1.02	.00	.00	.20	.24	.00	2.67
400.	.00	.17	.15	.00	.00	.03	.03	.00	.00	.82	1.02	.00	.00	.20	.24	.00	2.67
450.	.00	.17	.15	.00	.00	.03	.03	.00	.00	.82	1.02	.00	.00	.20	.24	.00	2.67
500.	.00	.13	.12	.00	.00	.03	.03	.00	.00	.62	.73	.00	.00	.20	.24	.00	2.11
550.	.00	.13	.12	.00	.00	.03	.03	.00	.00	.62	.73	.00	.00	.20	.24	.00	2.11
600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1050.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1100.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1150.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1200.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1250.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1300.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1350.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1400.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1450.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1500.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1550.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2050.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2100.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2150.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2200.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2250.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2300.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2350.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2400.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2450.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2500.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08

TABLE 7-6(b). VISIBLE PLUME FREQUENCY (Contd.)

1 ************************************ PLUME LENGTH FREQUENCY TABLE ************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

DISTANCE FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
2950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3050.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3100.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3150.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3200.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3250.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3300.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3350.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3400.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3450.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3500.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3550.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
3950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4050.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4100.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4150.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4200.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4250.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4300.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4350.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4400.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4450.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4500.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4550.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
4950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
5000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08

TABLE 7-6(c). VISIBLE PLUME FREQUENCY

1 ************************************* PLUME HEIGHT FREQUENCY TABLE *************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)
SEASON=ANNUAL

HEIGHT FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
******** PLUME HEADED ********	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	5.30	2.44	4.80	7.74	15.68	9.62	10.42	6.05	8.35	3.53	3.95	3.23	5.09	3.76	5.10	4.93	100.00
20.	5.30	2.30	4.37	7.74	15.67	9.62	10.42	6.05	8.35	3.48	3.89	3.23	5.09	3.76	5.10	4.93	99.30
30.	.42	.45	.53	.06	.13	.55	.73	.11	.45	1.69	1.96	.31	.55	1.01	1.20	.54	10.70
40.	.22	.41	.44	.03	.04	.03	.03	.03	.13	1.65	1.91	.12	.21	.20	.24	.28	5.96
50.	.00	.41	.44	.00	.00	.03	.03	.00	.00	1.65	1.91	.00	.00	.20	.24	.00	4.91
60.	.00	.33	.33	.00	.00	.03	.03	.00	.00	1.44	1.73	.00	.00	.20	.24	.00	4.32
70.	.00	.28	.29	.00	.00	.03	.02	.00	.00	1.31	1.60	.00	.00	.18	.24	.00	3.95
80.	.00	.25	.25	.00	.00	.03	.02	.00	.00	1.15	1.41	.00	.00	.18	.24	.00	3.53
90.	.00	.21	.19	.00	.00	.03	.02	.00	.00	.99	1.21	.00	.00	.18	.24	.00	3.07
100.	.00	.17	.15	.00	.00	.03	.02	.00	.00	.82	1.02	.00	.00	.18	.24	.00	2.64
110.	.00	.17	.15	.00	.00	.03	.02	.00	.00	.82	1.02	.00	.00	.18	.24	.00	2.64
120.	.00	.17	.15	.00	.00	.03	.02	.00	.00	.82	1.02	.00	.00	.18	.24	.00	2.64
130.	.00	.17	.15	.00	.00	.03	.02	.00	.00	.82	1.02	.00	.00	.18	.24	.00	2.64
140.	.00	.17	.15	.00	.00	.03	.02	.00	.00	.82	1.02	.00	.00	.18	.24	.00	2.64
150.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
160.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
170.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
180.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
190.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
200.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
210.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
220.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
230.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
240.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
250.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
260.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
270.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
280.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
290.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
300.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
310.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
320.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
330.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
340.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
350.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
360.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
370.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
380.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
390.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
400.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
410.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
420.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
430.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
440.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
450.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
460.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
470.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
480.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
490.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
500.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08

TABLE, 7-6(d). VISIBLE PLUME FREQUENCY (Contd.)

1 ************************************** PLUME HEIGHT FREQUENCY TABLE **************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

HEIGHT	WIND FROM																
FROM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
TOWER	PLUME HEADED																
(M)	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
520.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
530.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
540.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
550.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
560.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
570.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
580.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
590.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
600.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
610.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
620.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
630.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
640.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
650.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
660.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
670.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
680.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
690.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
700.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
710.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
720.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
730.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
740.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
750.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
760.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
770.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
780.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
790.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
800.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
810.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
820.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
830.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
840.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
850.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
860.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
870.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
880.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
890.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
900.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
910.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
920.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
930.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
940.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
950.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
960.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
970.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
980.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
990.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08
1000.	.00	.13	.12	.00	.00	.03	.02	.00	.00	.62	.73	.00	.00	.18	.24	.00	2.08

TABLE 7-7. FOGGING AND ICING FREQUENCIES

1 ************************************* HOURS OF PLUME FOGGING TABLE *************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

DISTANCE	WIND FROM																
FROM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
TOWER	PLUME HEADED																
(M)	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	4.7	6.7	8.4	10.2	14.9	.0	.0	.9	.9	.8	1.5	.8	1.3	.0	.0	.9	51.9
150.	7.5	2.6	5.7	23.5	37.8	8.5	.5	2.5	2.5	.5	.4	.8	3.0	.8	.5	3.8	100.7
200.	7.1	.4	.8	16.9	34.8	1.9	.1	2.1	2.1	.1	.0	.2	3.0	.2	.1	2.4	72.3
250.	6.3	.0	.0	13.0	29.4	.0	.0	1.7	1.7	.0	.0	.0	2.6	.0	.0	2.0	56.7
300.	3.8	.0	.0	5.5	12.5	.0	.0	.7	.7	.0	.0	.0	1.1	.0	.0	2.0	26.4
350.	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	4.0
400.	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	4.0
450.	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	4.0
500.	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0	4.0
600.	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.5	3.0
750.	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	2.0
1000.	1.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	2.0
1250.	.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	1.5
1500.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1750.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2000.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

1 ************************************* HOURS OF RIME ICING TABLE *************************************

INDIANTOWN, 1982-86 WEST PALM BEACH MET. DATA (LMDCT, 10 CYCLES)

SEASON=ANNUAL

DISTANCE	WIND FROM																
FROM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
TOWER	PLUME HEADED																
(M)	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
150.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
200.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
250.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
300.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
350.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
400.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
450.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
500.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
600.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
750.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1000.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1250.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1500.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
1750.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2000.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Florida Department of Environmental Regulatio
Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-24
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secre

July 23, 1990

Ms. Mary E. Coffey
Bechtel
15740 Shady Grove Rd.
Gaithersbury, Maryland 20877-1454

Re: Preconstruction Monitoring Exemption Request

Dear Ms. Coffey:

The preliminary modeling provided in your Plan of Study for the Indiantown Site Certification Application shows that the maximum air quality impacts are less than the pollutant-specific "de minimus" concentrations for each pollutant. In addition, as we discussed, the existing monitoring data from the Martin site of Florida Power and Light is representative of the proposed source area.

Based on this information and the discretion of the Department, the preconstruction ambient air quality monitoring requirement for the preliminary Indiantown Cogeneration Project is exempted.

If you have any questions, please call me at (904)488-1344.

Sincerely,

Alex Meng
Meteorologist
Air Modeling and Assessment
Bureau of Air Monitoring & Assessment

cc: Tom Rogers

8.0 REFERENCES

Abeles, F. B., L. E. Craker, L. E. Forrence, and G. R. Leather, 1971. "Fate of Air Pollutants: Removal of Ethylene, Sulfur Dioxide, and Nitrogen Dioxide by Soil," Science 173:914-916.

Anderson, C. E., 1979. "Symptoms of Air Pollution Injury on Plant Life," presented at the EPA Workshop on Air Pollutants and Their Effects on Agriculture and Forestry, Minneapolis, MN.

Auer, A. H., 1978. "Correlation of Land Use and Cover with Meteorological Anomalies, " Journal of Applied Meteorology, Vol. 17, pp. 636-643.

Axetell, K., Jr., C. Cowherd Jr., 1983. Improved Emission Factors for Fugitive Dust from Western Surface Coal Mining Sources, prepared by PEDCO Environmental, Inc., and Midwest Research Institute for U.S. EPA, Cincinnati, OH, October.

Bechtel Corporation, 1990. Air Quality Modeling Protocol for the Proposed Indiantown Cogeneration Project, submitted to Florida Department of Environmental Regulation, July.

Electric Power Research Institute (EPRI), 1984. User's Manual: Cooling Tower Plume Prediction Code, prepared by A. Policastro, et. al., Argonne National Laboratory.

Electric Power Research Institute (EPRI), 1984. Fugitive Emissions From Coal-Fired Power Plants, EPRI CS-3455, Final Report, prepared by Bechtel Group, Inc., June.

Florida Power & Light Company, 1989. PSD Permit Application for the Martin CG/CC Project.

Florida Power & Light, 1989. Martin CG/CC Project Site Certification Application.

Florida Power & Light Company, 1989. Martin CG/CC Project Air Quality/Meteorological Quarterly/Final Data Report (July-September 1989, October 1989-September 1989).

Florida Department of Environmental Regulation (FDER), 1987, 1988, 1989. Comparison of Air Quality Data with the NAAQS, ALLSUM 56003 AQSTWIN.

Florida Department of Environmental Regulation (FDER), 1990. The Florida Air Toxics Permitting Strategy (draft).

Fan, L. N., 1967. Turbulent Buoyant Jets Into Stratified or Flowing Ambient Fluid, Caltech Report No. KH-R-15.

Ghiorse, W. C. and M. Alexander, 1976. "Effects of Micro-Organisms on the Sorption and Fate of Sulfur Dioxide and Nitrogen Dioxide in Soil," Journal of Environmental Quality, 5(3):227-230.

Jones, H. C., F. P. Weatherford, J. C. Noggle, N. T. Lee, and J. R. Cunningham, 1979. "Power Plant Siting: Assessing Risks of Sulfur Dioxide Effects on Agriculture," presented at the 72nd Annual Meeting of the Air Pollution Control Association, Cincinnati, OH.

Massachusetts Department of Environmental Quality Engineering, Division of Air Quality Control, 1984. Air Quality Impact of Stationary Sources of Air Pollutant.

Pennsylvania Department of Environmental Resources (PADER), 1983. Guidelines on Air Quality Modeling.

Smith, W. H. 1974. Air Pollution: "Effects on the Structure and Function of the Temperate Forest Ecosystem," Environmental Pollution, 6:111-129.

U. S. Department of Commerce (DOC), 1988. Local Climatological Data, Annual Summaries for 1987, Part II Southern Region (Normals, Means, and Extremes), West Palm Beach, FL, National Climatic Data Center, Asheville, NC.

U. S. Environmental Protection Agency (EPA), 1976. Diagnosing Vegetation Injury Caused by Air Pollution, Office of Air and Waste Management.

U. S. Environmental Protection Agency (EPA), 1980. Workbook for Estimating Visibility Impairment, EPA-450/4-80-031, prepared by Systems Applications, Inc., for Office of Air Quality Planning and Standards, Research Triangle Park, NC, November.

U. S. Environmental Protection Agency (EPA), 1985. Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised), EPA-450/4-80-023R, Office of Air Quality Planning and Standards, Research Triangle Park, NC, June.

U. S. Environmental Protection Agency (EPA), 1986a. Guideline on Air Quality Models (Revised), EPA-450/2-78-027R, Office of Air Quality Planning and Standards, Research Triangle Park, NC, July.

U. S. Environmental Protection Agency (EPA), 1987a. Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), EPA-450/4-87-007, Office of Air Quality Planning and Standards, Research Triangle Park, NC, May.

U. S. Environmental Protection Agency (EPA), 1987b. Industrial Source Complex (ISC) Dispersion Model User's Guide - Second Edition (Revised), EPA-450/4-88-002a, Office of Air Quality Planning and Standards, Research Triangle Park, NC, December.

U. S. Environmental Protection Agency (EPA), 1987c. Supplement A to the Guidelines on Air Quality Models (Revised), EPA-450/2-78-027R, Office of Air Quality Planning and Standards, Research Triangle Park, NC, July.

U. S. Environmental Protection Agency (EPA), 1988a. Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and the Area Sources, AP-42, Fourth Edition, Supplement A, Office of Air Quality Planning and Standards, Research Triangle Park, NC, October.

U. S. Environmental Protection Agency (EPA), 1988b. Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-015, Office of Air Quality Planning and Standards, Research Triangle Park, NC.

North Calolina DNR, 1985. A Screening method for PSD, (a letter from NCDNR to EPA Region IV), July 22.

Texas Air Control Board (TACB), 1988. Air Quality Modeling Procedures.

Utility Air Regulatory Group (UARG), 1981. Workbook for Calculation and Dispersion Modeling of Fugitive Dust Emissions, Document P-A857, prepared by Environmental Research and Technology, April p. 3-69.

10.1.6 COASTAL ZONE MANAGEMENT CERTIFICATIONS

The Coastal Management Act of 1978 (Section 380.21-380.25, Florida Statutes) requires that the Coastal Zone Management Section of FDER be responsible for certification of consistency with the Florida Coastal Management Program (FCMP) for all federal licenses, permits, activities, and projects listed in Section 380.23 (3) (C), Florida Statutes, when such activities are subject to federal consistency review and affect land or water use, are seaward of the jurisdiction of state, or there is no state agency with sole jurisdiction for such consistency review.

In accordance with FCMP consistency evaluation procedures, copies of the following documents are included in Section 10.1 of this Site Certification Application:

- Combined applications for construction in, and discharge of dredge or fill materials to, waters of the United States, Section 404 of the Water Pollution Control Act of 1972, as amended);

- Notice of Proposed Construction or Alteration (required by Part 77 of the Federal Aviation Regulations [14 CFR Part 77] pursuant to Section 1011 of the Federal Aviation Act of 1958, amended).

Federal Consistency Evaluation Procedures (15 CFR 930.50) require these permit applications and the FAA Notice to be accompanied by a consistency certification attachment which includes:

- A written and pictorial description of the project;

- An assessment of probable impacts relevant to applicable FCMP statutes; and

- A signed statement by the applicant regarding consistency of the project with FCMP statues.

Each application included with this Site Certification Application is accompanied by such consistency certification.

10.1.7 FAA PERMIT APPLICATION

FCMP CONSISTENCY CERTIFICATION
INDIANTOWN COGENERATION, L.P.

DESCRIPTION OF THE PROJECT

Indiantown Cogeneration, L.P. (ICL) proposes to construct and operate a cogeneration project in Martin County, Florida, appproximately 3 miles northwest of Indiantown. This project is a pulverized coal fired steam unit that will produce approximately 330 MW of electricity for sale to Florida Power and Light Company, and up to 225,000 lb/hour of process steam for sale to the Caulkins Citrus Processing plant. The anticipated commercial operation date for the facility is December 1, 1995. The project will be a qualifying facility (QF) as defined by the Public Utility Regulatory Policies Act of 1978.

The ICL plant will occupy a 232 acre industrially zoned site, north of Indiantown. To the north of the site is the Caulkins Citrus Processing plant and an abandoned Florida Steel Corporation plant. The site is bounded on the west by Tampa Farm Products and on the south and east by vacant industrially zoned land. The site will be designed to accommodate all the facilities necessary to generate power from coal while maintaining the wetlands and a significant portion of the uplands on the site as required by Martin County regulations. These facilities will include the power block, coal and ash handling equipment, a rail loop and a water storage pond. The figure attached to this notice provides a conceptual layout for the proposed cogeneration project.

Assessment of Probable Project Impacts

As part of the Federal Consistency Evaluation Procedures, an assessment of the probable impacts of the project on the coastal zone were determined in relation to the Florida Coastal Management Program (FCMP) statutes.

Flood Zones - The ICL plant will be within Zone B (100 to 500 year flood plain area) as defined by flood insurance rate maps. All ICL facilities will be at or above the 100 year flood elevation of 31 ft. NGVD. In addition, all ICL facilities will be designed to comply with all applicable South Florida Water Management District (SFWMD) and Florida Department of Natural Resources (FDNR) requirements regarding flood protection control. Installation and operation of the ICL facility is expected to have no adverse impact on the 100 year flood elevations or flood flows. Since the plant will be entirely above the limits of the 100 year flood, adjacent properties owners will not be adversely affected.

Air and Water Impacts - These concerns will be addressed by obtaining the appropriate facility operation and discharge permits and using polltion control measures to abate impacts from facility construction and operations. All construction and operation permits will be obtained through the Power Plant Siting Act process in accordance with requirements established in the Prevention of Significant Deterioration (PSD) air quality regulations and the air quality regulations governing New Sources. An Underground Injection Control permit will be obtained for discharge of wastewater to the Boulder Zone of the Floridan aquifer.

Stormwater retention basins will be used to collect runoff waters from the site. The discharge from these basins will comply with all DER and SFWMD requirements for protection of surface and ground waters.

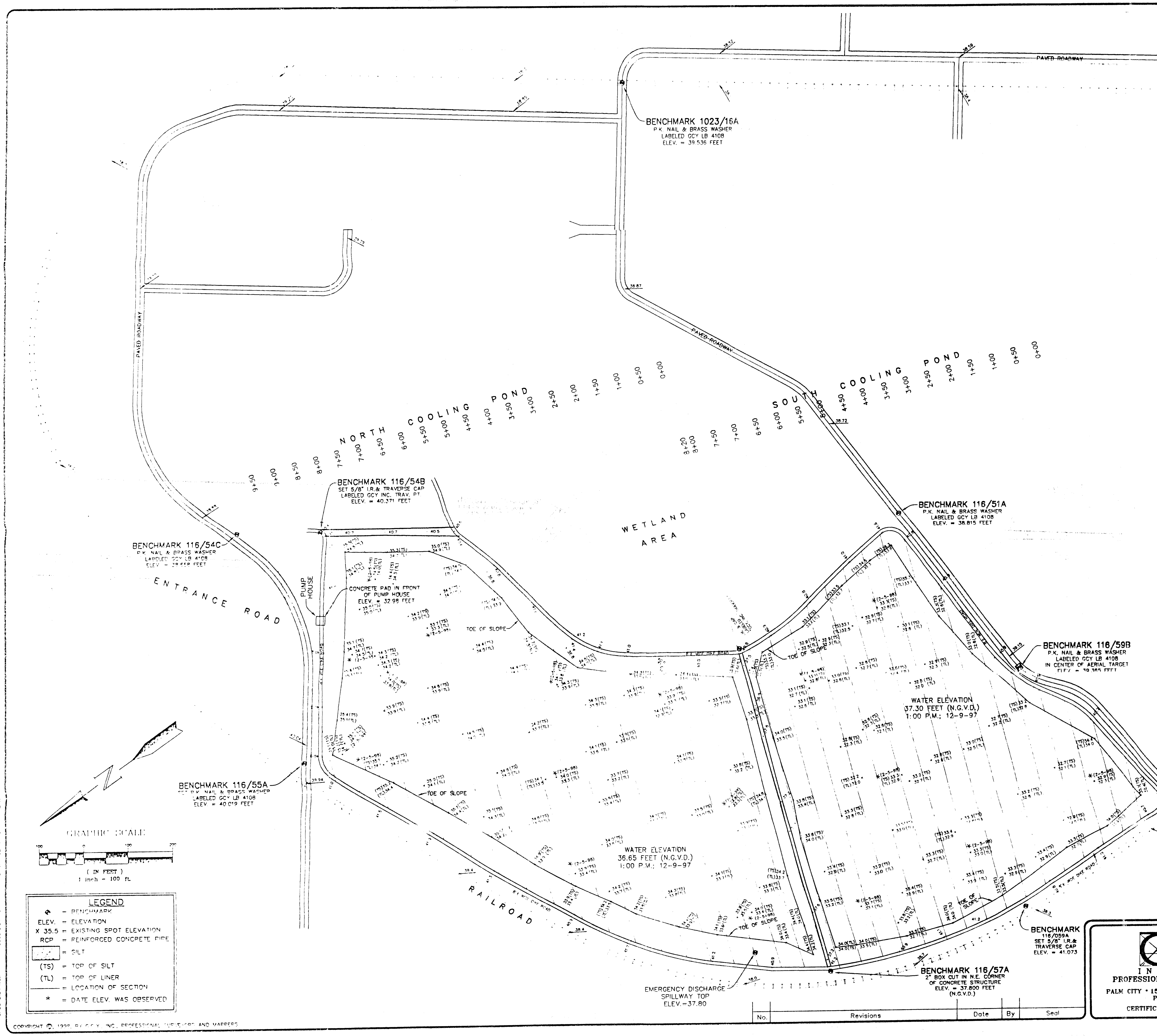
Archaeological and Historical Resources Impacts - A comprehensive evaluation of archaeological and historic resources within the ICL site and along the proposed water pipeline was conducted by Piper Archaeological Research, Inc. with the conclusion that no archaeological or historical resources occur onsite. This study will be submitted to the State Historic and Preservation Office for concurrence with the findings as part of the licensing effort for the ICL plant.

Water Resource Impacts - The SFWMD will review the project for water resources impacts. Consumptive use of water is anticipated, therefore, permits for such use will be obtained from SFWMD. Stormwater management practices will be employed to mitigate impacts to water resources from runoff.

Power Plant Siting Act - An application is being filed with the Florida Department of Environmental Regulation (FDER) under the Power Plant Siting Act. This application will present information discussing the conditions resulting from construction, and the anticipated impacts from facility operation, in order to provide assurance that all applicable state, regional and local regulations are met and that the project will be consistent with the FCMP.

Consistency Determination

The proposed project complies with Florida's approved coastal management program and will be conducted in a manner consistent with such program.



SURVEYOR'S REPORT

1. ELEVATIONS SHOWN HEREON ARE REFFERENCED TO INDIANTOWN COGENERATION PLANT PRIMARY BENCHMARK, HAVING AN ELEVATION OF 39.612 FEET.
2. HORIZONTAL POSITIONS WERE OBTAINED USING A TRIMBLE PRO-XR WITH A MANUFACTURER'S STATED ACCURACY OF PLUS OR MINUS 1 METER.
3. REFFERENCE 97-1093-01-01 FOR ADDITIONAL INFORMATION REGARDING RETTENTION PONDS.
4. ELEVATIONS SHOWN AT CENTER OF RAILROAD TRACKS ARE TAKEN AT BOTTOM OF RAILROAD BALLAST.

CERTIFICATION

(NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER)

I HEREBY CERTIFY THAT THE TOPOGRAPHIC SURVEY OF THE PROPERTY SHOWN HEREON WAS COMPLETED UNDER MY DIRECTION. I FURTHER CERTIFY THAT THIS SURVEY MEETS THE MINIMUM TECHNICAL STANDARDS FOR SURVEYS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 61G17-6, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATE STATUTES.

3/12/99
DATE OF SURVEY

ALBERT C. ALLEN, III
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATION NO. 4130

No.	Revisions	Date	By	Seal

GCY INCORPORATED
PROFESSIONAL SURVEYORS AND MAPPERS
PALM CITY • 1505 S.W. MARTIN HWY. • 561 286-8083
P.O. BOX 1469 34991
CERTIFICATE OF AUTHORIZATION LB 4108

TOPOGRAPHIC SURVEY FOR:
INDIANTOWN COGENERATION
ST. LUCIE COUNTY, FLORIDA

Scale:	Date:	File & Drawing No:
1"=200'	4-12-99	99-1003-02-01
Drawn By: J.A.S.	Checked: A.C.A.	Sheet 1 of 1

Attachment G

SFWMD Correspondence

AUG 29 1995

REGULATION DEPT. -401

MEMORANDUM

TO: Susan Coughanour, Senior Planner, REG

THROUGH: Nagendra Khanal, Senior Professional, DTA
Robb Startzman, Director, DTA

FROM: Stuart Van Horn, Staff Civil Engineer, DTA

DATE: August 28, 1995

SUBJECT: Indiantown Cogeneration Plant and Surface Water Level Monitoring for L-63N Canal.

On August 16, 1995 I attended the meeting between the District and US Generating Company in which the Indiantown Generating Facility and water supply issues were discussed. At this meeting I presented information to the representatives from US Generating related to water level recording instrumentation and survey benchmarks which the District uses for the stage level monitoring devices at structure S191.

As a condition of their operating permit for the generating facility they are allowed to only withdraw water from the L-63N canal when surface water levels are at or above 17.5 ft (NGVD '29). In order to meet this condition, US Generating contracted with Bechtel to install a surface water level monitoring device (ICL device) in the L-63N canal at the intake pipe to their facility. The device was surveyed to benchmark FCE-2497 (elevation 27.30 ft) located in front of their facility on Highway 710.

Since water surface elevations in the L-63N canal are regulated by structure S191, the surface water withdrawals by the generating facility are actuated relative to the stage levels at S191. Therefore, the stage level in the L-63N canal at the intake pipe to their facility should be representative of District recorded stage levels in the C-59 canal. The C-59 canal is the canal reach between the L-63N and S191, and is approximately 1.2 miles in length. As a result of using the FCE-2497 benchmark, their daily average stage elevations are reading approximately 0.64 ft lower than the District readings at S191 on the canal side (Headwater side). After consulting with the Data Management Division Field Unit and the Survey and Mapping Division, it was determined that this benchmark most likely was compromised due to heavy traffic on the roads adjacent to its location causing impact settlement of the monument.

In order to reduce the discrepancy between District and ICL device stage levels, a proposal was made by US Generating to calibrate their monitoring device to the S191 stage level device by simply offsetting their recorder by the observed difference at some instantaneous point in time. However, as I stated in the meeting, this is not the recommended way to recalibrate a stage level recording device because it introduces errors in measurement. These errors can be of the order of 0.10 to 0.20 ft, and are due to the difficulty in observing rapidly fluctuating stage levels at S191 when structure operations are occurring and to the drop in head over the 1.2 mile reach between their reference elevation for the measuring point (MP) on their recorder. The MP is important when routine maintenance is performed on the recorder to insure that the instrumentation is operating at the specified level of performance through the use of distance-to-water checks.

Therefore, I recommended a resurvey using benchmark FCE-3536 (elevation 43.28 ft) located at structure S191. In addition to achieving improved measurement accuracy in recording stage levels, the resurvey will relate the water-level data at their site to the same datum used for water-level data at S191.

As a final note, in future applications where water-level readings similar to this situation will be required, you may want to consider adding a condition in which the applicant should seek confirmation from the District for appropriate structure benchmark locations. From a customer service point of view, this might serve to increase customer satisfaction. Also, the US Generating Company representatives may be interested in obtaining a District publication entitled "Guidelines for the Collection of Hydrologic and Meteorologic Data, Volume 1: Field Applications". It describes many of the District procedures for installing and maintaining devices used in water management programs. The publication is available from the WRE staff office.

Nancy Little, Field Operations Supervisor in the DTA Field Unit, was instrumental in obtaining the information on the benchmarks and S191 surveys and is very knowledgeable on the subject of installing water level monitoring devices. If either of us can be of any further assistance in the future, please let me know.

/svh

c: Luis Cadavid, DTA
Jim Golden, REG
Jack Hardee, DTA
Nancy Little, DTA

South Florida Water Management District

3301 Gun Club Road, West Palm Beach, Florida 33406 • (407) 686-8800 • FL WATS 1-800-432-2045

LAN 04-06

JAN 0 3 1996

December 21, 1995

PROJECT: 10 L

FILE NO: G.3.10

Ms. Michelle Golden-Griffin
U.S. Generating Company
7500 Old Georgetown Road
Bethesda, MD 20814-6161

Dear Ms. ~~Golden-Griffin~~ Michelle:

Subject: Indiantown Cogeneration Project
Water Withdrawals/Allocations

In follow up to our recent discussions, your August 3, 1995, August 9, 1995, and October 26, 1995 correspondence, and our August 16, 1995 meeting, South Florida Water Management District (SFWMD) staff have reviewed your proposal to modify the Conditions of Certification regarding water withdrawals/allocations for the above-referenced project.

After review of your October 26, 1995 correspondence, staff has the following comments:

1. Water Level Monitoring/Survey

   Since the discrepancies between the staff gauge and the electronic water level monitoring device installed at the Taylor Creek intake structure were due to incorrect installation of the staff gauge, no changes to the existing Certification Conditions or SFWMD approvals are required.

2. Water Allocation Below 17.5' NGVD

   Since the intent of the original Certification Conditions was to limit withdrawals from Taylor Creek during drought or dry season conditions, the SFWMD has no objections to the request to withdraw water from Taylor Creek when operation of the SFWMD's S-191 control structure during flood events results in a water elevation less than 17.5' NGVD in Taylor Creek. However, staff recommends some additional revisions to the proposed conditions (see attachment).

3. Use of Floridan Aquifer For Systems Maintenance and Testing

   The SFWMD has no objections to use of water from the Floridan Aquifer for system testing or maintenance. However, staff recommends some additional revisions to the proposed conditions (see attachment).

Please incorporate the above comments in your request to the Florida Department of Environmental Protection to modify the existing Conditions of Certification for this project.

If we can be of further assistance or if any of the above requires additional clarification, please contact Jim Golden at (407) 687-6862.

Sincerely,

Susan

Susan Coughanour, AICP
Senior Planner
Regulation Department

SC/jjg

c: Hamilton S. Oven, DEP
Linda McCarthy, DEP-WPB
Michael Busha, TCRPC
Susan Adams, Martin County
Byron Veech, U.S. Generating

CONDITIONS OF CERTIFICATION

IV South Florida Water Management District

B. WATER USE CONDITIONS

2. SITE SPECIFIC DESIGN AUTHORIZATIONS

b. Limitations on Authorized Withdrawals

(1) Withdrawals from the L-63N Canal shall only occur when the water level in the L-63N Canal is at or above 17.50 feet NGVD, except as provided for in subsection (7) below.

(2) Withdrawals from the Upper and Lower Production Zones of the Upper Floridan aquifer shall only occur when the water level in the L-63N Canal is below 17.50' NGVD or during tests and maintenance on the wells. Maintenance is defined as one hour of operation per week for each well or the minimum operation of the pump necessary to maintain mechanical integrity as specified by the pump manufacturer.

(7) When operation of the SFWMD's S-191 control structure during flood events results in a water elevation of less than 17.50 NGVD in the L-63N Canal, withdrawals from the L-63N Canal may continue subject to the permittee obtaining prior confirmation from the SFWMD's Okeechobee Field Station (7:00 a.m. to 4 p.m., Monday through Friday) or the SFWMD's West Palm Beach Operations Control Center that the SFWMD is in a flood control operations mode.

(8) The permittee shall provide documentation of SFWMD approval of withdrawals from the L-63N Canal below 17.50" NGVD when the SFWMD is in a flood control operations mode. The documentation shall be in the form of a letter faxed to the SFWMD's West Palm Beach Operations Control Center within 24 hours of the verbal request to continue withdrawals and shall indicate the date and approximate time of the approval and the name of the SFWMD employee granting the approval.

d. Authorized Surface Water Withdrawal Elevation

The intake for the surface water withdrawal facilities in L-63N shall be designed such that surface water withdrawals shall cease when water levels in the canal fall below 17.50' NGVD, except as provided for in Conditions B.2.b(1), (2), and (7).

3. ADDITIONAL INFORMATION REQUIREMENTS

c. Surface and Groundwater Withdrawal Monthly Reporting Requirements

The permittee shall submit daily surface water and groundwater withdrawal quantities, separated by source, to the SFWMD on a monthly basis beginning with the month following initiation of construction dewatering and/or construction and operation of the proposed canal and/or the well withdrawal facilities.

(1) The permittee shall provide documentation of SFWMD approval of withdrawals from the L-63N Canal below 17.50' NGVD when the SFWMD is in a flood control operations mode. The documentation shall be in the form of a letter faxed to the SFWMD's West Palm Beach Operations Control Center within 24 hours of the verbal request to continue withdrawals and shall indicate the date and approximate time of the approval and the name of the SFWMD employee granting the approval.

(2) The permittee shall include the duration and amount of pumping necessary for maintenance or testing of the Floridan aquifer wells in the monthly reports.

E. LAND MANAGEMENT CONDITIONS

3. ADDITIONAL INFORMATION REQUIREMENTS

a. Construction Plans ...

(5) Design details which demonstrate that withdrawals from the canal cannot occur below elevation 17.50' NGVD (see also Conditions B.2.b.(1), (2) and (7) and B.2.d)

PROPOSED LANGU:GE **DRAFT**

CONDITIONS OF CERTIFICATION

IV South Florida Water Management District

B. WATER USE CONDITIONS

2. SITE SPECIFIC DESIGN CONDITIONS

b. Limitations on Withdrawals

(1) Withdrawals from the L-63N Canal shall only occur when water level in the L-63N Canal is at or above 17.50 feet NGVD, <u>except as provided for in subsection (7) below.</u>

(2) Withdrawal from the Upper and Lower Production Zone of the Upper Floridan Aquifer shall only occur when the water level in the L-63N Canal is below 17.50 feet NGVD <u>or during tests and maintenance on the wells. Maintenance is defined as one hour of operation per week for each well or the minimum operation of the pump necessary to maintain mechanical integrity as specified by the pump manufacturer.</u>

<u>(7) When operation of the SFWMD's S-191 control structure during flood events results in a water elevation of less than 17.40 NGVD in the L-63N Canal, withdrawals from the L-63N Canal may continue subject to the permittee obtaining prior confirmation from the SFWMD's Okeechobee Field Station (7:00 a.m. to 4:00 p.m., Monday through Friday) or the SFWMD's West Palm Beach Operations Control Center that the SFWMD is in a flood control operations mode.</u>

<u>(8) The permittee shall provide documentation of SFWMD approval of withdrawals from the L-63N Canal below 17.50' NGVD when the SFWMD is in a flood control operations mode. The documentation shall be in the form of a letter faxed to the SFWMD's West Palm Beach Operations Control Center within 24 hours of the verbal request to continue withdrawals and shall indicate the date and approximate time of the approval and the name of the SFWMD employee granting the approval.</u>

d. Authorized Surface Water Withdrawal Elevation

The intake for the surface water withdrawal facilities in L-63N shall be designed such that surface water withdrawals shall cease when water levels in the canal fall below 17.50' NGVD <u>except as provided for in Conditions B.2.b(1), (2), and (7).</u>

3. ADDITIONAL INFORMATION REQUIREMENTS

c. Surface and Groundwater Withdrawals Monthly Reporting Requirements

The permitee shall submit daily surface water and groundwater withdrawal quantities, separated by source, to the SFWMD on a monthly basis beginning with the month following initiation of construction dewatering and/or construction and operation of the proposed canal and/or the well withdrawal facilities.

(1) The permittee shall provide documentation of SFWMD approval of withdrawals from the L-63N Canal below 17.50' NGVD when is in a flood control operations mode. The documentation shall be in the form of a letter faxed to SFWMD's West palm Beach Operations Control Center within 24 hours of the verbal request to continue withdrawals and shall indicate the date and approximate time of the approval and the name of the SFWMD employee granting the approval.

(2) The permittee shall include the duration and amount of pumping necessary for maintenance or testing of the Floridan aquifer wells in the monthly reports.

E. LAND MANAGEMENT CONDITIONS

3. ADDITIONAL INFORMATION REQUIREMENTS

a. Construction Plans...

(5) Design details which domonstrate that withdrawals from the cannal cannot occur below elvation 17.50' NGVD (see also Conditions B.2.b.(1), (2), and (7) and B.2.d)

Attachment H

FDEP 9/10/99 Correspondence on Groundwater Monitoring

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Department of Environmental Protection

Jeb Bush
Governor

Port St. Lucie Branch Office
1801 SE Hillmoor Drive, Suite C-204
Port St. Lucie, FL 34952
(561)871-7662 (561)335-4310

David B. Struhs
Secretary

SEP 10 1999

Mr. Stephen Sorrentino
General Manager
Indiantown Cogeneration, L.P.
Post Office Box 1799
Indiantown, FL 34956

Martin County
IW - Indiantown Cogeneration

Re: Inspection of the industrial wastewater treatment/disposal system

Dear Mr. Sorrentino:

On 29 July, 1999 Terry Davis of the Florida Department of Environmental Protection (DEP) Port St. Lucie Branch Office conducted a Compliance Evaluation Inspection (CEI) at your facility. The purpose of the CEI was to determine compliance with Site Certification number PA 90-31. The certification allows the operation of a zero discharge electrical power generating plant and requires groundwater monitoring. A copy of the inspection report form is attached. Please review this report/letter.

The following individuals were present during all or a part of the inspection:

NAME	ORGANIZATION	TELEPHONE
Terry Davis	DEP - PSL Branch Office	(561)871-7662
David Burrage	Indiantown Cogen	(561)597-6500 X19
Keith Yegerlehner	Indiantown Cogen	(561)597-6500

SUMMARY

The facility was rated "satisfactory" for all the compliance areas evaluated during the inspection. There is a suggestion in the Records & Reports compliance area that should be addressed. The major focus of the inspection was the review and evaluation of the quarterly self monitoring groundwater data. The data showed that the groundwater in the area has not met the state's standards for pH and iron as evidenced by the water quality in the upgradient, background wells. There were also some instances of suspicious occurrences of spurious contaminants due their appearance at a majority of the wells for one quarter only. A policy/procedure needs to be adopted to address these occurrences.

FIELD EVALUATION

The areas evaluated under "Facility Compliance Areas Evaluated" on the attached Wastewater Compliance Inspection Report form are discussed below.

1. **Permit:** The facility was issued a site certification in February, 1992, DER Case No. PA 90-31, for a 330 megawatt cogeneration facility with wastewater recycling and no discharge to surface or ground waters. In 1994 a modification of the conditions of certification was issued which allowed the use of treated domestic wastewater as makeup water for the cooling system, changed the allocations of ground and surface waters approved by the South Florida Water Management District, and amended the planned unit development (industrial) agreement with Martin County. A copy of the certification and the modification were on file and readily available to the appropriate personnel.

   In August, 1998 an application for an NPDES permit to allow for emergency discharges of wastewater due to extended heavy rains was submitted to the Tallahassee office. The application has been transferred to the Southeast District and additional information and application fees were submitted in May, 1999. A request for information was issued by the DEP in June, 1999. The Conditions of Certification will have to be modified to allow for the emergency discharges.

   Deficiencies: None observed

   Rating: Satisfactory

2. **Compliance Schedule**

   Not applicable

3. **Laboratory:** The facility has contracted with US Biosystems (formerly V.O.C. Analytical Laboratories), 3231 NW 7th Avenue, Boca Raton, FL 33431 to perform the self monitoring sample analyses. The laboratory has a DEP approved quality assurance plan, number 900376, and Department of Health environmental health certification number E86240.

   Rating: Not rated

4. **Sampling:** The sampling activities for the self monitoring program is carried out by US Biosystems which has a DEP approved quality assurance plan, number 900376, which covers these activities.

   Rating: Not rated

5. **Records and Reports:** The facility is required to carry out a quarterly groundwater monitoring program consisting of the sampling and analyses of ten wells and the submission of the data within sixty days of the sampling. The data has been received on time and the supporting documentation; sampling records, sample chain of custody sheets, etc.; were on file at the facility. Also on file were copies of the data going back more than three years.

   Suggestion: The data has been submitted to the DEP as it has been received from the analytical laboratory. Recently the order of the data groups for each monitoring well appears to be in random order from quarter to quarter, making it difficult to transfer the data to a computer spreadsheet. Part II, Section (4)2.j. of the Conditions of Certification requires that "All ground water analysis shall be submitted within 60 days of sampling on DER form 17-1.216(2) with a summary of all exceedances of the MCL's per F.A.C. 17-550 to ...". The data has not been submitted on the form specified but the format had previously been satisfactory, see the suggestion above. Initially the majority of the data from the quarterly analyses were tabulated at the beginning of each report, making it relatively easy to scan, enter, and analyze the data. This was discontinued after the second quarter of 1996. The data tabulation also listed the state's water quality standards for the appropriate parameters and highlighted the values which were in violation of the applicable standard. This tabulation and highlighting of MCL exceedances should be resumed.

Rating: Satisfactory

6. **Facility Site Review:** The general housekeeping at the facility is very good.

   Deficiencies: None observed

   Rating: Satisfactory

7. **Flow Measurement:** No flow measurement is required for DEP related activities

   Rating: Not rated

8. **Operation and Maintenance:** The facility appears to be properly operated and maintained. The liner around the periphery of the inactive coal storage area and the coal pile runoff basin was being replaced with a heavier material. The liner under these areas does not require replacement as it is well protected. The facility has a Y2K compliance plan, is actively addressing the situation, and has upgraded computers, etc.

   Deficiencies: None observed

   Rating: Satisfactory

9. **Effluent:** At this time there is no effluent from the facility as all wastewaters are recycled.

   Rating: Not rated

10. **Disposal:** All wastewaters are recycled and any loss is through evaporation or drift from the cooling tower.

    Rating: Not rated

11. **Residuals Management:** All solid materials generated by the power producing activities are disposed of off site. Some are beneficially used as concrete additives and in soil manufacturing when combined with domestic wastewater residuals. Others are returned to Kentucky for land disposal and a relative small amount is transported to the local sanitary landfill.

    Deficiencies: None observed

    Rating: Satisfactory

12. **Groundwater:** The facility is required by the Conditions of Certification to carry out a groundwater monitoring program. Since the start-up of the facility, quarterly sampling and analyses of network of monitoring wells is required. Data from records and reports starting in January, 1994 and extending through the second quarter of 1999 have been compiled using a Microsoft Excel spreadsheet computer program.

The self monitoring network consists of nine wells, of which three are upgradient of the on-site activities and provide background data as they monitor the quality of the water coming onto the property. These wells are MW #1, MW #4A, and MW #12. Upgradient, north, of the facility lies Caulkins Indiantown Citrus, a citrus processing plant, and the Florida Steel site, an EPA superfund site with groundwater contamination by metals, etc. The remainder of the wells; MW #7, MW #9, MW #10, MW #11, MW #12, MW #13, and MW #14; are considered compliance wells and are located primarily down gradient of storage ponds and activities on site. The quarterly groundwater monitoring started in June, 1994, approximately sixteen months before the facility started producing electricity commercially. The samples are analyzed for 72 semivolatile compounds, 5 BTEX compounds, 7 metals, 8 general chemistry compounds, 3 field water quality measurements, and 3 field observations of the water quality. Data for the parameters which are normally found above the detection limits were tabulated. The compounds which were normally reported as "BDL" (below detection limit), but were found occasionally in measurable quantities, were noted in the tabulation. The average, minimum, and maximum values for the tabulated parameters for each well were determined and the data examined for trends. Some parameters such as ammonia, hydrogen sulfide, and sulfate data posed a problem for calculating averages due to the reporting of values as "less than" (<) the detection limit, or "BDL", which will not compute. When there were only two or three of the "less than" values in a set of data for a well, the average was calculated by converting the "less than" values to one half the detection limit, e.g. <.5 mg/L became .25 mg/L.

The data will be discussed in two formats. First, each water quality parameter, or group of parameters, will be discussed for the entire site, and second, the water quality at each well will be discussed.

FIELD PARAMETERS "Field Services" included observations such as water color, turbidity, and odor and measurements such as depth to water and gallons of water removed during purging of the well. The field water quality parameters measured were conductivity, pH, and temperature. Conductivity and pH are parameters which help define the basic character and quality of the groundwater.

Conductivity: The average conductivity values for the stations ranged between 104 umhos at MW #7 to 968 umhos at MW #4A and the six of the nine wells had averages below 300 umhos. There does not appear to be any obvious correlations between the depth or location of the well and the average values. Approximately one half of the stations had conductivity values that may have fluctuated from quarter to quarter. The other half had values that may have changed from quarter to quarter, but did not vary substantially above and below "the norm".

pH: The state's standard for pH is a minimum of 6.5 standard units (s.u.) and a maximum of 8.5 s.u. Only one pH value was reported above the low standard, 6.5 s.u., and that value is suspicious. In November, 1995 a pH of 6.6 s.u. was reported at MW #1 and it was preceded by 5.76 in August, 1995 and succeeded by 5.43 s.u. in February, 1996. All the remaining values for the well, except for one, are in the 5 s.u. range. All the other monitoring wells did not have a single value above the state's minimum standard. The overall range was from 3.77 to 6.4 s.u. and the majority of the values were in the 5 s.u. range. The areal distribution of the average pH values did not reveal a pattern.

GENERAL CHEMISTRY The elements and compounds analyzed in this category include ammonia, chloride, cyanide, fluoride, hydrogen sulfide, and sulfate. All are measured in milligrams per liter, mg/L.

Ammonia: The ammonia values at each well fluctuated from quarter to quarter and the overall range was from .03 to 3.5 mg/L. The average values did not show any correlation with depth or location of the well and ranged from .17 mg/L at MW #7 to 1.69 mg/L at MW #12.

Chloride: The range of average chloride values for the stations was between 14 and 262 mg/L. MW #4A had the 262 mg/L average and the remainder of the wells' averages were 52 mg/L or less. As with conductivity, the chloride values did not show obvious correlations with well depth or location and some of the wells exhibited more fluctuation from quarter to quarter than others.

Cyanide: The detection limit for cyanide was listed as .01 mg/L and there were no reported values above the detection limit in any well.

Fluoride: This element has been reported with two detection limits - .05 and .2 mg/L. The state's standard is a maximum of 2.0 mg/L. It was reported in each well from two to five times during the monitoring period and frequently discontinuous, i.e. at one well it would be reported for several successive quarters and then it would not be reported for two or more quarters. And, it would appear in anywhere from 2 to 8 of the wells during a quarter, or it would not found above the detection limit in any well during a quarter. The values have ranged between .04 and .84 mg/L and the highest values for all but one well were measured in February, 1997.

Hydrogen Sulfide: Approximately fifty percent of the reported values at each well were listed as "less than" the detection limit of 1.0 mg/L. Thus the average values for the wells are not meaningful. The values ranged from <1 to 10 mg/L and they fluctuated at most of the wells. The high values ranged from 2.1 at MW #11 to 10 mg/L at MW #14. Seven of the nine wells had high values of 5.0 mg/L or better and there did not appear to be any spatial or areal trends in the data.

Sulfate: The state's standard is a maximum of 250 mg/L and the reported detection limit for this parameter was .5 mg/L. The range of values for all the wells was from <.5 to 310 mg/L. The 310 mg/L value was from MW #10 in May, 1999 and was the only exceedance of the state's standard. This well had five values above 100 mg/L and an average of 87 mg/L. MW #14's two highest values were 100 and 110 mg/L. The high values at five of the seven remaining wells were 6 or less mg/L. Two of the wells, MW #4A and MW #11, had over half of their values as "less than" the detection limit. The trend at all the wells can best be described as fluctuating from quarter to quarter.

METALS The metals analyzed during the quarterly monitoring include arsenic, cadmium, chromium, iron, lead, manganese, and selenium and are discussed below. There has been an annual sampling in 1996, 1997, and 1999 at MW #13 of a more extensive list which also includes antimony, beryllium, copper, mercury, nickel, silver, thallium, and zinc. Of the latter metals, zinc has been measured during all three samplings with values of .064, .024, and .015 mg/L chronologically. Mercury was detected at .011 mg/L in 1996, which is above the state's standard of a maximum of .002 mg/L. None of the other annual metals have been reported above the detection limits.

Iron: This metal was found above the state's standard, a maximum of .30 mg/L, at all the wells with almost every measurement. Wells 1 and 14 have dropped, and remained below, the standard starting in 1998 and MW #10 was below the standard from November, 1995 through August, 1996. Since then it has registered values as high as 7.2 mg/L. With the exception of wells 7, 11, and 13 the iron data can best be described as fluctuating. MW #4A had the highest average concentration at 5.25 mg/L and has shown an increase since the plant went into operation in December, 1995. This well is the closest to the Florida Steel superfund site and may be under some influence from the contamination there.

Lead: Lead was found at detectable concentrations from one to five times in each of the wells. Most of these were prior to August, 1996 when detection limits lower than .005 mg/L were used. MW #13 had two values above .005 mg/L (.011 and .007 mg/L) and MW #14 had three (.006, .034 and .007 mg/L). The highest values found were .034 and .032 mg/L at wells 14 and 7, respectively. Only one well has had a value above .005 mg/L since November, 1996 - .006 mg/L at MW #10 in August, 1998. None of the concentrations approached the state's standard of a maximum of .05 mg/L.

Chromium: Chromium has appeared a total of thirteen times in seven of the nine wells, and seven of these were in August 1995 when it occurred in concentrations of .022 to .025 mg/L. This appears to be a sample or analyses contamination problem. Other than this, the highest concentration reported was .013 mg/L in MW #10 in August, 1998. None of the values approached the state's standard of a maximum of .05 mg/L and there does not appear to be areal or spatial distribution patterns.

Cadmium: Cadmium was not found at detectable levels, i.e. above .005 mg/L, in any of the samples.

Arsenic: The detection limit is listed as .01 mg/L and the state's standard is a maximum of .05 mg/L. This metal was detected a total of ten times in four of the wells - 10, 12, 13 and 14. In February, 1996 it was found in these four wells in concentrations between .012 and .018 mg L. Since then it has been detected only in MW #10. It appeared again in August, 1998 at .013 mg L and then starting in May, 1998 and continuing through May, 1999 it has been measured with a concentration of .012 mg/L four times and .031 mg/L once.

Manganese: Starting in May, 1998 and continuing to date, this metal has been found in wells 9, 10, and 12 within a range of .011 to .22 mg L. The highest concentrations have been in MW #12, the center background well, with a range of .031 to .22 mg L and an average of .098 mg/L. Four of the values exceeded the state's standard of a maximum of .05 mg L. MW #10 had an average of .025 mg L, the second highest, a range of .011 to .075 mg/L, and one exceedance of the standard. MW #9 had the lowest average with .014 mg L and a range of .011 to .019 mg L. These wells have one thing in common - a depth of approximately 16'. However, MW #11 is also approximately 16' deep but it has not had one value above the .01 mg L detection limit. The areal distribution of the wells and the concentrations do not illustrate a classical groundwater contamination plume as MW #10 with the second highest average concentration is further downgradient than MW #9 with a lower average. However, the wells are not in a nice straight line in the reported direction of groundwater flow.

Selenium: Selenium has appeared only in three wells (12, 13, and 14) and for only a total of five times during February and May, 1997. The range of values was from .012 to .037 mg/L and thus all values were above the state's standard of a maximum of .01 mg/L. Selenium was found at .028 mg/L in the surficial aquifer monitoring well MW-2 in June, 1991 during construction monitoring.

BTEX COMPOUNDS The compounds monitored in this group are benzene, toluene, ethylbenzene, total xylenes, and MTBE (Methyl-tert-Butyl-Ether). During May and August, 1996 three of the compounds (MTBE, ethylbenzene, and xylene) were detected in five wells a total of seven times. MTBE was reported in May at 22 ug/L in wells MW #1, MW #12, and MW #7; total xylene was reported in MW #10 (10 ug/L) and MW #13 (4.3 ug/L) in August; and ethylbenzene was reported in the same wells at 6.8 and 1.5 ug/L, respectively, in August. Since then, only total xylene has been reported in MW #12 in November, 1997 at 1.6 ug/L. The data does not show any spatial or areal patterns.

VOLATILE COMPOUNDS These compounds have been sampled and analyzed for once per year; in February, 1996, 1997, and 1999; at MW #13. In 1996 thirty eight compounds were analyzed for and in 1999 the number was up to sixty eight. They included the BTEX compounds above and others such as acetone, carbon tetrachloride, chloroform, chlorinated benzenes and propenes, MEK, etc. No compounds have been reported above the detection limits, most of which are 1.0 ug/L.

SEMIVOLATILE COMPOUNDS The seventy two compounds monitored in this group include phenols, benzenes, anilines, phthalates, toluenes, pyrenes, etc. The detection limit for most of them is 10 ug/L, a few at 50 ug/L, and one (benzidine) at 80 ug/l. The reported occurrences of these compounds at times seems to be suspicious, i.e. a compound appeared in nearly all the wells during one sampling and was not found during the following sampling. Such was the case in February, 1996 when phenol was reported at six of the nine wells with concentrations up to 5.1 ug/L, with a detection limit of 2.5 ug/L. It was not reported the following quarter in any of the wells. It was reported in two wells in August, 1996 with a high value of 4.4 ug/L. After that, there was one phenol value reported at 3.9 ug/L. In November, 1996 total naphthalene was reported in every well within the range of 3.3 to 104 ug/L. It was not reported in any well during the following quarter, or ever since.

Review of data shows that it is not uncommon for water quality values to vary considerably from quarter to quarter in any one well. At one well it may be one or two parameters and at another well it may be several others. As stated above in the discussion of the semivolatile compounds, there has been the spurious appearance and subsequent disappearance of some elements and compounds from quarter to quarter. They usually appear in low concentrations and they may appear in a majority of the wells at one time.

The water quality at each of the monitoring wells will be briefly discussed below. Elements and compounds will be discussed only if they were reported at least twice at concentrations above the detection limit. The individual values will be compared to the state's standard for groundwater quality to determine compliance. The tabulated data was visually reviewed to determine if there were any obvious trends. The average, maximum, and minimum values for the tabulated data are presented below.

Indiantown Cogeneration, L.P.
Groundwater Monitoring Data - 1994-99

	Iron	Conductivity	Chloride	pH	Ammonia	Sulfate
Units	Mg/L	umhos	mg/L	su	mg/L	mg/L
State's Standard	0.30		250	6.5/8.5		250
MW #1 (32.8') – Background - Upgradient - Between Indiantown Cogen and FEC						
Average value	0.52	270	52	5.60	0.71	1.57
Maximum value	1.30	620	86	6.60	1.20	6.00
Minimum value	0.16	168	28	5.10	0.23	<.05
MW #4A (31.6') Background - Upgradient - Between Indiantown Cogen and Florida Steel						
Average value	5.25	968	262	4.73	0.99	0.59
Maximum value	8.50	1380	520	5.20	1.60	3.00
Minimum value	0.96	244	66	4.40	0.22	<.05
MW # 7 (24.9') Compliance - Downgradient of coal unloading building						
Average value	1.17	103	24	4.97	0.17	1.72
Maximum value	1.60	120	58	5.60	0.63	5.70
Minimum value	0.73	73	9	4.70	<.05	<.05
MW # 9 (15.8') Compliance - Upgradient of waste storage pond						
Average value	0.79	260	15	5.93	0.44	3.92
Maximum value	1.70	389	64	6.32	1.70	20.00
Minimum value	0.27	129	2	4.50	<.05	0.14
MW # 10 (16.6') Compliance - Upgradient of inactive coal storage area						
Average value	2.80	342	16	5.79	1.23	86.88
Maximum value	7.64	640	93	6.26	2.30	310.00
Minimum value	0.14	148	3	4.30	0.37	14.00
MW # 11 (16.8') Compliance - Downgradient of wastewater storage pond						
Average value	0.80	112	27	4.66	0.42	0.47
Maximum value	1.47	128	48	5.14	3.50	2.30
Minimum value	0.52	102	18	4.10	<.05	<.05
MW # 12 (16.0') Background - Upgradient - between Indiantown Cogen and Caulkins						
Average value	1.56	178	15	5.30	1.69	6.63
Maximum value	4.90	332	62	6.40	3.50	22.00
Minimum value	0.76	125	4	4.94	0.23	1.70
MW # 13 (10.2') Compliance - Downgradient of coal pile runoff basin						
Average value	0.68	176	36	4.23	1.46	1.74
Maximum value	1.58	219	66	5.40	3.40	10.00
Minimum value	0.50	122	18	3.77	0.25	<.05
MW # 14 (10.8') Compliance - Downgradient of cooling water storage pond						
Average value	0.74	401	14	5.55	1.40	42.10
Maximum value	19.20	690	30	6.10	2.60	110.00
Minimum value	<.05	210	4	4.82	0.34	<.1

Monitoring Well # 1. A 32.8' deep background monitoring well located at the northwest corner of the property. Up gradient of the well is primarily undeveloped land except for the railroad and the highway.

Field Parameters: The conductivity values ranged between 168 and 620 umhos, but the 1997 and later values have been mostly in the low 200's. All but one of the pH values have been below the state's standard of a minimum of 6.5 standard units (s.u.), ranged from 5.1 to 6.6 s.u., and there were no prevailing values in the data.
General Chemistry: The chloride values fluctuated but the 1998 and 99 values have been approximately 30 mg/L. The ammonia and sulfate values fluctuated during the review period and showed no trends. There were three "less than" sulfate values. Fluoride was found four times between November, 1995 and February, 1997 in a range from .06 to .34 mg/L.
Metals: The values for iron showed considerable fluctuation from 1994 through 1995, but have settled down since then and have exhibited a decreasing trend, from approximately .6 mg/L to .2 mg/L. Almost all iron the values through 1997 were above the state's standard of a maximum of .3 mg/L. Chromium has been found three times from 1995 to 1999 and ranged from .005 to .025 mg/L. All except two lead values have been reported as "less than" values (most as <.005 mg/L), and the two reported values were less than .005 mg/L.

Monitoring Well #4A. A 31.6' deep background monitoring well located east of the storm water management basin #2. It could be down gradient of the Florida Steel site.

Field Parameters: The first two conductivity measurements in 1995 were 244 and 330 umhos. Since then all but one of the values have been above 800 umhos, and the last two have been above 1300 umhos. All the pH values were below the state's standard and were usually fairly consistent from quarter to quarter.
General Chemistry: The chloride data shows some, but not always consistent, correlation with the conductivity data. The majority of the values were approximately 200 mg/L or better. The ammonia values were not consistent and the majority of them were above 1.0 mg/L. Eleven of the sixteen sulfate values were "less than" values and further discussion is not warranted. Fluoride appeared twice - May, 1996 (.21 mg/L) and November, 1996 (.15 mg/L).
Metals: All the iron values exceeded the state's standard and ranged from .96 to 8.5 mg/L, but the values for 1996 through 1999 have been 4.9 mg/L or better and fluctuate from quarter to quarter.

The values for iron, conductivity, and chloride all exhibited at least a two fold or greater step increase between November, 1995 and February, 1996.

Monitoring Well # 7. A 24.9' deep compliance well downgradient of the coal unloading building.

Field Parameters: The conductivity values were in a fairly narrow range but no trend is evident. All the pH values were below the state's minimum standard, in a fairly narrow range, and did not show an obvious trend.
General Chemistry: The chloride values were variable and have shown a decreasing trend since November, 1997. The ammonia values ranged from <.05 to .63 mg/L, with two "less than" values. They fluctuated and showed no obvious trend. The sulfate values had five of the fifteen values as "less than", fluctuated, and showed no obvious trend. Fluoride was found four times in a range of .13 to .64 mg/L between May, 1996 and November, 1997.
Metals: All of iron values have exceeded the state's standard and have been in a fairly narrow range from .73 to 1.17 mg/L. Since approximately May, 1996 there has been a general decreasing trend in

the iron concentration. All except two of the lead values have been reported as "less than" (most as <.005 mg/L), and the two reported values were less than .005 mg/L.

Monitoring Well # 9. A 15.8' deep compliance well upgradient of the wastewater storage basin.

Field Parameters: The conductivity values fluctuated within their range and did not exhibit a long term trend. All of the pH values were below the state's minimum standard and fluctuated through the second quarter of 1997. Since then the values have ranged between 6.0 and 6.3 s.u.
General Chemistry: The chloride data fluctuated and did not exhibit an obvious trend. The ammonia data had two out of fifteen values which were "less than" values and most have been in the .3 to .5 mg/L range. There were no obvious trends except for a decrease during the last four quarters. The sulfate data had one "less than" value and the data fluctuated throughout the period. Fluoride appeared in August and November, 1996 at .09 and .31 mg/l, respectively.
Metals: All of the iron values except that for the second quarter of 1999 exceeded the state's standard. The values fluctuated and most were in the range of .60 to .69 mg/L. Manganese has been in detectable quantities during the last five quarters; May, 1998 through May, 1999. The range was from .11 to .19 mg/L and there was no trend. All except four lead values have been reported as "less than" values (most as <.005 mg/L), and only one of the reported values was above .005 mg/L - .007 mg/L in May, 1996.

Monitoring Well # 10. A 16.6' deep compliance well upgradient of the coal storage area.

Field Parameters: The conductivity values have shown periods of relative stability followed by substantial fluctuation. All of the pH values were below the state's minimum standard and ranged between 5.5 and 6.3 s.u. until the second quarter of 1999 when 4.3 s.u. was reported.
General Chemistry: The average chloride value was affected substantially by two values, i.e. 90 mg/L in June, 1994 and 93 mg/L in February, 1997. The remainder of the values were 15 mg/L or less and without the two high values the average dropped from 16.4 to 6.42 mg/L. Overall, there appears to be a decreasing trend in the chloride values. The ammonia values were in a fairly narrow range and they fluctuated. Sulfates had a wide range and fluctuated. Fluoride was found five times in a range of .04 to .68 mg/L between November, 1995 and November, 1997.
Metals: The iron values at this site have varied considerably. From June, 1994 through August, 1995 they ranged from 1.68 to 7.64 mg/L and exceeded the state's standard. From November, 1995 through August, 1996 they were below the standard. After that, they have exceeded the standard, ranged from .35 to 7.2 mg/L, and fluctuated substantially. Besides the ubiquitous iron, other metals; arsenic, chromium, and manganese; have been measured at this well. Arsenic first appeared in August, 1995 at .018 mg/L, reappeared in August, 1997 at .013 mg/L, and then has been found from May, 1998 to the present in a range from .012 to .031 mg/L. Chromium first appeared in November, 1995 at .025 mg/L and appeared again in August, 1998 (.013 mg/L) and November, 1998 (.008 mg/L). Manganese has been measured from May, 1998 to the present in a range of .011 to .075 mg/L. All except two lead values have been reported as "less than" values (most as <.005 mg/L), and only one of the reported values was higher than .005 mg/L - .006 mg/L in August, 1998.

Monitoring Well # 11. A 16.8' deep compliance well downgradient of the wastewater storage basin.

Field Parameters: The conductivity values have been in a fairly narrow range, 102 to 128 umhos, and have not fluctuated very much. The same can be said for the pH values and all have been below the state's minimum standard.

General Chemistry: The ammonia data had two "less than" values and fluctuated. Over one half of the values were in a range of .23 to .31 mg/L. Eleven of the sixteen values for sulfate were "less than" values, most were <.5 mg/L, and further discussion is not warranted. Fluoride appeared for four consecutive quarters from November, 1996 through August, 1997 in a range from .12 to .84 mg/L. There was no trend in the values.
Metals: The vast majority of the iron values were in a range from .50 to .80 mg/L and all exceeded the state's standard. Since the third quarter of 1995 the values have not fluctuated widely. All except three of the lead values have been reported as "less than" values (most as <.005 mg/L), and only one of the reported values was higher than .005 mg/L - .012 mg/L in August, 1995.

Monitoring Well # 12. A 16.0' deep background well located at the north property line near the center of the property. It is down gradient of Caulkins Indiantown Citrus processing plant.

Field Parameters: The conductivity data shows some correlation with the trends of the iron data and has registered the highest values since 1995 during the last half of 1998 and the first half of 1999. Again, all the pH values were below the state's minimum standard and the majority were in the 5.0 to 5.2 s.u. range. The values usually did not fluctuate much from quarter to quarter.
General Chemistry: The chloride data has shown a decreasing trend from 1995 to the present. The ammonia data did fluctuate and did not show an obvious trend. The range of sulfate values was fairly wide, from 1.7 to 22 mg/L, but most values were between 6.0 and 9.0 mg/L. Fluoride was found three times from February, 1997 to February, 1998 in a range of .12 to .27 mg/L.
Metals: All the iron values exceeded the state's standard. The values started off in 1994 above 2.0 mg/L and decreased to a little under 1.0 mg/L in 1996, where they stayed until the second quarter of 1998. Then they increased to as high as 4.9 mg/L and have been just over 2.0 mg/L for the last two quarters. All except four of the lead values have been reported as "less than" values (most as <.005 mg/L), and the four reported values were less than .005 mg/L. Manganese has been found during the last five quarters with values ranging from .031 to .22 mg/L and four of the values were .1 mg/L or less.

Monitoring Well # 13. A 10.2' deep compliance well downgradient of the coal runoff basin.

Field Parameters: The conductivity data was in a fairly narrow range and did not fluctuate widely. The pH values were the lowest at the facility with a range from 3.77 to 5.4 s.u. All but one of the nineteen values were below 5.0 s.u. and six values were below 4.0 s.u. The more recent values have been above 4.5 s.u.
General Chemistry: The chloride values showed some fluctuation and a moderate range. The ammonia values varied but did not fluctuate highly. Four of the fifteen sulfate values were "less than" values and there was one value (10 mg/L) that was considered high. The majority of the values were 3.0 mg/L or less. Fluoride appeared five times in nine quarters: February, 1997 through February, 1999; with a range of .20 to .31 mg/L.
Metals: All of the iron values exceeded the state's standard, were within a fairly narrow range, and did not fluctuate widely. Selenium was found twice in 1996 with values of .012 and .037 mg/L, both exceedances of the state's standard of a maximum of .01 mg/L. All except two lead values have been reported as "less than" values (most as <.005 mg/L). The reported values were .011 mg/L in June, 1994 and .007 mg/L in May, 1996.

Monitoring Well # 14. A 10.8' deep compliance well downgradient of the cooling water storage pond.

Field Parameters: The conductivity values fluctuated and the majority of them were in the 300 to 400 umhos range. All the pH values were below the state's minimum standard and there appears to be increasing trend. The initial values were just under 5.0 s.u. and the more recent values have been approximately 6.0 s.u.
General Chemistry: The chloride values fluctuated but did not correlate well with the conductivity values. The ammonia and sulfate values have fluctuated and there doesn't appear to be any obvious trends. Fluoride was found only twice; November, 1995 and February, 1997; at .06 and .22 mg/L, respectively.
Metals: The iron values at this well have shown a decreasing trend from the beginning of the sampling in June, 1994. The initial value was 19.2 mg/L, the next value was 2.06 mg/L, and a general decreasing trend has continued to date. The values dropped and remained below the state's standard since February, 1998. All except five of the lead values have been reported as "less than" values (most as <.005 mg/L), and only three of the reported values were higher than .005 mg/L - .034 mg/L in June, 1995, .007 mg/L in May, 1996, and .006 mg/L in November, 1996. Chromium has been found at this site three times in 1995 and 1996 with values ranging from .005 to .023 mg/L. Selenium was also found twice during that period with values of .013 and .027 mg/L, both exceedances of the standard.
Semivolatile Compounds: Phenol was found three times during 1996 and 1997 with values ranging from 2.8 to 3.9 ug/L.

The areal distribution of the self monitoring groundwater data was examined to determine if there were patterns in the occurrence and/or concentrations of the parameters. No one well over all the others had predominantly high average values, or low pH values. MW #4A, a background well, came the closest with the highest averages for iron, chloride, and conductivity. The well may be under the influence of the contamination from the Florida Steel superfund site which appears to be up gradient of the well. MW #12, also a background well, had the highest averages for ammonia and manganese. MW #10, a compliance well down gradient of the cooling water basin, had low averages for chloride, ammonia, manganese, and fluoride. It also had one of the highest pH averages, but the sulfate average was over ten times higher than the next highest average, which was at MW #12.

Exceedances of the state's groundwater quality standards have been documented in the above discussions. Ubiquitous iron exceeded the state's standard in the background wells, except for MW #1 since February, 1998. The pH of groundwater in the area does not meet the state's standard, as documented by low values in the background wells. Manganese and selenium have also appeared above the standards in the background well MW #12 and in several compliance wells down gradient.

Deficiencies: None observed due to the quality of the background water.

Rating: Satisfactory

Thank you for your time and the courtesy extended to me during the inspection. If there are any questions you can reach me at (561)871-7662. Your continued cooperation is appreciated.

Sincerely,

Terry J Davis

Terry Davis
Environmental Specialist

cc: IW Section, DEP, WPB

COMET ENTRY DATE
__/__/__

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

WASTEWATER COMPLIANCE INSPECTION REPORT

FACILITY AND INSPECTION INFORMATION

@ = Optional

Name and Physical Location of Facility	WAFR ID:	County	Entry Date/Time
Indiantown Cogeneration L.P.	COMET # 202570	Martin	29 July, 1999/1000
19140 SW Warfield Blvd.		Phone	@ Exit Date/Time
Indiantown, Fla		(561)597-6500	29 July, 1999/1400

Name(s) of Field Representatives(s)	Title	Phone
David Burrage	Environmental Coordinator	(561)597-6500

Name and Address of Permittee or Designated Representative	Title	Phone	@ Operator Certification #
Stephen Sorrentino	General Manager	(561)597-6500	
P.O. Box 1799			
Indiantown, FL 34956			

Inspection Type: C E I — Samples Taken(Y/N): N — @ Sample ID#: — Samples Split (Y/N):

☐ Domestic ☒ Industrial — Were Photos Taken(Y/N): N — @ Log book Volume : — @ Page

FACILITY COMPLIANCE AREAS EVALUATED

S=Satisfactory; M=Minor; U=Unsatisfactory; Blank=Not Evaluated

Unsatisfactory Ratings in Areas Marked by a "Diamond (♦)" Will Always put the Facility Status in Significant Non-Compliance

S	1. ♦ Permit		3. Laboratory	S	6. Facility Site Review		9. ♦ Effluent
	2. ♦ Compliance Schedules		4. Sampling		7. Flow Measurement		10. ♦ Disposal
		S	5. ♦ Records & Reports	S	8 ♦ Operation & Maintenance	S	11. Residuals Management
	13. Other:					S	12. Groundwater

Facility and/or Order Compliance Status: ☒ In-Compliance ☐ Minor-Out-Of-Compliance ☐ Significant-Out-Of-Compliance

Recommended Actions

Name(s) and Signature(s) of Inspector(s)	District Office/Phone Number	Date
Terry L. Davis *Terry L. Davis*	(561)871-7662	29 July, 1999

@ Signature of Reviewer	District Office/Phone Number	Date
	(561)681-6698	

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI, RI)

Transaction Code		NPDES Number	YR/MO/DA	Insp Type	Inspector	Fac Type
N	5			1	2	3

ADDITIONAL NPDES COMMENTS

Inspection Type (Field 1) A=PAI, B=CBI, C=CEI, S=CSI, X=XSI, R=RI
Inspection Code (Field 2) S=State, J=Joint EPA/State-EPA Lead T=Joint State/EPA-State Lead, L=Local Program
Facility Type (Field 3) 1=Municipal (Publicly Owned), 2=Industrial and Privately Owned Domestic,
3= Agricultural, 4=Federal

Every other field is self explanatory

FACILITY DIAGRAM @

Revised 8/98

INSPECTION COMMENTS

Facility has a Site Certification but is applying for an NPDES emergency discharge permit. Laboratory is U.S. Biosystems, also does sampling. Self monitoring reports current and on time. Copies and supporting documentation on file. General housekeeping is very good. No discharge of process water, water lost through evaporation and drift. All solids generated are combined with ash from combustion of coal and are disposed of by beneficial use (concrete additive or soil creation) or disposed of at a landfill, the majority in Kentucky and some at Chamber's in Okeechobee County. Liner being replaced around the inactive coal storage area and the coal pile runoff basin with heavier material. Liner underneath the area does not need replacement as it is well protected. The facility has a Y2K compliance plan and is actively addressing the situation.

Attachment I

As-Built Site Plan

Attachment J

Correspondence Related to NPDES Permitting

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

In the Matter of an
Application for Permit by:

Mr. Stephen Sorrentino, General Manager	/	Draft Permit Number:	FL0183750
Indiantown Cogeneration, L.P.	/	Application Number:	FL0183750-001-IW7D
Post Office Box 1799	/	Martin County	
Indiantown. Florida 34956	/		

NOTICE OF DRAFT PERMIT

The Department of Environmental Protection gives notice of its preparation of a draft permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Indiantown Cogeneration, L.P., has filed a permit application with the Department of Environmental Protection, to request authorization for emergency discharges at the Indiantown Cogeneration Plant in Indiantown, Martin County. The permit application was submitted on May 28, 1999, by Mr. Stephen Sorrentino, the general manager for the facility. The applicant requests the cooling water makeup storage pond and wastewater storage pond be allowed to discharge, during severe rainfall events, to the St Lucie Canal. These ponds will remain "zero discharge" in normal condition.

The construction and operation of the power plant was approved under the Florida Electrical Power Plant Citing Act, under DER Case no. PA 90-31. The final Order approving certification for this project was issued by the Siting Board on February 6, 1992. At this time, the emergency discharges may be prohibited by the Order based on Section II.3.C in the Conditions of Certification, which reads "There shall be no discharge of industrial or domestic wastewaters from this site to waters of the state." Therefore, in addition to obtaining the discharge permit, the Order must also be modified to formally recognize the emergency discharges. The applicant has stated that they will seek to have the Order modified, in accordance with the provisions in Rule 62-17.211(4), Florida Administrative Code (F.A.C.), once the discharge permit is issued.

The Department has permitting jurisdiction under Section 403.0885, Florida Statutes (F.S.) and Chapter 62-620, F.A.C. The project is not exempt from permitting procedures. The Department has determined that an industrial wastewater permit is required for the proposed emergency discharge activities.

The applicant has demonstrated with reasonable assurance that the project conforms with the applicable rules and regulations. The applicant has also shown the proposed emergency discharges will comply with the Class III (fresh) surface water standards established for the receiving waters, and will in general have minimal adverse impact to the environment.

Any interested person may submit written comments on the Department's draft permit or may submit a written request for a public meeting to the Department's Southeast District Office in accordance with Rule 62-620.555, F.A.C. The comments or request for a public meeting must contain the information set forth below and must be received in the Department's Southeast District Office at P.O. Box 15425, West Palm Beach, Florida 33416 (attention: Mr. Paul C. Sze). Comments from the permit applicant and the persons listed below must be received within thirty (30) days of receipt of this notice. Failure to submit comments or request a public meeting within this time period shall constitute a waiver of any right such person may have to submit comments or request a public meeting under Rule 62-620.555, F.A.C.

The comments or request for a public meeting must contain the following information:

(a) The commenter's name, address, and telephone number, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when notice of the Department's action or proposed action was received;
(c) A statement of the facts the Department should consider in making the final decision;
(d) A statement of which rules or statutes require reversal or modification of the Department's action or proposed action; and
(e) If desired, a request that a public meeting be scheduled including a statement of the nature of the issues proposed to be raised at the meeting.

If a public meeting is scheduled the public comment period is extended until the close of the public meeting. However, the Department may not always grant a request for a public meeting. Therefore, written comments should be submitted within thirty (30) days of publication of this notice even if a public meeting is requested. If a public meeting is held any person may submit oral or written statements and data at the public meeting on the Department's proposed action. As a result of significant public comment the Department's final action may be different from the position taken by it in this draft permit.

DONE AND ENTERED this 10TH day of DECEMBER, 1999, in the City of West Palm Beach, Florida.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Jose Calas, P.E.
Acting Water Facilities Administrator
Southeast District
400 North Congress Avenue
Post Office Box 15425
West Palm Beach, Florida 33416

JC:TP/PS:sFL0183750.doc

Enclosures: Draft Permit No. FL0183750 and Statement of Basis
Discharge Monitoring Report (DMR) Forms

Copies furnished to:

Terry Davis, DEP/PSL (w/enclosure)
Hamilton "Buck" Oven, DEP/TLH (w/enclosure)
John Coates, P.E., DEP/TLH (w/enclosure)
Ivan Chou, ECT/Gainesville (w/enclosure)

Florida Department of Community Affairs
U.S. Environmental Protection Agency, Region IV
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
National Marine Fisheries Service
L.E.A.F.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF DRAFT PERMIT and all copies were mailed before the close of business on DEC 10 1999 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, under section 120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Linda Tschappat
Clerk

DEC 10 1999
Date

Jeb Bush
Governor

Department of Environmental Protection

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Telephone Number: (561) 681-6600
Facsimile Number: (561) 681-6760
David B. Struhs
Secretary

STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMITTEE:	Indiantown Cogeneration, L.P. Post Office Box 1799 Indiantown. Florida 34956	**FACILITY I.D. NO.:** **PERMIT NUMBER:** **APPLICATION NO.:**	FL0183750 FL0183750 FL0183750-001-IW7D
RESPONSIBLE AUTHORITY:	Stephen Sorrentino General Manager	**ISSUANCE DATE:** **EXPIRATION DATE:**	

FACILITY:

Indiantown Generating Plant, Industrial Wastewater Emergency Discharge Facility
19140 SW Warfield Boulevard (3 miles northwest of Indiantown off State Road 710)
Indiantown, Florida 34956
Martin County
Class/Size: Industrial/Minor
Latitude: 27°02'20"N Longitude: 80°31'00"W

This permit is issued under the provisions of Chapter 403, Florida Statutes, and applicable rules of the Florida Administrative Code and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System (NPDES). The above named permittee is hereby authorized to operate the facilities shown on the application and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TREATMENT AND DISPOSAL FACILITIES:

Indiantown Generating Plant is a 330-megawatt cogeneration (electricity and steam) facility fueled by pulverized coal, with a SIC no. of 4911. The electricity produced is sold under contract to Florida Power and Light Company. The process steam is supplied to a citrus processing plant owned by Caulkins Indiantown Citrus Company. The primary source for the cooling water makeup and other process waters is withdrawn from Taylor Creek/Nubbin Slough ("TC/NS") at a rate of about 4.035 MGD, and pumped to the facility via a 19-mile long pipeline. During dry periods or other emergencies, backup supply water can be provided by the onsite wells pumping from the upper zone of the Floridan aquifer. The facility is generally operated as a "zero discharge" facility where the process wastewaters and onsite stormwater are contained, treated and reused. Most of the heated cooling water is lost as steam exported to Caulkins and through evaporation at the cooling towers.

SURFACE WATER EFFLUENT DISPOSAL:

The permit authorizes the emergency discharges from the 26.5-acre lined cooling water makeup storage pond and the 8-acre lined wastewater storage pond. The cooling water storage pond has a storage capacity of about 32 million gallons and stores primarily fresh TC/NS canal water, stormwater, backup groundwater supply water, and relatively small side streams of miscellaneous process waters, and wastewaters diverted from the wastewater storage pond. The wastewater storage pond has a storage capacity of about 7.5 million gallons, and stores miscellaneous cooling process wastewaters and effluents from the evaporator system; air preheater wash sump; ash handling area sump; and the water neutralization tank, etc., and also fresh TC/NS canal water, stormwater, and backup groundwater supply water.

DRAFT

SURFACE WATER EFFLUENT DISPOSAL (cont'd):

The cooling water makeup storage pond is authorized to discharge from Outfall D-004, located at the western end of the pond, after the rainfall event exceeds the category of a 25-year/72-hour storm, or 9.5 inches of rainfall. The normal pond water level is at 37.5 feet, NGVD, with the overflow weir elevation at 37.75 feet, NGVD. The wastewater storage pond is authorized to discharge from Outfall D-005, located at the western end of the pond, after the rainfall event exceeds the category of a 100-year/72-hour storm, or 12.2 inches of rainfall. The normal pond water level is at 36.25 feet, NGVD, with the overflow weir elevation at 37.5 feet, NGVD.

Both Outfalls D-004 and D-005 discharge to an internal/onsite ditch that drains southerly until it reaches Outfall D-001, where the ditch enters an offsite unnamed canal and continues to flow southerly until it empties into the St. Lucie Canal. The offsite Outfall D-001 and internal Outfalls D-004 and D-005 are located, respectively, at the following latitude and longitude coordinates: 27°02'06"N/80°31'07"W; 27°02'25"N/80°31'14"W; and 27°02'19"N/80°30'52"W.

The stormwater discharges to surface water from the other stormwater-only storage ponds at the facility are authorized by a separate Multi-Sector General Permit issued by the USEPA.

IN ACCORDANCE WITH: The permit application to authorize discharge (emergency discharge) of process wastewater to surface water on DEP Forms 62-620.910(1) (Form 1) and 62-620.910(5) (Form 2CS) received on May 28, 1999, and additional information received on July 28 (letter from Counsel for the applicant) and September 21, 1999. And also subject to the limitations, monitoring requirements and other conditions set forth in this permit.

(This space intentionally left blank.)

DRAFT

Permittee:	Indiantown Cogeneration, L.P. Stephen Sorrentino, General Manager Post Office Box 1799 Indiantown. Florida 34956	Facility I.D. Number: Permit Number: Issuance Date: Expiration Date:	FL0183750 FL0183750

PERMIT CONDITIONS:

I. Effluent Limitations and Monitoring Requirements

A. Surface Water Discharges (Emergency Discharges)

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge from Outfall D-004, cooling water makeup; and from Outfall D-005, miscellaneous process wastewater. Such discharge shall be limited and monitored by the permittee at the individual outfall as specified below:

Parameters (units)	Storet Number	Discharge Limitations			Monitoring Requirements		
		Daily Avg.	Daily Max.	Other	Frequency	Sample Type	Sample Points
Flow (MGD)	50050	Report	Report	N/A	Daily During Discharge	Flowmeter/ Weir Head	Effluent (EFF-04*/05**)
Chemical Oxygen Demand (mg/L)	81017	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Total Organic Carbon (mg/L)	00680	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Total Dissolved Solids (mg/L)	70296	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Total Suspended Solids (mg/L)	00530	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Specific Conductance (μmhos/cm)	00095	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Color (color units)	00080	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
pH (standard units)	00400	N/A	Report	Report (Daily min)	Daily During Discharge	Grab	Effluent (EFF-04/05)
Sulfate (mg/L)	00945	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Total Organic Halogen (μg/L)	78115	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-04/05)
Gross Alpha Particle Activity (pci/L)	80045	N/A	Report	N/A	Daily During Discharge	Grab	Effluent (EFF-05 only)

Footnote: "*" EFF-04 is the sampling point for the cooling water makeup discharge at Outfall D-004.
"**" EFF-05 is the sampling point for the process wastewater discharge at Outfall D-005.

2. The wet weather related emergency discharges from Outfalls D-004 and D-005 are allowed only after the rainfall event exceeds the category of a 25-year/72-hour storm (9.5 inches) and 100-year/72-hour storm (12.2 inches), respectively. The discharges from a lesser storm event and all other non-wet weather related events are prohibited by the permit.

3. The permissible discharge is allowed to continue for a duration of up to 48 hours of non-rainfall interval after the cessation of such storm event. If a permissible discharge is occurring during the 48-hour non-rainfall interval and a subsequent rainfall event occurs, further discharge is also permissible up to 48 hours after cessation of the subsequent rainfall event. If a permissible discharge has ceased prior to the end of the 48-hour non-rainfall interval and a subsequent rainfall event occurs, the subsequent rainfall event shall be considered as a new rainfall event for the purpose of evaluating whether a discharge is permissible by the permit.

4. "Discharge" is considered to have occurred and daily sampling at the respective storage pond shall begin, when there is an overflow discharge from the pond to the internal ditch, even if there is no discharge at the offsite outfall at the time.

DRAFT

5. The maximum daily results, and the calculated average daily flow, for the entire discharge period shall be reported on the Discharge Monitoring Reports (DMR): pages A-1 and A-2 for D-004, and Pages A-3 and A-4 for D-005. The DMR shall be submitted to the Department's Office in Tallahassee (section I.C.2) quarterly regardless of the discharge activity or the absence thereof in the period. If there are multiple discharge events in a quarter, sampling shall be repeated for each event and reported on separate DMRs.

6. Unless specified elsewhere in the permit, effluent samples EFF-04 and EFF-05 taken in compliance with the monitoring requirements specified above, shall be taken at the nearest accessible point at the pond overflow weirs. Samples shall be collected prior to discharge into or mixing with the receiving waters in the internal ditch system.

7. The volume of the overflow discharge flows shall be totalized and recorded daily during the discharge. The flow rate at the overflow weir shall be determined continuously or at least hourly during discharge, by measuring the hydraulic head above the crest of the weir and calculated using the proper weir head-discharge formula.

8. The information for the storm event that precipitated the emergency discharge, including the total rainfall depth (inches) by adding the daily rain gauge readings and the rainfall duration (hours), shall be reported in the comment section on the DMR.

9. At this time, there are no specific effluent limitations for the emergency discharges at the two internal outfalls. However, the Department may in the future, if necessary, impose the Class III (fresh) surface water standards, as provided in F.A.C. Chapter 62-302, or their derivatives at the internal outfalls. The more stringent standards may be invoked if there is evidence that the emergency discharges may have caused or contributed to the degradation of the receiving water at the St. Lucie Canal, or if there is frequent emergency discharge activity. The Department may also modify the permit to include more comprehensive analysis to identify the specific pollutants if the screening or indicator tests show any anomaly, or to require that confirmatory sampling for certain pollutants be performed at the offsite outfall.

10. There shall be no discharge of floating solids or visible foam in other than trace amounts.

11. The discharge shall not cause a visible sheen on the receiving water.

12. The discharge to surface water shall not cause a violation of the Minimum Criteria for Surface Waters as specified in Rule 62-302.500, F.A.C., at all places and at all times.

13. The Department's WAFR site numbers for Outfalls D-004 and D-005 and their corresponding effluent sampling points EFF-04 and EFF-05 are as follows: 35883, 35884, 35885 and 35886, respectively.

B. Other Methods of Disposal or Recycling

1. There shall be no discharge of industrial wastewater from this facility to ground or surface waters, except as specifically authorized by this permit under section I.A.1.

2. The permit prohibits the discharges from a storm event that does not meet the minimum storm categories as specified in section I.A.2, and from all other non-wet weather related events. The permittee shall report these unauthorized discharge activities to the Department following the procedures provided in sections I.C.3 and VIII.20. The permittee may seek relief from the enforcement actions for the unauthorized discharges, by demonstrating that the discharges have met the exemption criteria in the Bypass and Upset Provisions, provided in sections VIII.22 and VIII.23. The Department will review the relief request, including an assessment on the damage to the environment, on a case by case basis.

3. The permittee shall monitor the unauthorized discharges in a same manner as the authorized emergency discharges, with the monitoring program specified in section I.A.1. However, the DMR shall be submitted to the Department's Southeast District Branch Office in Port St. Lucie (section I.C.3), within 48 hours after the permittee received the test results.

DRAFT

4. Without jeopardizing the functionality for the two storage ponds, the pond levels should be maintained within the lower range of the acceptable operating levels for the entire rainy season, to assure there is adequate reserved storage capacity for rainfalls. Further, the ponds should be pumped down and kept at their lowest safe feasible levels when major storm events are being forecasted for the project area. During the permissible discharge events, the permittee should control the delivery of TC/NS canal water and groundwater into the ponds in a way to minimize the overflow discharge volume.

C. Other Limitations and Monitoring and Reporting Requirements

1. The approved analytical methods and corresponding required MDL (method detection limit) and PQL (practical quantification limit) for the parameters monitored at Outfalls D-004 and D-005 are (note: if multiple methods are approved for a given parameter, they are all listed with corresponding MDLs/PQLs on separated rows):

Parameter	Analytical Method	MDL (units)	PQL (units)
Chemical Oxygen Demand	EPA 410.2	5.0 (mg/L)	5.0 (mg/L)
Total Organic Carbon	EPA 415.1	1.0 (mg/L)	2.0 (mg/L)
Total Dissolved Solids	EPA 160.1	10.0 (mg/L)	10.0 (mg/L)
Total Suspended Solids	EPA 160.2	4.0 (mg/L)	4.0 (mg/L)
Specific Conductance (Field)	HYDROLAB	1.0 (μmhos/cm)	1.0 (μmhos/cm)
Color	EPA 110.2	5.0 (pcu)	5.0 (pcu)
pH	EPA 150.1	0.10 std. unit	0.10 std. unit
Sulfate	EPA 300.0	20.0 (μg/L)	50.0 (μg/L)
Total Organic Halogen	EPA 1648/1650	N/A	N/A
Gross Alpha Particle Activity **	EPA 900.0	1.0 (pci/L)	3.0 (pci/L)

Footnote: "**" Sampling for gross alpha particle activity is required at D-005 only.

The MDLs and PQLs listed above shall constitute the minimum reporting levels for the life of the permit for the methods utilized. The Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those listed above. Unless otherwise specified, sample results shall be reported on the appropriate Discharge Monitoring Report (DMR) as follows:

(a) Results greater than or equal to the PQL shall be reported as the measured quantity.

(b) Results less than the PQL and greater than or equal to the MDL shall be reported as the PQL value followed by the lab code "m" and the value of the MDL in parenthesis. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.

(c) Results less than the MDL shall be reported as the MDL value followed by the lab code "u". A value of one half the MDL or one half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limit or monitoring requirement. [F.A.C. Rule 62-4.246, 6-13-96]

2. Monitoring results obtained for each calendar quarter, beginning on the first day of January, April, July and October, shall be summarized for that quarter and reported on a Discharge Monitoring Report (DMR), Form 62-620.910(10), postmarked no later than the 28th day of the month following the completed calendar quarter. For example, data for the first quarter shall be submitted by April 28. Signed copies of the DMR shall be submitted to the address specified below:

Florida Department of Environmental Protection
Wastewater Facilities Regulation Section, Mail Station 3550
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DRAFT

If no discharge occurs during the reporting period, sampling requirements of this permit do not apply. The permittee shall either indicate "No Discharge" or check off the No-Discharge check box on the DMR form. If, during the term period of this permit, the facility permanently ceases to discharge, the Department shall be notified immediately upon cessation of discharge. Such notification shall be in writing.

3. Unless specified otherwise in this permit, all other reports and notifications required by this permit, including twenty-four hour notifications and the DMR for unauthorized discharges, shall be submitted to or reported to, as appropriate, the Southeast District Office of the Department at the address specified below:

   Florida Department of Environmental Protection
   Southeast District Branch Office
   Industrial Waste Section
   1801 Southeast Hillmoor Drive, Suite C-204
   Port St. Lucie, Florida 34952

   Telephone Number: (561) 398-2806
   Facsimile Number: (561) 398-2815

4. Grab samples shall be collected during periods of minimal treatment plant pollutant removal efficiencies or maximum hydraulic and/or organic loading.

5. The permittee shall provide safe access points for obtaining representative samples which are required by this permit.

6. The permittee shall ensure that all laboratory analytical data submitted to the department as required by this permit is from a laboratory which has a currently valid and Department-approved Comprehensive Quality Assurance Plan (ComQAP), or a ComQAP pending approval, for all parameters being reported as required by Chapter 62-160, Florida Administrative Code (F.A.C.)

7. If there is no discharge from the facility on a day scheduled for the required sampling, the permittee shall instruct the laboratory personnel to collect a representative water sample from the storage pond near the overflow structure.

8. Any bypass of the treatment facility which is not included in the monitoring requirements specified in section I.A.1, is to be monitored for flow and all other required parameters. For parameters other than flow, at least one (1) grab sample per day shall be monitored. Daily flow shall be monitored or estimated, as appropriate, to obtain reasonable data. All monitoring results shall be reported on the appropriate DMR. The DMR shall be submitted the Department's Southeast District Branch Office in Port St. Lucie (section I.C.3), within 48 hours after the permittee received the test results.

II. Industrial Sludge Management Requirements (Not Applicable To This Permit)

III. Ground Water Monitoring Requirements (Not Applicable To This Permit)

IV. Other Land Application Requirements (Not Applicable To This Permit)

V. Operation and Maintenance Requirements

A. Operation of Treatment and Disposal Facilities

1. The permittee shall ensure that the operation of this facility is as described in the application and supporting documents.

2. The operation of the pollution control facilities described in this permit shall be under the full time supervision of a person who is qualified by formal training and/or practical experience in the field of water pollution control.

DRAFT

B. Record Keeping Requirements

The permittee shall maintain the following records on the site of the permitted facility and make them available for inspection:

1. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three (3) years from the date the sample or measurement was taken.

2. Copies of all reports, other than those required in items 1. and 6. of this section, required by the permit for at least three (3) years from the date the report was prepared, unless otherwise specified by Department rule.

3. Records of all data, including reports and documents used to complete the application for the permit for at least three (3) years from the date the application was filed, unless otherwise specified by Department rule.

4. A copy of the current permit.

5. A copy of any required record drawings.

6. Copies of the logs and schedules showing plant operations and equipment maintenance for three (3) years from the date on the logs or schedule.

VI. Compliance Schedules and Self-imposed Improvement Schedules

1. The permittee shall achieve compliance with the conditions of this permit in accordance with the following schedule:

Compliance Activities or Conditions	Schedule of Compliance
I. Best Management Practices (BMP) Plan (Section VII.D)	
Develop BMP3 plan:	Issuance date of permit plus 6 months
Implement BMP3 plan:	Issuance date of permit plus 18 months
II. Other Permit Conditions	
Operational Level Attained:	Issuance date of permit

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by an identified date, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

VII. Other Specific Conditions

A. Specific Conditions Applicable to All Permits

1. Drawings, plans, documents or specifications submitted by the permittee, not attached hereto, but retained on file at the Department's Southeast District Office, are made a part hereof.

2. If significant historical or archaeological artifacts are discovered at any time within the project site, the permittee shall immediately notify the Southeast District Office and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R.A. Gray Building, Tallahassee, Florida 32301.

DRAFT

3. Where required by Chapter 471 or Chapter 492 Florida Statutes, applicable portions of reports to be submitted under this permit, shall be signed and sealed by the professional(s) who prepared them.

4. This permit satisfies the Department's Industrial Wastewater Program permitting requirements only and does not authorize operation of this facility prior to obtaining any other permits required by local, state or federal agencies.

B. Specific Conditions Related to Construction (Not Applicable To This Permit)

C. Duty to Reapply

1. The permittee shall submit an application to renew this permit at least 180 days before the expiration date of this permit.

2. The permittee shall apply on the appropriate form listed in Rule 62-620.910, F.A.C., and in the manner established in Rules 62-620.400 through 62-620.460, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.

3. An application filed in accordance with sections 1. and 2. of this section shall be considered timely and sufficient. When an application for renewal of a permit is timely and sufficient, the existing permit shall not expire until the Department has taken final action on the application for renewal or until the last day for seeking judicial review of the agency order or a later date fixed by order of the reviewing court.

4. The late submittal of a renewal application shall be considered timely and sufficient for the purpose of extending the effectiveness of the expiring permit only if it is submitted and made complete before the expiration date.

D. Specific Conditions Related to Best Management Practices (BMP) Condition (Not Applicable To This Permit)

1. BMP Plan

For purposes of this part, the terms "pollutant" or "pollutants" refer to any substance listed as toxic under Section 307(a)(1) of the Clean Water Act (the "Act"), oil, as defined in Section 311(a)(1) of the Act, and any substance listed as hazardous under Section 311 of the Act. The permittee shall develop and implement a Best Management Practices (BMP) plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations; and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Implementation

The plan shall be developed within six (6) months after the effective date of this permit and shall be implemented as soon as practicable but not later than 18 months after the effective date of the permit. The permittee shall submit written notification of compliance or noncompliance with these requirements to the Department in accordance with section I.E.3. of this permit.

3. General Requirements

The BMP plan shall:

(a) Be documented in narrative form, and shall include any necessary plot plans, drawings or maps.

(b) Establish specific objectives for the control of pollutants as follows:

(1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

DRAFT

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural conditions (e.g., precipitation), or other circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

(c) Establish specific best management practices to meet the objectives identified under paragraph (b) of this subsection, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented.

(d) Include any special conditions established in paragraph (b) of this subsection.

(e) Be reviewed by plant engineering staff and plant manager.

4. Documentation

The permittee shall maintain the BMP plan at the facility and shall make the plan available to the Department upon request.

5. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.

6. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of significant amounts of pollutants to surface waters and the specific objectives and requirements under paragraphs (b) and (c) of subsection 3 in section VII.D., the permit shall be subject to modification pursuant to Rule 62-620.325, F.A.C., to incorporate revised BMP requirements.

7. Implementation of Modified BMP Plan

When updating of the BMP Plan is necessary as described under paragraphs 5 and 6, the plan shall be updated within six (6) months after completion of the facility modifications or determination of BMP Plan ineffectiveness. The modified BMP Plan shall be implemented as soon as practicable but not later than 12 months after it is modified, unless a later date is approved by the Department. Until the BMP Plan is updated and implemented, the previous BMP Plan shall continue to be implemented. Upon review of the existing BMP Plan, if it is determined that no changes are needed, the updated plan should indicate the date of such decision.

E. Specific Conditions Related to Existing Manufacturing, Commercial, Mining, and Silviculture Wastewater Facilities or Activities (Not Applicable To This Permit)

E. Specific Conditions Related to Existing Manufacturing, Commercial, Mining, and Silviculture Wastewater Facilities or Activities

1. Existing manufacturing, commercial, mining, and silvicultural wastewater facilities or activities that discharge into surface waters shall notify the Department as soon as they know or have reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following levels:

DRAFT

(1) One hundred micrograms per liter (100 mcg/L).

(2) Two hundred micrograms per liter (200 mcg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 mcg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony.

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application, or ***The permit writer may add a different level here using the guideline below.

(4) The level established in the permit by the Department that exceeds the levels in subparagraphs (a)(1), (a)(2), and (a)(3) of this section. The level established in the permit shall not exceed the technology-based treatment requirements appropriate to the permittee established in Chapter 62-660, F.A.C.

(b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following levels:

(1) Five hundred micrograms per liter (500 mcg/L).

(2) One milligram per liter (1 mg/L) for antimony.

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application, or ***The permit writer may add a different level here using the guideline below.

(4) The level established in the permit by the Department that exceeds the levels in subparagraphs (b)(1), (b)(2), and (b)(3) of this section. The level established in the permit shall not exceed the technology-based treatment requirements appropriate to the permittee established in Chapter 62-660, F.A.C.

F. Reopener Clause

1. The Department may, after consultation with the permittee, impose alternative limits, additional monitoring requirements, treatment or other controls for the discharge, based on the results of additional studies or monitoring requirements as required by this permit.

2. If the permittee disagrees or otherwise disputes the Department's determination regarding any additional requirements, the permittee may file a petition for formal or informal administrative proceeding, pursuant to Section 120.57, Florida Statutes, and Chapter 62-103, F.A.C. In any such action, the permittee shall have the burden of establishing the unreasonableness of the Department's determination. The petition must conform with the requirements of Section 28-5.201, F.A.C.

VIII. General Conditions

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes (F.S.). Any permit noncompliance constitutes a violation of Chapter 403, F.S., and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. [F.A.C. Rule 62-620.610(1), 11-29-94]

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. [F.A.C. Rule 62-620.610(2), 11-29-94]

DRAFT

3. As provided in Section 403.087(6), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. [F.A.C. Rule 62-620.610(3), 11-29-94]

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the trustees of the Internal Improvement Trust Fund may express State opinion as to title. [F.A.C. Rule 62-620.610(4), 11-29-94]

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [F.A.C. Rule 62-620.610(5), 11-29-94]

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. [F.A.C. Rule 62-620.610(6), 11-29-94]

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. [F.A.C. Rule 62-620.610(7), 11-29-94]

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [F.A.C. Rule 62-620.610(8), 11-29-94]

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized Environmental Protection Agency (EPA) personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   (a) Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   (b) Have access to and copy any records that shall be kept under the conditions of this permit;

   (c) Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

   (d) Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules. [F.A.C. Rule 62-620.610(9), 11-29-94]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, Florida Statutes, or Rule 62-620.302, Florida Administrative Code. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. [F.A.C. Rule 62-620.610(10), 11-29-94]

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. [F.A.C. Rule 62-620.610(11), 11-29-94]

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. [F.A.C. Rule 62-620.610(12), 11-29-94]

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. [F.A.C. Rule 62-620.610(13), 11-29-94]

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. [F.A.C. Rule 62-620.610(14), 11-29-94]

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. [F.A.C. Rule 62-620.610(15), 11-29-94]

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, 62-620.420 or 62-620.450, F.A.C., as applicable, at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.300 for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. [F.A.C. Rule 62-620.610(16), 11-29-94]

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    (a) A description of the anticipated noncompliance;

    (b) The period of the anticipated noncompliance, including dates and times; and

    (c) Steps being taken to prevent future occurrence of the noncompliance. [F.A.C. Rule 62-620.610(17), 11-29-94]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246, Chapter 62-160 and 62-601, F.A.C., and 40 Code of Federal Regulations (CFR) 136, as appropriate.

    (a) Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10).

    (b) If the permittee monitors any contaminate more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

    (c) Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

DRAFT

(d) Any laboratory test required by this permit for domestic wastewater facilities shall be performed by a laboratory that has been certified by the Department of Health and Rehabilitative Services (DHRS) under Chapter 10D-41, F.A.C., to perform the test. In domestic wastewater facilities, on-site tests for dissolved oxygen, pH, and total chlorine residual shall be performed by a laboratory certified to test for those parameters or under the direction of an operator certified under Chapter 61E12-41, F.A.C.

(e) Under Chapter 62-160, F.A.C., sample collection shall be performed by following the protocols outlined in "DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities" (DEP-QA/92). Alternatively, sample collection may be performed by an organization who has an approved Comprehensive Quality Assurance Plan (CompQAP) on file with the Department. The CompQAP shall be approved for collection of samples from the required matrices and for the required tests. [F.A.C. Rule 62-620.610(18), 11-29-94]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. [F.A.C. Rule 62-620.610(19), 11-29-94]

20. The permittee shall report to the Department any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(a) The following shall be included as information which must be reported within 24 hours under this condition:

(1) Any unanticipated bypass which causes any reclaimed water or the effluent to exceed any permit limitation or results in an unpermitted discharge;

(2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit;

(3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice; and

(4) Any unauthorized discharge to surface or ground waters.

(b) If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department shall waive the written report. [F.A.C. Rule 62-620.610(20), 11-29-94]

21. The permittee shall report all instances of noncompliance not reported under Conditions VIII.17., 18. and 19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Condition VIII.20. of this permit. [F.A.C. Rule 62-620.610(21), 11-29-94]

22. Bypass Provisions

(a) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to

DRAFT

prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Condition VIII.22.(b) of this permit.

(b). If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Condition VIII.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

(c) The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Conditions VIII.22.(a)(1) through (a)(3) of this permit.

(d) A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Conditions VIII.22.(a) through (c) of this permit. [F.A.C. Rule 62-620.610(22), 11-29-94]

23. Upset Provisions

(a) A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required in Condition VIII.20. of this permit; and

(4) The permittee complied with any remedial measures required under Condition VIII.5. of this permit.

(b) In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

(c) Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review. [F.A.C. Rule 62-620.610(23), 11-29-94]

Issued this ______ day of ___________________, 1999

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT

____
Jose Calas, P.E.
Acting Water Facilities Administrator
Southeast District

DRAFT

STATEMENT OF BASIS
FOR
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMITTEE NAME:	Indiantown Cogeneration, L.P.
RESPONSIBLE AUTHORITY:	Stephen Sorrentino, General Manager
FACILITY I.D. NUMBER:	FL0183750
PERMIT NUMBER:	FL0183750
APPLICATION NUMBER:	FL0183750-001-IW7D
MAILING ADDRESS:	Post Office Box 1799, Indiantown. Florida 34956
FACILITY NAME:	Indiantown Generating Plant, Industrial Wastewater Emergency Discharge Facility
FACILITY CLASS/SIZE:	Industrial/Minor Facility
FACILITY LOCATION:	19140 SW Warfield Boulevard, Indiantown, Florida 34956
PERMIT REVIEWER NAME:	Paul C. Sze

I. Status Of Permit

Wastewater Permit No. FL0183750 is issued as a new surface water discharge (NPDES type) permit for the cogeneration facility, that authorizes the emergency discharges of cooling water makeup, and miscellaneous process wastewater, during severe rainfall events. The permit application was received by the Southeast District office on May 28, 1999. The facility is operated as a "zero wastewater discharge" facility authorized by the Power Plant Citing Act under DER Case no. PA 90-31.

II. Facility Description (See pages 1 and 2 in the narrative section of the permit.)

III. Description of the Discharge (See pages 1 and 2 in the narrative section of the permit.)

IV. Derivation of the Permit Conditions

The permit conditions stipulated in the permit are consistent with the general objective of Sections 403.087 and 403.088, Florida Statutes (F.S.), and the provisions under Rules 62-620.320(10) and 62-660.400(2), Florida Administrative Code (F.A.C.). The permit conditions are designed to assure the facility's emergency discharges will comply with the Class III (fresh) surface water discharge standards established for the receiving waters. The permit requires for both emergency discharges the daily sampling for 10 parameters: chemical oxygen demand (COD); total organic carbon (TOC); total dissolved solids (TDS); total suspended solids (TSS): specific conductance; color; pH; sulfate; total organic halogen (TOX) and gross alpha particle activity (for D-005 only.) These parameters are selected as they provide a general indication for the groups of chemical and biological pollutants that are likely to be present in the facility's emergency discharges. Gross alpha particle activity is specified for the wastewater storage pond discharge based on the fairly high analytical result reported in the permit application. It should be noted since the emergency discharges will only occur after major storm events, the actual discharge occurrences should be minimal. In addition, it is expected that the low level of pollutants that may be present originally in the cooling water makeup and wastewater, will be reduced even further to minuscule levels by dilution with the high volume of stormwater in the ponds and the internal ditch system in major storms. In summary, assuming the facility will continue to be operated in a proper manner, and the suitable Best Management Practices (BMP) are being implemented, there should be negligible adverse impact to the receiving water from the infrequent emergency discharge activities.

The other conditions in the permit are basically standard provisions for every industrial wastewater discharge permit issued by the Southeast District office with minor revisions tailored for the subject facility. These conditions are all derived from the applicable sections provided in Chapters 62-620 and 62-4, F.A.C. They include the provisions for monitoring and reporting requirements; prohibitions against unauthorized discharge; general operating and record keeping requirements; renewal application procedures; Best Management Practices (BMP) plan implementation; reopener clause and the general conditions that are imposed on all permitted facilities.

V. Department Contact Person

The Department's contact person for this project is Paul Sze, who can be reached at telephone number (561) 681-6701.

Emerg. Cooling Water Makeup Dischg., D-004 (Qtrly.)

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

WHEN COMPLETED MAIL THIS REPORT TO: Department of Environmental Protection (Division of Water Facilities)
Wastewater Facilities Mgmt., MS 3551 2600 Blair Stone Rd, Tallahassee FL 32399-2400

PERMITTEE NAME: Indiantown Cogeneration, L.P.
MAILING ADDRESS: Stephen Sorrentino, General Manager
Indiantown Cogeneration, L.P.
Post Office Box 1799, Indiantown, Florida 34956
FACILITY: Indiantown Generating Plant, Industrial Wastewater Emergency Discharge Facility
LOCATION: 19140 SW Warfield Boulevard, Indiantown, Florida 34956
COUNTY: Martin County

PERMIT NUMBER: FL0183750
MONITORING PERIOD--From:
LIMIT: Final
CLASS SIZE: Industrial/Minor
FACILITY ID: FL0183750
GMS ID NO.: N/A
DISCHARGE POINT NUMBER: D-004
PLANT SIZE/TREATMENT TYPE:

FILE NUMBER: FL0183750-001-IW7D
To:
Report: Quarterly

GROUP: IW
GMS TEST SITE NO: N/A
WAFR SITE NO.: 35883
NO DISCHARGE FROM SITE:

Please read instructions before completing this form.

Parameter		Quantity or Loading			Quality or Concentration				No. Ex.	Frequency of Analysis	Sample Type
		Avg.	Max.	Units	Min.	Avg.	Max.	Units			
Flow	Sample Measurement				******	******	******	******			
STORET No. 50050 1 Mon. Site No. EFF-04	Permit Requirement	Report Daily Avg.	Report Daily Max.	MGD	******	******	******	******		Daily During Discharge	Flowmeter/ Weir Head
Chemical Oxygen Demand	Sample Measurement	******	******	******	******	******					
STORET No. 81017 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Organic Carbon	Sample Measurement	******	******	******	******	******					
STORET No. 00680 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Dissolved Solids	Sample Measurement	******	******	******	******	******					
STORET No. 70296 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Suspended Solids	Sample Measurement	******	******	******	******	******					
STORET No. 00530 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Specific Conductance	Sample Measurement	******	******	******	******	******					
STORET No. 00095 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	µmhos/cm		Daily During Discharge	Grab

Footnotes:
1. If there are multiple emergency discharge events in a quarter, sampling shall be repeated for each event and reported on separate DMRs.
2. The sample shall be taken at the overflow weir (internal outfall D-004) at the western end of the cooling water makeup storage pond.
3. The rainfall data for the storm event that precipitated the emergency discharge must be reported in the comment section below.
4. The Department's WAFR site number for the effluent sampling point EFF-04 is 35885.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name/Title of Principal Executive Officer or Authorized Agent (Type or Print)	Signature of Principal Executive Officer or Authorized Agent	Telephone No. (include area code)	Date (yy/mm/dd)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):
1. **Rainfall Data:** Rainfall depth in inches: ________ and rainfall duration in hours: ________.

DRAFT

(COPY THIS BLANK FORM FOR FUTURE SUBMISSION)

Please read instructions before completing this form.

Parameter		Quantity or Loading			Quality or Concentration				No. Ex.	Frequency of Analysis	Sample Type
		Avg.	Max.	Units	Min.	Avg.	Max.	Units			
Color	Sample Measurement	******	******	******	******	******					
STORET No. 00080 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	color units		Daily During Discharge	Grab
pH	Sample Measurement	******	******	******		******					
STORET No. 00400 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	Report Daily Min.	******	Report Daily Max.	standard units		Daily During Discharge	Grab
Sulfate	Sample Measurement	******	******	******	******	******					
STORET No. 00945 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Organic Halogen	Sample Measurement	******	******	******	******	******					
STORET No. 78115 1 Mon. Site No. EFF-04	Permit Requirement	******	******	******	******	******	Report Daily Max.	µg/L		Daily During Discharge	Grab
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******

Footnotes:

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DRAFT

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A | **Emerg. Wastewater Discharge, D-005 (Qtrly.)**

WHEN COMPLETED MAIL THIS REPORT TO: Department of Environmental Protection (Division of Water Facilities)
Wastewater Facilities Mgmt., MS 3551 **2600 Blair Stone Rd, Tallahassee FL 32399-2400**

PERMITTEE NAME:	Indiantown Cogeneration, L.P.	PERMIT NUMBER: FL0183750	FILE NUMBER: FL0183750-001-IW7D
MAILING ADDRESS:	Stephen Sorrentino, General Manager	MONITORING PERIOD--From:	To:
	Indiantown Cogeneration, L.P.	LIMIT: Final	Report: Quarterly
	Post Office Box 1799, Indiantown. Florida 34956	CLASS SIZE: Industrial/Minor	
FACILITY:	Indiantown Generating Plant, Industrial Wastewater Emergency Discharge Facility	FACILITY ID: FL0183750	GROUP: IW
LOCATION:	19140 SW Warfield Boulevard, Indiantown, Florida 34956	GMS ID NO.: N/A	GMS TEST SITE NO: N/A
COUNTY:	Martin County	**DISCHARGE POINT NUMBER: D-005**	WAFR SITE NO.: 35884
		PLANT SIZE/TREATMENT TYPE:	NO DISCHARGE FROM SITE:

Please read instructions before completing this form.

Parameter		Quantity or Loading			Quality or Concentration				No. Ex.	Frequency of Analysis	Sample Type
		Avg.	Max.	Units	Min.	Avg.	Max.	Units			
Flow	Sample Measurement				******	******	******	******			
STORET No. 50050 1 Mon. Site No. EFF-05	Permit Requirement	Report Daily Avg.	Report Daily Max.	MGD	******	******	******	******		Daily During Discharge	Flowmeter/ Weir Head
Chemical Oxygen Demand	Sample Measurement	******	******	******	******	******					
STORET No. 81017 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Organic Carbon	Sample Measurement	******	******	******	******	******					
STORET No. 00680 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Dissolved Solids	Sample Measurement	******	******	******	******	******					
STORET No. 70304 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Suspended Solids	Sample Measurement	******	******	******	******	******					
STORET No. 00530 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Specific Conductance	Sample Measurement	******	******	******	******	******					
STORET No. 00095 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	μmhos/cm		Daily During Discharge	Grab

Footnotes:
1. If there are multiple emergency discharge events in a quarter, sampling shall be repeated for each event and reported on separate DMRs.
2. The sample shall be taken at the overflow weir (internal outfall D-005) at the western end of the wastewater storage pond.
3. The rainfall data for the storm event that precipitated the emergency discharge must be reported in the comment section below.
4. The Department's WAFR site number for the effluent sampling point EFF-05 is 35886.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name/Title of Principal Executive Officer or Authorized Agent (Type or Print)	Signature of Principal Executive Officer or Authorized Agent	Telephone No. (include area code)	Date (yy/mm/dd)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

1. **Rainfall Data:** Rainfall depth in inches: ________ and rainfall duration in hours: ________.

DRAFT

(COPY THIS BLANK FORM FOR FUTURE SUBMISSION)

Part A continued **Facility Name:** Indiantown Generating Plant, Industrial Wastewater Emergency Discharge Facility **Facility ID:** FL0183750

Emergency Wastewater Discharge, D-005 (Qtrly.)

Discharge Point # D-005 WAFR Site No.: 35884

Please read instructions before completing this form.

Parameter		Quantity or Loading			Quality or Concentration				No. Ex.	Frequency of Analysis	Sample Type
		Avg.	Max.	Units	Min.	Avg.	Max.	Units			
Color	Sample Measurement	******	******	******	******	******					
STORET No. 00080 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	color units		Daily During Discharge	Grab
pH	Sample Measurement	******	******	******		******					
STORET No. 00400 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	Report Daily Min.	******	Report Daily Max.	standard units		Daily During Discharge	Grab
Sulfate	Sample Measurement	******	******	******	******	******					
STORET No. 00945 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	mg/L		Daily During Discharge	Grab
Total Organic Halogen	Sample Measurement	******	******	******	******	******					
STORET No. 78115 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	µg/L		Daily During Discharge	Grab
Gross Alpha Particle Activity	Sample Measurement	******	******	******	******	******					
STORET No. 80045 1 Mon. Site No. EFF-05	Permit Requirement	******	******	******	******	******	Report Daily Max.	pci/L		Daily During Discharge	Grab
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******
******************	Sample Measurement	******	******	******	******	******	******	******	******	******	******
STORET No. Mon. Site No.	Permit Requirement	******	******	******	******	******	******	******	******	******	******

Footnotes:

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DRAFT

INSTRUCTIONS FOR MONITORING REPORT

PART A - DISCHARGE MONITORING REPORT

One report shall be completed and submitted for each discharge point, outfall, or testing site listed in the permit. Use additional sheets if necessary. Mail to Department of Environmental Protection at the address shown on the first page of report.

Permittee Name/Address: Complete the name as shown on the face of the permit. Complete the mailing address. Place a note beside the mailing address if the address has changed within the past month.
Facility/Location: Complete the name of the facility and the address or location of the facility.
Permit Number: This is the number of the permit issued to the permittee which contains the monitoring requirements in this report.
Monitoring Period: This is the period that the data on this report represents.
Limit: This is blank if the data represents interim limits on a facility under construction. If the data represents final limits achieved after construction, the word FINAL will be here.
Class Size/Group: The facility classification is either major or minor and the group is either industrial or domestic.
Facility ID: This is the identification number of the facility which was assigned by the Department at the time the facility was constructed.
Discharge Point Number: This is the number in the permit assigned to the outfall, discharge point, or test site from which this data was collected. Complete one of these reports for each outfall or discharge point from your facility.
Plant size/Treatment type: If this facility is a domestic wastewater treatment facility, enter a one digit and one letter code to indicate the type of treatment and the plant size. First record the number from the chart below which represents the type of treatment provided by the facility. Then record the letter that indicates the permitted capacity (plant size) as shown on the chart below.

	Type of Treatment	Plant Size (mgd)			
		A	B	C	D
1	Activated Sludge, Attached Growth, or Combined Treatment systems that include nutrient removal processes (Nitrification alone is not considered nutrient removal.)	≥3.0	≥0.5 but <3.0	≥0.002 but <0.5	. . .
2	Activated Sludge or Combined Treatment systems that do not include removal processes	≥5.0	≥1.0 but <5.0	≥0.002 but <1.0	. . .
3	Activated Sludge operated in the extended aeration mode and oxidation ditches	≥8.0	≥2.0 but <8.0	≥0.025 but <2.0	≥0.002 but <0.025
4	Attached Growth Treatment systems (trickling filters or RBCs) that do not include nutrient removal processes	≥ 10.0	≥3.0 but <10.0	≥0.025 but <3.0	≥0.002 but <0.025

Parameter: This is the variable or substance which must be monitored.
Sample Measurement: The data which was collected and analyzed.
Permit Requirement: The limit from the permit for that parameter and measurement.
Quantity or Loading: The amount or mass of the parameter discharged during the reporting period in **Average** quantity discharged during the reporting period after adding each day of discharge, **Maximum** quantity discharged on the day with the highest amount, and the **Unit** of measurement (lbs, g, tons, etc.)
Quality or Concentration: The concentration of the parameter discharged during the reporting period in **Minimum** concentration during the reporting period, **Average** of all the measurements for the parameter during the reporting period, **Maximum** or highest concentration discharged during the reporting period, and the **Unit** of measurement (mg/L, ug/L, etc.)
No. Ex.: The number of sample measurements during the sampling period that exceeded the maximum (minimum or 7-day average, as appropriate) permit requirement for each parameter. If none, enter zero.
Frequency of Analysis: The number of times the measurement is required to be made by the permit and the number of times the measurement was made.
Sample Type: The type of sample (Grab, composite, continuous) required to be taken by the permit and the type that was taken.
Certificate, Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the **telephone number** where the official may be reached in the event there are questions concerning this report. **Date** when the report is signed.
Comment and Explanation: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation.

PART B - DAILY SAMPLE RESULTS (NOT APPLICABLE TO THIS PERMIT.)

Complete one sheet for each outfall, discharge point, or test site where daily sampling is required by the permit. Record the results of daily monitoring for the parameters required to be sampled daily by your permit. Record the data in the units indicated. If there are no fecal coliforms detected, enter ND in the row labeled "fecal coliform." Use the blank rows as needed.

List the name, certificate number, and class of all state certified operators. Use additional sheets as necessary.

DRAFT

PART B - DAILY SAMPLE RESULTS contd.

Enter the type of effluent disposal or reclaimed water reuse (surface water discharge, ocean outfall, slow rate land application-public access, slow rate land application-restricted public access, rapid rate land application, absorption field, underground injection).

If this plant does not have a limited wet weather discharge permitted under the provision of Rule 62-610.860, F.A.C., check not applicable. If the plant activated the wet weather discharge during the reporting month, check yes and attach PART C - LIMITED WET WEATHER DISCHARGE.

PART C - LIMITED WET WEATHER DISCHARGE (NOT APPLICABLE TO THIS PERMIT.)

This part is applicable only to limited wet weather discharges from reuse systems describe in Rule 62-610.860, F.A.C. If applicable, this part is to be completed and submitted each month reclaimed water or effluent is discharged by a limited wet weather discharge. For months with no discharge, Part C need not be submitted. All information is to be provided for each day on which the limited wet weather discharge was activated. All information is to be typed or printed in ink.

Facility ID: This is the identification number assigned by the Department for the facility.
Month/Year: This is the period during which the data on this report was collected and analyzed.
Rainfall Information: **Rainfall gauging station** requires entry of the name and location of the station. **Source of Climatological (normal rainfall) data** is the source of the information required for **Cumulative rainfall for the average rainfall year** which is the amount of rain, in inches, which falls during an average rainfall year from January through the month for which this part contains data. **Cumulative rainfall to date for this calendar year** is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this Part contains data.
Date: Enter the date on which the discharge occurred.
Duration of Discharge: Enter the number of hours, to the nearest 0.1 of an hour (0.1 = 6 min.) during each day of discharge that reclaimed water was actually discharged to surface waters.
Gallons Discharged: Enter the quantity in millions of gallons of reclaimed water discharged during the period shown in **Duration of Discharge**. Show the units as millions of gallons (mg), accurate to the nearest 0.01.
Average Discharge Flow Rate: Divide **Gallons Discharged** by **Duration of Discharge**. Record in million gallons per day (MGD).
Average Upstream Flow Rate: Enter the average flow rate in the receiving stream upstream from the point of discharge for the period shown in **Duration of Discharge**. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Stream Dilution Factor: Enter the stream dilution ratio accurate to the nearest 0.1. To calculate the factor, divide the **Average Upstream Flow Rate** by the **Average Discharge Flow Rate**.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in **Duration of Discharge**.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in **Duration of Discharge**.
Reason for Discharge: Provide a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

PART D - GROUNDWATER MONITORING REPORT (NOT APPLICABLE TO THIS PERMIT.)

This part is applicable only to groundwater monitoring wells. Type or print in ink the required data. All samples shall be collected and analyzed in accordance with Chapter 62-160, F.A.C. Laboratory reports shall be kept on file in the location indicated in your permit and made available for inspection upon request by the Department.

Facility ID: This is the identification number of the facility assigned by the Department.
Test Site ID: This is the identification number of the sampling site listed in your permit.
Month/Year: This is the period during which the data on this report was collected and analyzed. If the period is greater than one month, indicate beginning month to ending month.
Well Type: Indicate if the well being sampled is background, intermediate, compliance, or other. If other, explain in the comment section.
Date Sample Obtained: This is the date the sample was taken.
Ground Water Class: This is the classification of the ground water under Chapter 62-522, F.A.C.
Parameter: Analyze the parameters the permit requires. List any additional parameters from the permit which are not pre-listed here. If there are any parameters listed here which are not required by your permit, enter NR on that line.
Storet Code: Enter the Storet Code associated with the parameter.
Sampling Method: Describe the sampling method used.
Samples Filtered: Indicate whether the sample obtained was filtered (Y) or unfiltered (N).
Preservatives Added: State what preservatives were added to the sample.
Analysis Method: Indicate the analytical method used. Record the number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Analysis Result/Units: Record the results of the analysis. If the result was below the minimum detection limit, indicate that. Enter the units associated with the results of the analysis.
Detection Limits/Units: Record the detection limits and the units associated with them.
Comments and Explanations: Use this space to make any comments on or explanations of results which are unexpected.

PART E - INSTRUCTIONS FOR MONITORING REPORT

DRAFT

Department of
Environmental Protection

Jeb Bush
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Telephone Number: (561) 681-6600
Facsimile Number: (561) 681-6760

David B. Struhs
Secretary

NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen Sorrentino, General Manager
Indiantown Cogeneration, L.P.
Post Office Box 1799
Indiantown. Florida 34956

Martin County
IW - Indiantown Generating Plant, Industrial Wastewater
Emergency Discharge Facility

Dear Mr. Sorrentino:

Enclosed is Permit Number FL0183750, which authorizes the emergency discharges of fresh cooling water makeup, and process wastewater, at the subject facility, issued pursuant to Sections 403.087 and 403.0885, Florida Statutes (F.S.).

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with sections 120.569 and 120.57 of the Florida Statutes, or all parties may reach a written agreement on mediation as an alternative remedy under section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for pursuing mediation.

The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of permit issuance. Petitions filed by any other person must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of permit issuance, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information:

(a) The name, address, and telephone number of each petitioner; the Department's permit identification number and the county in which the subject matter or activity is located;
(b) A statement of how and when each petitioner received notice of the Department's action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action;
(d) A statement of the material facts disputed by the petitioner, if any;
(e) A statement of facts that the petitioner contends warrant reversal or modification of the Department's action;
(f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department's action; and
(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take.

DRAFT

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of permit issuance. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Any person may elect to pursue mediation by reaching a mediation agreement with all parties to the proceeding (which includes the Department and any person who has filed a timely and sufficient petition for a hearing) and by showing how the substantial interests of each mediating party are affected by the Department's action or proposed action. The agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

The agreement to mediate must include the following:

(a) The names, addresses, and telephone numbers of any persons who may attend the mediation;
(b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time;
(c) The agreed allocation of the costs and fees associated with the mediation;
(d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation;
(e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen;
(f) The name of each party's representative who shall have authority to settle or recommend settlement;
(g) Either an explanation of how the substantial interests of each mediating party will be affected by the action or proposed action addressed in this action or a statement clearly identifying the petition for hearing that each party has already filed, and incorporating it by reference; and
(h) The signatures of all parties or their authorized representatives.

As provided in section 120.573 of the Florida Statutes, the timely agreement of all parties to mediate will toll the time limitations imposed by section 120.569 and 120.57 for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty (60) days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such a modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above, and must therefore file their petitions within fourteen (14) days of receipt of this notice. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under section 120.569 and 120.57 remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

This action is final and effective on the date filed with the Clerk of the Department unless a petition (or request for mediation) is filed in accordance with the above. Upon the timely filing of a petition (or request for mediation) this order will not be effective until further order of the Department.

Any party to the order has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, 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 thirty (30) days from the date when the final order is filed with the Clerk of the Department.

If you have any questions, please contact Paul Sze of this office at telephone number (561) 681-6701.

DRAFT

Indiantown Cogeneration, L.P.
Stephen Sorrentino, General Manager
Post Office Box 1799
Indiantown. Florida 34956

Facility I.D. Number: FL0183750
Permit Number: FL0183750
Application Number: FL0183750-001-IW7D
Martin County

Executed in West Palm Beach, Florida.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT

Jose Calas, P.E. Date
Acting Water Facilities Administrator
Southeast District

JC:TP/PS:sFL0183750.doc

Enclosures: Permit No. FL0183750 and Amendment to Statement of Basis
Discharge Monitoring Report (DMR) Forms

Copies furnished to:

Terry Davis, DEP/PSL (w/enclosure)
Hamilton "Buck" Oven, DEP/TLH (w/enclosure)
John Coates, P.E., DEP/TLH (w/enclosure)
Ivan Chou, ECT/Gainesville (w/enclosure)

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on ______________________ to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT:

FILED, on this date, pursuant to the section 120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk Date

DRAFT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3301 Gun Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • FL WATS 1-800-432-2045 • TDD (561) 697-2574
Mailing Address: P.O. Box 24680, West Palm Beach, FL 33416-4680 • www.sfwmd.gov

LAN 04-06

September 24, 1999

Mr. Hamilton S. Oven, Jr., P.E.
Administrator, Siting Coordination Office
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear ~~Mr. Oven~~ Buck:

**Subject: Indiantown Cogeneration Project
Emergency Discharges**

South Florida Water Management District (SFWMD) staff has reviewed the attached letter from Stephen Sorrentino of Indiantown Cogeneration, L.P., requesting a "letter of no objection" from the SFWMD for a modification to the project's Site Certification for a National Pollution Discharge Elimination System (NPDES) Permit. The purpose of the NPDES Permit is to allow emergency discharges from the project's cooling and wastewater ponds.

While the SFWMD understands the need for discharges under emergency conditions, additional information is necessary concerning the details of the emergency overflow structures and the proposed notification/coordination protocols to ensure that flood protection in the drainage basin is not unduly compromised. In addition, approval by the U.S. Army Corps of Engineers (USACOE) may be required since it appears that the proposed emergency discharges will be directed into the St. Lucie (C-44) Canal which is under USACOE jurisdiction.

If you have any questions concerning the above or if I can be of further assistance, please do not hesitate to contact me at (561) 682-6862.

Sincerely,

Jim

James J. Golden, AICP
Senior Planner
Regulation Department

/jjg

c: Stephen Sorrentino, ICF
David Burrage, ICF
Pete Milam, USACOE

Indiantown Cogeneration, L.P.

SEP 21 1999

Indiantown Cogeneration, LP.
P.O. Box 1799
19140 SW Warfield Blvd.
Indiantown, FL 34956
Tel: 561.597.6500
Fax: 561.597.6210

September 16, 1999

James Golden, Senior Planner
Regulation Department
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33416-4680

Reference: Indiantown Cogeneration, LP

Subject: Emergency Discharges

Dear Jim:

The purpose of this letter is to request written acknowledgment from the South Florida Water Management District (SFWMD) that emergency discharges might occur from the Indiantown Cogeneration Facility (Facility) cooling water and wastewater ponds.

The Facility is currently applying to the Florida Department of Environmental Protection (DEP) for a National Pollution Discharge Elimination System (NPDES) permit for emergency discharges from cooling water and wastewater ponds. Such discharges are not common. However, in the event of extreme and sustained rainfall, pond overflow is possible. The Florida DEP asks that the Facility obtain a letter from the SFWMD indicating that the SFWMD does not object to the Florida DEP authorizing such emergency discharge.

You are hereby requested to provide a letter indicating to the Florida DEP that the SFWMD does not object to the issuance of a NPDES Permit allowing emergency discharges from the Facility's cooling and wastewater ponds. Please provide a copy to the Facility.

Your assistance is appreciated. If you have any questions, please call David Burrage at 561-597-6500, extension 19.

Sincerely,
Indiantown Cogeneration, LP

Steve

Stephen Sorrentino
General Manager

Indiantown Cogeneration, L.P.

Indiantown Cogeneration, L.P
P.O. Box 1799
19140 SW Warfield Blvd.
Indiantown, FL 34956
Tel: 561.597.6500
Fax: 561.597.6210

May 5, 1999

Mr. Tim Powell
Industrial Waste Section
Southeast District
Florida Department of Environmental Protection
P.O. Box 15425
West Palm Beach, Florida 33416

Re: Application for NPDES Permit for Emergency Discharge from the Wastewater Pond and Cooling Water Pond

Dear Mr. Powell:

In accordance with your letter of September 14, 1998, enclosed please find an NPDES application Form 2C, an updated Form 1, and a check for $1,000.00 based on an emergency discharge event with a design daily flow rate of 50,000 gpd or less. ICLP thanks you in advance for your review and consideration of this application.

Background

The Indiantown Cogeneration LP (ICLP) facility located in Indiantown, Florida was permitted and constructed in accordance with the Florida Power Plant Siting Act (DER Case No. PA 90-31). ICLP was designed as a zero-discharge facility and the plant has been using best management practices to prevent the discharge of process water to the environment. Consistent with the South Florida Water Management District's above ground impoundment regulations,[1] emergency discharge structures were installed on the wastewater pond and the cooling water pond. ICLP agrees that the issuance of an NPDES Permit for these structures is necessary to ensure full compliance with federal and state regulations during severe rainfall events which cause an emergency discharge from these structures.

Prior NPDES Applications for Indiantown

ICLP submitted to the Florida Department of Environmental Protection (DEP) Form 1 and Form 2F NPDES permit applications to Mr. Craig Dilitz, DEP-Tallahassee, on April 8, 1998.[2] Subsequently, ICLP received a letter dated September 14, 1998, from you requesting that a Form 2C be completed.[3] In response to this request, ICLP has reviewed the April 1998 submittal and recognizes that Form 2F was submitted in error. ICLP and its consultants had prepared both a

---

1 Located in Appendix 6 to the Basis of Review for Environmental Resource Permit Applications.

2 A copy of the cover letter for this application is attached for reference.

3 A copy of this letter is also attached for reference.

Notice of Intent to be covered by the NPDES modified Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (MSGP) and a Form 2F for NPDES permits for various stormwater discharges from the facility. After investigating both alternatives, ICLP determined that approval under the MSGP was preferable and filed the Notice of Intent. Subsequently, however, ICLP inadvertently submitted the Form 2F prepared for these outfalls (OSN002 and OSN003) instead of the Form 2C prepared for the potential emergency discharges from the wastewater and cooling water ponds (OSN004 and OSN005).

On June 29, 1998, the U.S. Environmental Protection Agency concurred in ICLP's Notice of Intent to be covered by the MSGP and issued permit number FLR05B625 for discharges from stormwater collection basins that have controlled, monitored releases to on-site wetlands which can potentially overflow into an unnamed ditch leading to the St. Lucie Canal (a water of the state).[4] ICLP hereby withdraws its Form 2F NPDES permit application for the routine stormwater discharges now authorized under the MSGP. Since the MSGP does not cover emergency discharges from the wastewater pond or the cooling water pond, ICLP is submitting the enclosed Form 2C for these discharges. If further clarification is required, please see the explanation of each potential discharge source at the facility in Form 1, page 1-17 (entitled "Nature of Business").

Authorization for Emergency Discharges under the Site Certification

Your September 14, 1998, letter states that emergency discharges are not currently authorized under ICLP's Site Certification (PA-90-31), and you request that the Conditions of Certification be modified accordingly prior to the processing of this NPDES application. ICLP agrees that the conceptual design of the facility is "zero-discharge," meaning no routine discharge of wastewater, and that Condition II.3.C. prohibits the discharge of industrial wastewater from the facility.

However, emergency discharges from the wastewater pond and the cooling water pond during severe rainfall events were contemplated throughout the Site Certification process. In fact, Condition IV.C.2. expressly authorizes a discharge up to 9 cubic feet per second from the cooling water pond (referred to as Basin 6) and into an on-site toe ditch. ICLP recognizes a conflict between Condition IV.C.2. and Condition II.3.C. due to the fact that some process waters may enter the cooling water pond and ultimately be discharged during severe rainfall events. ICLP is asking Buck Oven in DEP's Siting Coordination Office for a written clarification on this matter.

Similarly, emergency discharges were contemplated during the Site Certification process for the wastewater pond as well. The Preliminary Drainage Plan schematic shows an emergency discharge structure for the wastewater pond, and two of ICLP's responses to South Florida Water

---

4 A copy of this permit is attached for reference.

Management District sufficiency comments describe discharges from the wastewater pond during rainfall events exceeding the 100-yr, 72-hour storm.[5] However, no Condition expressly allows such discharges, and Condition II.3.C. clearly prohibits them. It is ICLP's belief that since discharges from the wastewater pond will be so rare (statistically less than one event every 100 years) that it was viewed unnecessary to formally authorize them in the Conditions of Certification, yet they were implicitly authorized during the Certification. ICLP is asking Buck Oven for a written clarification on this matter as well.

For these reasons, ICLP believes that these Site Certification issues may be resolved without a formal modification to the Conditions of Certification. Therefore, we believe that processing this application in parallel with our request for clarification from the Siting Coordination Office is appropriate.

Summary

ICLP is currently working with the Siting Coordination Office to resolve inconsistencies in our Site Certification. We respectfully request that you begin processing the enclosed NPDES application Form 2C at your earliest convenience, in lieu of requiring final resolution of these issues for your completeness review of this NPDES permit application.

ICLP appreciates your cooperation and timely review of this application. Please contact David Burrage or myself at (561) 597-6500 if you have any questions or if we can be of further assistance in bringing this matter to closure.

Sincerely,

Steve

Stephen Sorrentino
General Manager

Enclosures
cc w/encl.: David Burrage
M. Golden
T. Davis
H. Oven, Jr.

---

[5] The Site Certification Application itself does not include any discussion of the wastewater pond because this minor impoundment was added to the site plan after submission of the SCA. The original site design provided for the deep well injection of certain waste streams.

Attachment K

Discussion of Stack Test Methods

A.41. Compliance with emission limitation standards shall be demonstrated using EPA methods as described in the table below:

For determination of	EPA Method
Selection of sample site and velocity traverses	1
Stack gas flow rate when converting concentrations to or from mass emissions limits	2
Gas analysis when needed for calculation of molecular weight of or percent O2	3, 3A, & 3B
Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.	4
Particulate matter concentration and mass emissions	5
Sulfur dioxide	6, 6C, or 19
Nitrogen oxides	7E
Visible emissions	9
Fugitive emissions from transfer points	22
Carbon monoxide	10
Lead	12 or 101A
Fluorides	13A or 13B
Volatile organic compounds	18 and 25
Mercury	101A or 108
Beryllium	104
Ammonia (NH3)	EPA draft method or other methods approved by the Department

[40 CFR 60.48a; and PSD-FL-168, Specific Condition No. 19]

A.42. In conducting performance tests, the owner or operator shall use as reference methods and procedures the methods in appendix A of 40 CFR 60 or the methods and procedures as specified in 40 CFR 60.48a, except as provided in 40 CFR 60.8(b). 40 CFR 60.8(f) does not apply for SO_2 and NO_X. Acceptable alternative methods are given in 40 CFR 60.48a(e).
[40 CFR 60.48a(a)]

Parkway West Industrial Park, 1601 Parkway View Drive • Pittsburgh, PA 15205 • 412-787-9130
Clean Air Engineering
Fax: 412-787-9138
Internet: www.cleanair.com

October 23, 1998

Mr. David Burrage
Indiantown Cogeneration, L.P.
19140 S. W. Warfield Blvd.
Indiantown, Florida 34956

RE: CAE Project No: 8375

Dear Mr. Burrage:

Per our conversation on October 20, 1998, I have received your e-mail dated October 21, 1998 concerning Mr. Ray Kenison's comments on the Compliance and CEMS Certification Protocol prepared by Clean Air Engineering. The following letter address Mr. Kenison's issues.

Title Page - "RATA Protocol", not "Certification Protocol".

The title page will be changed to "Compliance and CEMS RATA Protocol".

Page 1-2: Scope of Work - If you are certifying the stack flow monitor, include it in the scope of work.

In past review of the Florida Department of Environmental Protection (FDEP) Permit No: PSD-FL-168, the certification of the stack flow monitor was not a requirement. Testing conducted on the PC Boiler Stack in December 1996, CAE Project No: 7839, "Report on Compliance, CEMS Certification and Visible Observations" did not include stack flow monitor certification. In line with this, the scope of work for this years' program does not include certification of the flow monitor.

In the event that the FDEP regulatory requirements have been modified or Indiantown Cogeneration, L.P. requests the stack flow monitor to be certified, please inform me so that the appropriate procedures may be incorporated into the test protocol.

Page 1-3, Table 1-2: EPA Method 5 is not usually suitable for PM_{10} determinations; note here and/or in discussion on page 4-9 why it is applicable in your case.

The initial FDEP compliance demonstration was conducted at the Indiantown Cogeneration Plant in the third quarter of 1995. Approval was received at that time from Mr. Willard Hanks (FDEP) to allow both total particulate emissions (PM including PM_{10}) and PM_{10} emissions to be determined utilizing an EPA method 5 sampling train. This was based on the small size, very low concentration and the fact that the permitted limits for PM and PM_{10} were identical for the PC Boiler Stack. All of the measured particulate emissions will be regarded as PM_{10} for the purpose of demonstrating compliance with the PM_{10} permit limit. This approach provides a conserative (i.e. higher) measurement for PM_{10}.

Page 4-2 and 4-4: Table 4-2 on page 4-2 indicates one port and one test point for SO_2 and NO_x RATAs; Sampling Point Determination diagram on page 4-4 indicates three test points - you should resolve the difference.

The indication in Table 4-2 on page 4-2 that the SO_2 and NO_x would be sampled at a single point is incorrect. As referenced in the same table, the SO_2 and NO_x samples will coincide with the O_2 and CO_2 sampling that will be conducted at three individual points in the stack. These points are illustrated in Figure 4-2 on page 4-4.

Page 4-14: Continuous Emissions Monitoring (Continued), Will test vendor's EPA Protocol 1 cal gases be the same as those used at the plant? i.e./ single blend, dual blend, tri-blend, etc. Failed RATAs sometimes result from using different types of gases.

CAE has not experienced problems of the type stated. CAE is unaware of a regulatory requirement to use the same blend type of gases for both the reference monitor and CEMS. It is projected for this test program that dual blend EPA Protocol 1 gases will be used. However, actual gas mixtures will be selected from the available inventory at the time of the project.

Please review the above information and contact me at (412)787-9130 so that the appropriate modification may be incorporated in the test protocol.

Respectfully,

CLEAN AIR ENGINEERING

Robert A. Preksta

Robert A. Preksta
Project Manager

RAP/bp

Clean Air Engineering

Parkway West Industrial Park
1601 Parkway View Drive
Pittsburgh, Pennsylvania 15205

Phone: (412) 787-9130
Fax: (412) 787-9138

Date/Time	12/19/95	From	Jim Wright
To	Michelle Griffin	Subject	Indiantown H2SO4
Company	US Generating	No. of Pages (including cover)	3
Fax No.	(301) 718-6917		

Comments: Please see attached memo.

New Location

CAE's Pittsburgh Office has relocated to the above address. Please make a note of our new address and phone number.

Clean Air Engineering

Parkway West Industrial Park • 1601 Parkway View Drive • Pittsburgh, PA 15205
Phone 412/787-9130 • Fax 412/787-9138

MEMORANDUM

TO: Michelle Griffin
U.S. Generating
FAX: (301) 718-6917

FROM: Jim Wright
Technical Director
Clean Air Engineering
Phone: (412) 787-9130

DATE: 12/19/95

RE: Method 8 Testing Limitations

CC: Bill Harper
Bechtel
FAX: (301) 330-2581

I researched the problem we are currently encountering in measuring sulfuric acid mist (H_2SO_4) at the Indiantown facility. Based on the test results thus far, I do not believe that EPA Method 8 can be used to demonstrate compliance with the H_2SO_4 limit of 1 lb/hr ($\approx$0.1ppm) without some alterations to the method.

The stated detection limit for Method 8 is 0.015 ppm. By itself, this should be low enough to demonstrate compliance with the facility's H_2SO_4 emissions limit. However, the method was specifically developed for use at sulfuric acid plants at which the flue gas is dry and free from known interferents such as ammonia and chlorides. At a facility such as Indiantown, the method detection limit would be expected to be much higher, primarily due to interference from the combination of flue gas moisture and sulfur dioxide (SO_2).

Over the course of sampling, SO_2 is partially absorbed in the isopropanol (IPA) impinger. This absorption is enhanced as the aqueous component of the first impinger increases from the condensed flue gas moisture. The method calls for a post-sampling air purge of the sampling train to remove the absorbed SO_2 from the IPA. However, a small amount of SO_2 will always remain in this impinger after purging due to vapor-liquid equilibrium phenomena.

CAE's experience has shown that, for a wet flue gas of $\approx$100 ppm SO_2, the amount of residual SO_2 left after purging equates to an in-stack bias of approximately 1 ppm. Thus, the potential positive bias in the method is significantly higher than the emissions limit itself. Furthermore, methodology modifications such as increased sample gas volume or increased analytical sensitivity will not improve this situation.

In order to circumvent this problem, I propose that the testing approach be modified to eliminate analysis of the IPA impinger. In its place, I recommend determining the amount of filterable sulfate and expressing this quantity as sulfuric acid mist. Since the flue gas temperature is relatively low (less than ≈180°F), any gaseous sulfur trioxide (SO_3) should already exist as condensed sulfuric acid, which is filterable. Thus, the amount of potential negative bias due to the modification should be negligible. This argument should help in obtaining agency approval for the modification.

The following specific method alterations are recommended:

1. Insert a heated glass fiber filter between the probe and first impinger. This variance as allowed in paragraph 3 of section 1.2 of Method 8.

2. Operate the train according to standard Method 8 procedures.

3. At the completion of sampling, rinse the probe and front-half glassware with IPA and add the filter to this rinse. Do not mix these rinses with the IPA from the first impinger.

4. Analyze the filter/probe rinse solution for sulfate using standard Method 8 titration procedures.

5. Consider the H_2SO_4 emissions to be completely represented by the sulfate determined from the filter and probe wash.

One potential problem with this approach may be in the generation of a positive bias due to the presence of non-sulfuric acid sulfates such as ammonium sulfate (note that this is a problem with the current approach as well.) If this problem is suspected, then it may be desirable to use a more sophisticated analytical approach (e.g., ion chromatography) to quantify the amount of ammonium ion present, and subtract this from the total sulfate.

I hope that this information helps to clarify the current situation and potential testing options. Please feel free to call me or Bob Preksta at (412) 787-9130 if you have any additional questions.

6.3.1.7
P950001

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 11, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

JUL 25 1995

Ms. Michelle Griffin
Indiantown Cogeneration Facility
Post Office Box 1620
Indiantown, Florida 34956

RE: Indiantown Cogeneration, L. P.
PSD-F1-168; Permit Modification

Dear Ms Griffin:

The Department received your letter on June 9, 1995, requesting to revise Specific Conditions No. 19 to use EPA Reference Methods 3, 3A, 5, 7E, 18, and 25A instead of EPA Reference Methods 3, 7, 7C, 19, 201, 201A, 18 and 25.

The Department evaluated your request and will allow you to change all proposed Reference Methods except for EPA VOC Reference Methods 18 and 25A. Please refer to the attached FDEP Guidance Memo dated March 17, 1994, and submit a request for an Alternate Standard Procedure (ASP) addressed to Mike Harley of the DEP Emission Monitoring Section.

As indicated above Specific Condition No. 19 will be changed as follows:

SPECIFIC CONDITION No. 19

FROM:

Compliance with emission limitations standards shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method approved by the Department and EPA, in accordance with F.A.C. Rule 17-2.700.

EPA Method	For Determination of
1	Selection of sample site and velocity traverses
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
201 or 201A	PM_{10} emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7, 7C, or 19	Nitrogen oxide emissions from stationary sources.
8	Sulfuric acid mist from stationary source.
9	Visible emission determination of opacity. - At least three one hour runs to be conducted simultaneously with particulate testing for the emissions from dry scrubber/baghouse, and ash handling building baghouse. - At least one lime vehicle unloading into the lime silo (from start to finish).
22	Fugitive emissions from transfer points.
10	Carbon monoxide emissions from stationary sources.
12 or 101A	Lead Concentration from stationary sources.

13A or 13B	Fluoride emissions from stationary sources.
18 or 25	Volatile organic compounds concentration.
101A or 108	Mercury emissions.
104	Beryllium emission rate and associated moisture content.

Note: Use EPA draft method or other methods approved by Department to test for ammonia.

TO:

Compliance with emission limitations standards shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method approved by the Department and EPA, in accordance with F.A.C. Chapter 62.297.

EPA Method	For Determination of
1	Selection of sample site and velocity traverses
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3 & 3A	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7E	Nitrogen oxide emissions from stationary sources.

8	Sulfuric acid mist from stationary source.
9	Visible emission determination of opacity. - At least three one hour runs to be conducted simultaneously with particulate testing for the emissions from dry scrubber/baghouse, and ash handling building baghouse. - At least one lime vehicle unloading into the lime silo (from start to finish).
22	Fugitive emissions from transfer points.
10	Carbon monoxide emissions from stationary sources.
12 or 101A	Lead Concentration from stationary sources.
13A or 13B	Fluoride emissions from stationary sources.
18 and 25	Volatile organic compounds concentration.
101A or 108	Mercury emissions.
104	Beryllium emission rate and associated moisture content.

Note: Use EPA draft method or other methods approved by Department to test for ammonia.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

A copy of this amendment letter shall be attached to and shall become a part of Air Construction Permit PSD-FL-168.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for CH Fancy

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

This is to certify that this Permit Amendment and all copies were mailed to the listed persons before the close of business on ________________.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to Chapter 120.52(9), Florida Statutes, with the designated Deputy Clerk, receipt of which is hereby acknowledged.

(Clerk) (Date)

Enclosure: Ms Griffin's letter received on June 9,1995

Copies furnished to:

John Bunyak, NPS
Jewell A. Harper, EPA
Isidore Goldman, SED
Mike Harley, DARM

U.S. Generating Company
Indiantown Generating Plant
Indiantown, Florida 34956
(407) 597-6200 Telephone
(407) 597-6210 Facsimile

Fax Cover Sheet

DATE: 9/16/95 TIME:

TO: Martin Costello PHONE: 904 488 1344

FAX: 904 922-9445

FROM: Michelle Griffin PHONE:

FAX:

RE: Perf. Test protocol approval

bc: P. Carr
B Veein
B. Harper
S. Sorrentino
C Allen

CC:

Number of pages including cover sheet: 3

Message

Marty:

On 9/14/95, we discussed approval of ICL test protocols. You indicated that FDEP normally doesn't require approval. We looked at the PSD and found no condition however there is a requirement in the Conditions of Certification (attached). How will you respond?

I plan to call the District on monday to invite a representative to the site for a coordination meeting to review both the perf. test and compliance test plans.

Please call me at the plant on Monday.

Michelle

are more restrictive, that is lower emissions limits or more strict operating requirements and equipment specifications, than the requirements of COC-II(1)B.2. of these conditions.

3. Stack Testing

a. Within 60 calendar days after achieving the maximum capacity at which the unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct performance tests for particulates, SO_2, NO_x, and visible emissions during normal operations near (±10%) 3422 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a and 48a.

b. Compliance with emission limitation standards mentioned in Specific Condition No. 1 shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 17-2.700. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing. Not in parallel PSD Cond. (SC 14)

EPA Method	For Determination of
1	Selection of sample site and velocity traverses.
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
201 or 201A	PM_{10} emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7, 7C, or 19	Nitrogen oxide emissions from stationary

SPECIFIC CONDITIONS:

the PCD system shall be documented and records kept for a minimum of two years and must be available for FDER's inspection.

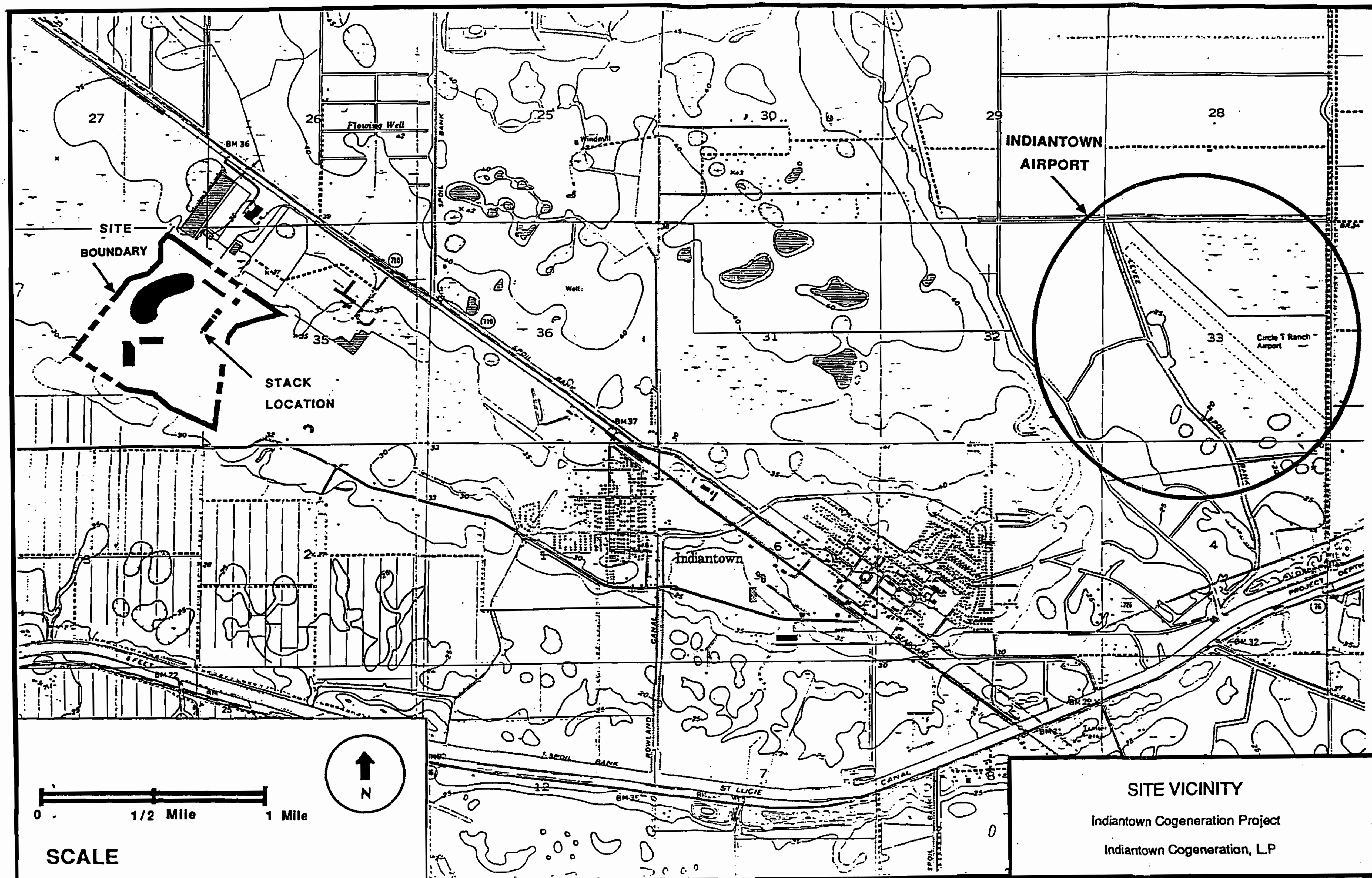
16. All fuel oil and coal shipments shall have a shipment analysis for sulfur content, ash content, and heating value. In the event continuous emission monitoring of sulfur dioxide is not performed, a daily analysis of coal sulfur content for the purpose of establishing the percentage reduction in potential sulfur emissions shall be made. Such determination shall be in accordance with EPA reference Method 19. Records of all the analyses shall be kept for FDER inspection for a minimum of two years after the data is recorded.

17. The applicant shall comply with applicable requirements and provisions of the New Source Performance Standard for electric utility steam generating units (40 CFR 60 Part Da).

18. Within 60 calendar days after achieving the permitted capacity at which the unit will be operated, but no later than 180 calendar days after initial startup, the permittee shall conduct stack tests for particulates, SO_2, NO_x, and visible emissions and furnish the Department a written report of the results of such tests within 45 days of completion of the tests. The tests shall be conducted in accordance with the provisions specified in 40 CFR 60 and shall be conducted within 90-100% of capacity.

19. Compliance with emission limitation standards shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method approved by the Department and EPA, in accordance with F.A.C. Rule 17-2.700.

EPA Method	For Determination of
1	Selection of sample site and velocity traverses.
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.



SITE VICINITY

Indiantown Cogeneration Project

Indiantown Cogeneration, L.P

DO NOT REMOVE CARBONS

Form Approved OMB No. 2120-[illegible]

U.S. Department of Transportation
Federal Aviation Administration

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

Aeronautical Study Number

1. Nature of Proposal

A. Type	B. Class	C. Work Schedule Dates
☒ New Construction	☒ Permanent	Beginning ______
☐ Alteration	☐ Temporary (Duration ______ months)	End ______

3A. Name and address of individual, company, corporation, etc. proposing the construction or alteration. *(Number, Street, City, State and Zip Code)*

( ) ______
area code Telephone Number

Mr. Stephen A. Sorrentino
Indiantown Cogeneration, L.P.
7475 Wisconsin Avenue
Bethesda, MD 20814-3422

B. Name, address and telephone number of proponent's representative if different than 3 above.

2. Complete Description of Structure

A. Include effective radiated power and assigned frequency of all existing, proposed or modified AM, FM, or TV broadcast stations utilizing this structure.

B. Include size and configuration of power transmission lines and their supporting towers in the vicinity of FAA facilities and public airports.

C. Include information showing site orientation, dimensions, and construction materials of the proposed structure.

One (1) power facility stack

(If more space is required, continue on a separate sheet.)

4. Location of Structure

A. Coordinates (To nearest second)	B. Nearest City or Town, and State	C. Name of nearest airport, heliport, flightpark, or seaplane base
	Indiantown, FL	Indiantown
Latitude 27° 2' 20"	Three (3) Miles	(1) Distance from structure to nearest point of nearest runway 4 1/4 miles
Longitude [illegible]0° 30' 45"		(2) Direction from structure to airport East (83°)

5. Height and Elevation *(Complete to the nearest foot)*

A. Elevation of site above mean sea level	39
B. Height of structure including all appurtenances and lighting (if any) above ground, or water if so situated	495'
C. Overall height above mean sea level (A + B)	534'

D. Description of location of site with respect to highways, streets, airports, prominent terrain features, existing structures, etc. Attach a U.S. Geological Survey quadrangle map or equivalent showing the relationship of construction site to nearest airport(s). *(If more space is required, continue on a separate sheet of paper and attach to this notice.)*

The proposed stack location is approximately 3500 feet SW of SR 710 and about 2000 feet SSW of the existing Caulkins Citrus Processing Plant. The area is basically flat.

See Attached Figure

Notice is required by Part 77 of the Federal Aviation Regulations (14 C.F.R. Part 77) pursuant to Section 1101 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1101). Persons who knowingly and willingly violate the Notice requirements of Part 77 are subject to a fine (criminal penalty) of not more than $500 for the first offense and not more than $2,000 for subsequent offenses, pursuant to Section 902(a) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1472(a)).

I HEREBY CERTIFY that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to obstruction mark and/or light the structure in accordance with established marking & lighting standards if necessary.

Date	Typed Name/Title of Person Filing Notice	Signature

FOR FAA USE ONLY *FAA will either return this form or issue a separate acknowledgement.*

The Proposal:

☐ Does not require a notice to FAA.

☐ Is not identified as an obstruction under any standard of FAR, Part 77, Subpart C, and would not be a hazard to air navigation.

☐ Is identified as an obstruction under the standards of FAR, Part 77, Subpart C, but would not be a hazard to air navigation.

☐ Should be obstruction ☐ marked, ☐ lighted per FAA Advisory Circular 70/7460-1, Chapter(s) ______

☐ Obstruction marking and lighting are not necessary.

Supplemental Notice of Construction, FAA Form 7460-2 is required any time the project is abandoned, or

☐ At least 48 hours before the start of construction.

☐ Within five days after the construction reaches its greatest height.

This determination expires on ______ unless:

(a) extended, revised or terminated by the issuing office;

(b) the construction is subject to the licensing authority of the Federal Communications Commission and an application for a construction permit is made to the FCC on or before the above expiration date. In such case the determination expires on the date prescribed by the FCC for completion of construction, or on the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be postmarked or delivered to the issuing office at least 15 days prior to the expiration date.

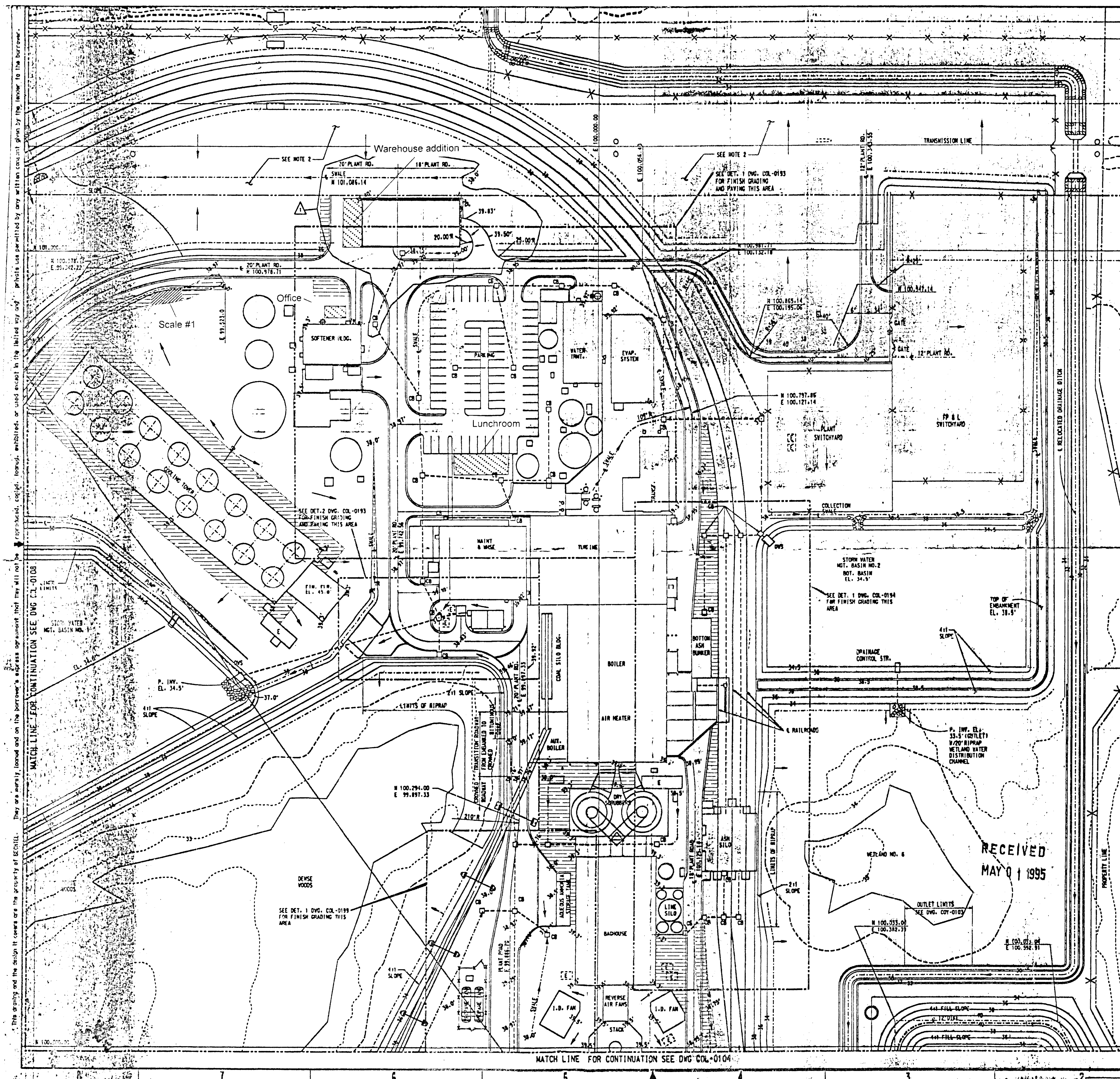
If the structure is subject to the licensing authority of the FCC, a copy of this determination will be sent to that Agency.

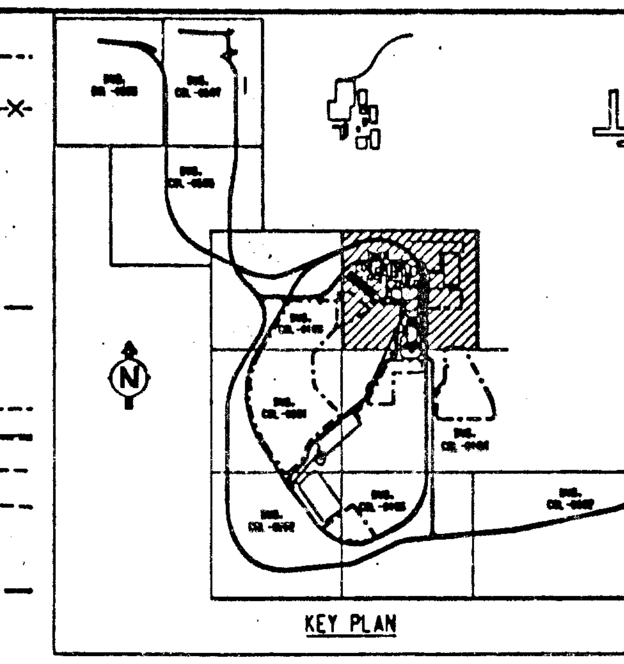
Remarks:

Issued in	Signature	Date

FAA Form 7460-1 (4-83) SUPERSEDES PREVIOUS EDITION

DO NOT REMOVE CARBONS





NOTES

1. FOR FINISH GRADING GENERAL NOTES & REFERENCE DWG'S SEE DWG. COL-0101.
2. UPON REMOVAL OF TEMPORARY CONSTRUCTION PARKING AREA, THE CONTRACTOR SHALL REGRADE THIS AREA TO THE GRADES SHOWN ON THIS DRAWING.
3. FOR ADDITIONAL CATCH BASINS AND STORM DRAIN PIPE TO BE ADDED IN FINISH GRADING PHASE SEE DRAWINGS COG-0101 AND COG-0102.

LEGEND

- EXISTING GRADE CONTOURS @ 5' INTERVALS
- EXISTING GRADE CONTOURS @ 1' INTERVALS
- MARSH
- EXISTING TREE LINE
- EXISTING WATER
- FINISH GRADE CONTOURS
- DRAINAGE DITCH OR SWALE & FLOW DIRECTION
- DRAINAGE CULVERT
- EMBANKMENT DRAINAGE SWALE OUTLET
- LINER LIMITS
- RAILROAD
- SURFACE DRAINAGE FLOW DIRECTION
- 38.0' FINISH GRADE ELEVATION
- VC VERTICAL CURVE
- PVI POINT OF VERTICAL INTERSECTION
- PI POINT OF INTERSECTION
- PC POINT OF CURVATURE
- PT POINT OF TANGENCY
- P. INV. PIPE INVERT ELEVATION
- D. INV. DITCH INVERT ELEVATION
- RIPRAP
- CULVERT CROSSING W/HEADWALL
- OWS OIL/WATER SEPARATOR
- FENCE
- E ELECTRICAL MANHOLE

REFERENCE DRAWINGS

COG-0101 STORM DRAIN PIPING PLAN SHT. 1
COG-0102 STORM DRAIN PIPING PLAN SHT. 2
COG-0191 UNDERGROUND UTILITY DETAILS
COG-0192 UNDERGROUND UTILITY PARTIAL PLANS AND DETAILS

0 20 40 80 120
1" = 40'

NO.	DATE	REVISIONS	BY					
1	4/5/95	ADDED FINISH GRADE AT WAREHOUSE AND UPDATED BACKGROUND	RBO LCH		–		WDA	–
0	9/28/93	ISSUED FOR CONSTRUCTION	RBO/RS	JS	-	HT	CHC	-

SCALE 1"=40' DATE 10-3-92 DRAWN RS

INDIANTOWN COGENERATION, L.P.

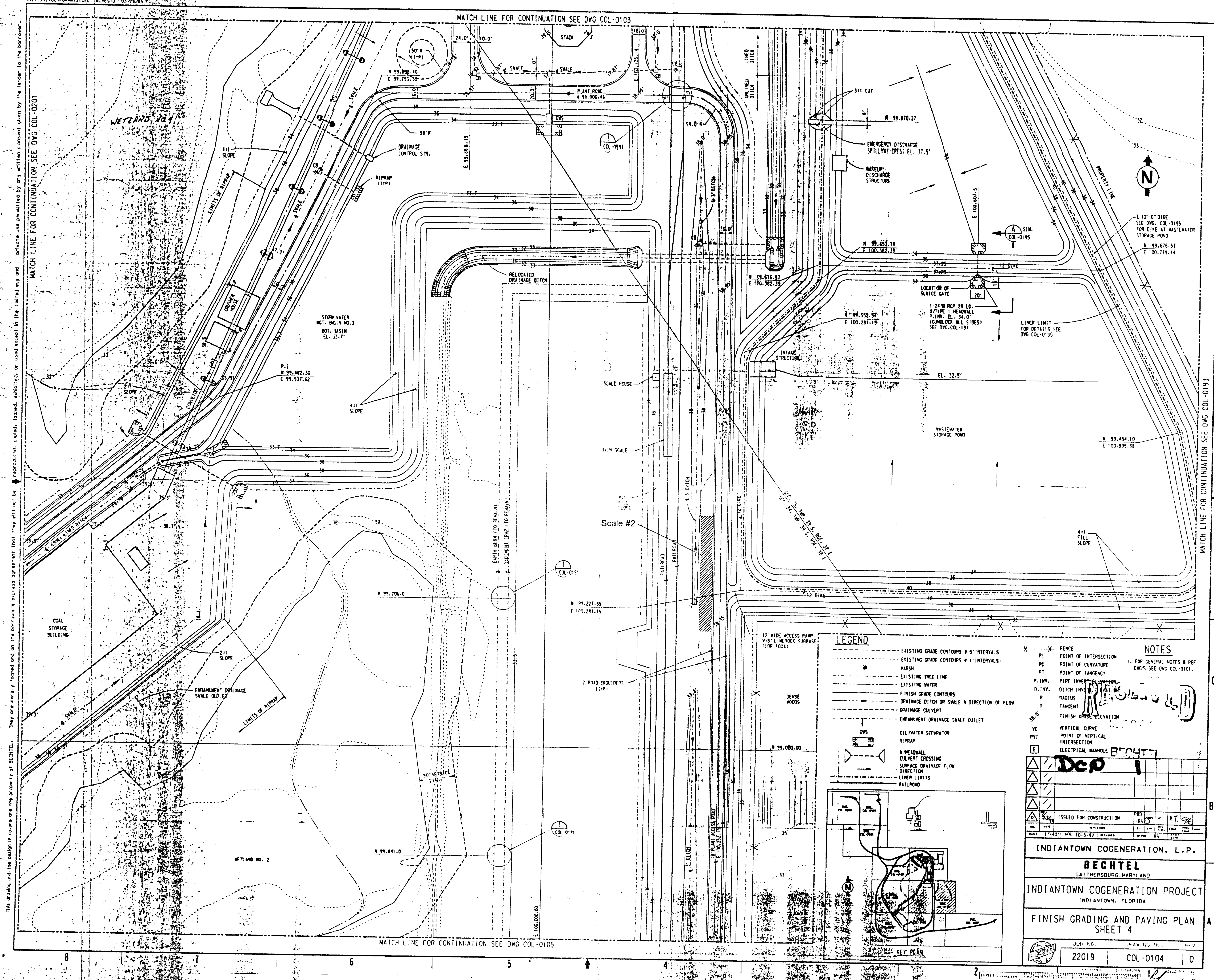
BECHTEL
GAITHERSBURG, MARYLAND

INDIANTOWN COGENERATION PROJECT
INDIANTOWN, FLORIDA

FINISH GRADING AND PAVING PLAN
SHEET 3

JOB NO.	DRAWING NO.	REV.
22019	COL-0103	1

34X44 "E" SIZE



MATCH LINE FOR CONTINUATION SEE DWG COL-0103
MATCH LINE FOR CONTINUATION SEE DWG COL-0201
MATCH LINE FOR CONTINUATION SEE DWG COL-0193
MATCH LINE FOR CONTINUATION SEE DWG COL-0105
STACK
PLANT ROAD
WETLAND NO. 1
4:1 SLOPE
LIMITS OF RIPRAP
DRAINAGE CONTROL STR.
RIPRAP (TYP)
3:1 CUT
EMERGENCY DISCHARGE SPILLWAY CREST EL. 37.5'
MAKEUP DISCHARGE STRUCTURE
PROPERTY LINE
N
UNLINED DITCH
LINED DITCH
RELOCATED DRAINAGE DITCH
STORM WATER MGT. BASIN NO. 3
BOT. BASIN EL. 33.7'
CRUSHER HOUSE
LOCATION OF SLUICE GATE
1-24"Ø RCP 28 LG. W/TYPE 1 HEADWALL P.INV. EL. 34.0' (GUNDLOCK ALL SIDES) SEE DWG.COL-197
12'-0" DIKE SEE DWG. COL-0195 FOR DIKE AT WASTEWATER STORAGE POND
LINER LIMIT FOR DETAILS SEE DWG COL-0155
INTAKE STRUCTURE
EL. 32.9'
WASTEWATER STORAGE POND
SCALE HOUSE
RAIN SCALE
4:1 FILL SLOPE
Scale #2
RAILROAD
COAL STORAGE BUILDING
2:1 SLOPE
EMBANKMENT DRAINAGE SWALE OUTLET
EARTH BERM (TO REMAIN)
SEDIMENT TRAP (TO REMAIN)
12' WIDE ACCESS RAMP W/8" LIMEROCK SUBBASE (LBR 100)
2' ROAD SHOULDERS (TYP)
DENSE WOODS
WETLAND NO. 2
18' PLANT ACCESS ROAD
LEGEND
EXISTING GRADE CONTOURS @ 5' INTERVALS
EXISTING GRADE CONTOURS @ 1' INTERVALS
MARSH
EXISTING TREE LINE
EXISTING WATER
FINISH GRADE CONTOURS
DRAINAGE DITCH OR SWALE & DIRECTION OF FLOW
DRAINAGE CULVERT
EMBANKMENT DRAINAGE SWALE OUTLET
OIL/WATER SEPARATOR
RIPRAP
W/HEADWALL CULVERT CROSSING
SURFACE DRAINAGE FLOW DIRECTION
LINER LIMITS
RAILROAD
FENCE
PI POINT OF INTERSECTION
PC POINT OF CURVATURE
PT POINT OF TANGENCY
P.INV. PIPE INVERT ELEVATION
D.INV. DITCH INVERT ELEVATION
R RADIUS
T TANGENT
FINISH GRADE ELEVATION
VC VERTICAL CURVE
PVI POINT OF VERTICAL INTERSECTION
ELECTRICAL MANHOLE
NOTES
1. FOR GENERAL NOTES & REF DWG'S SEE DWG COL-0101.
ISSUED FOR CONSTRUCTION
KEY PLAN
INDIANTOWN COGENERATION, L.P.
BECHTEL
GAITHERSBURG, MARYLAND
INDIANTOWN COGENERATION PROJECT
INDIANTOWN, FLORIDA
FINISH GRADING AND PAVING PLAN
SHEET 4
JOB NO. 22019
DRAWING NO. COL-0104
REV. 0