TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

CPV Cana Power Generating Facility

245-Megawatt Electrical Power Plant

St. Lucie County

DEP File No. 1110103-001-AC (PSD-FL-323)

Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation

November 21, 2001

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

CPV Cana, Ltd.
35 Braintree Hill Office Park, Suite 107
Braintree, Massachusetts 02184

Authorized Representative: *Gary Lambert, Manager*

1.2 Reviewing and Process Schedule

09-05-01: Date of Receipt of Application
10-25-01: Application Complete
11-21-01: Distributed Intent to Issue

2. FACILITY INFORMATION

2.1 Facility Location

Refer to Figures 1 and 2 below. The CPV Cana Power Generating Facility will be located in St. Lucie County near the central east coast of Florida. The location is approximately 200 kilometers North-northeast of the Everglades National Park. The proposed site is South of the intersection of State Road 609 and 709 in Port St. Lucie. The UTM coordinates for this facility are Zone 17; 550.9 km East; 3018.1 km North.

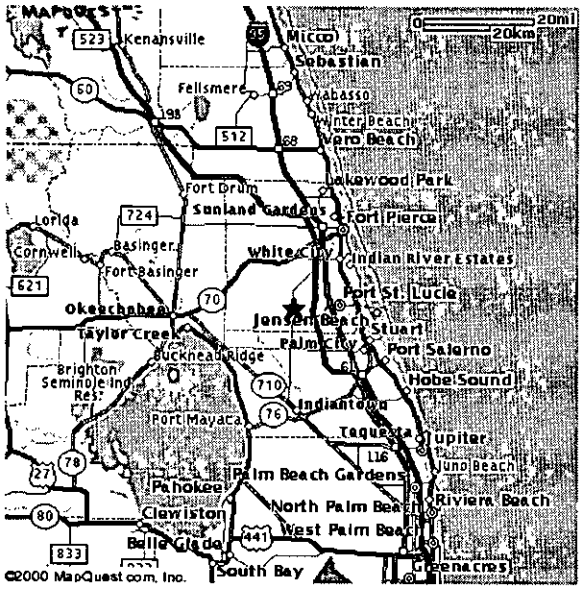

Figure 1 – Location near Port St. Lucie

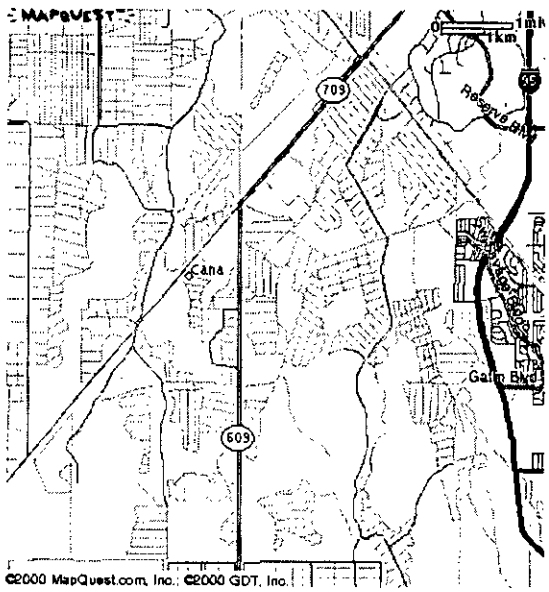

Figure 2 – Project Site west of I-95

2.2 Standard Industrial Classification Codes (SIC)

Industry Group No.	49	Electric, Gas, and Sanitary Services
Industry No.	4911	Electric Services

2.3. Facility Category

This new facility will generate electric power from a combined cycle unit including an unfired heat recovery steam generator (HRSG). The combustion turbine will be fired primarily with natural gas as the primary fuel, with distillate fuel as backup.

The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 TPY. The facility is not a major source of hazardous air pollutants (HAPs). The facility is not subject to a determination of maximum achievable control technology (MACT).

The facility is within an industry included in the list of the 28 Major Facility Categories per Table 212.400-1, F.A.C. Because proposed emissions are greater than 100 TPY for **CO** the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). As a Major Facility, project emissions greater than: Significant Emission Rates given in Table 212.400-2, F.A.C., 100 TPY of CO; 40 TPY of NO_X, SO_2, or VOC, 7 TPY of Sulfuric Acid Mist (SAM), 25/15 TPY of PM/PM_{10}) require review per the PSD rules and a determination of best available control technology (BACT).

The facility is also subject to the Title IV Acid Rain Program, 40 CFR 72 and must apply for an Acid Rain Permit at least 24 months prior to start up.

3. PROJECT DESCRIPTION

This permit addresses the following emissions units:

EMISSION UNIT	SYSTEM	EMISSION UNIT DESCRIPTION
001	Power Generation	One 170-megawatt combustion turbine-electrical generator with unfired heat recovery steam generator
002	Fuel Storage	One 975,000 gallon fuel oil storage tank
003	Cooling	One 5-cell mechanical draft cooling tower
004	Ancillary Equipment	One 500 kW emergency generator and one diesel-fired 250 hp water pump

Competitive Power Ventures Cana Ltd. (CPV Cana) proposes to construct a combined cycle combustion turbine at their new site located in St. Lucie County. The project includes: a nominal 170 megawatt (MW) General Electric 7FA combustion turbine-electrical generator, an un-fired heat recovery steam generator (HRSG), a separate steam-electrical generator limited to less than 75 MW (gross), a 170-foot stack, a mechanical draft cooling tower, a 975,000 gallon fuel oil storage tank, and other ancillary equipment. The key components of the GE MS 7001 FA (a predecessor of the PG 7241 FA) are identified in Figure 3. An exterior view is also shown. The project includes highly automated controls, described as the GE Mark VI Gas Turbine Control System to fulfill all of the gas turbine control requirements.

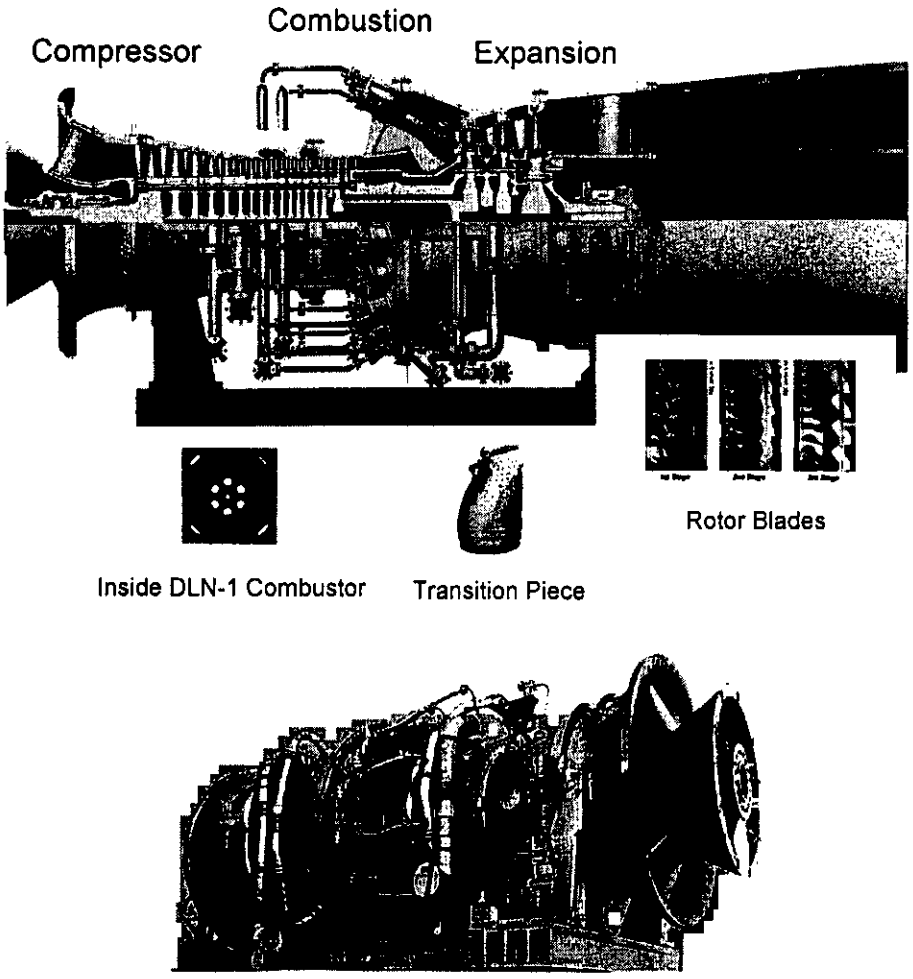

Figure 3 - Internal and External Views of Early GE 7FA

The main fuel will be natural gas and the unit will operate up to 8760 hours per year, of which no more than 720 represent fuel oil operation (30 days). The turbine will have a nominal heat input rating of 1,680 million Btu per hour (mmBtu/hr), lower heating value (LHV), while firing natural gas and 1,898 mmBtu/hr, LHV, while firing fuel oil at 25 °F while operating at 100% load.

The turbine will be equipped with Dry Low NO_X (DLN-2.6) combustors and Selective Catalytic Reduction (SCR) to control NO_X emissions to 2.5 parts per million by volume, dry, at 15% O_2 (ppmvd) while burning natural gas and 10 ppmvd while burning fuel oil.

Emission increases will occur for CO (170 TPY), SO_2 (76 TPY), SAM (8 TPY), PM/PM_{10}, (92 TPY), VOC (16 TPY), NO_X (102 TPY) and HAPs (8 TPY).

4. PROCESS DESCRIPTION

Much of the following discussion is from a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas turbines. Project specific information is interspersed where appropriate.

A gas turbine is an internal combustion engine that operates with rotary rather than reciprocating motion. Ambient air is drawn into the 18-stage compressor of the GE 7FA (Figure 3) where it is compressed by a pressure ratio of about 15 times atmospheric pressure. The compressed air is then directed to the combustor section, where fuel is introduced, ignited, and burned. The combustion section consists of 14 separate can-annular combustors. Figure 4 is photograph from the GE website of a "7FA on the half-shell" as viewed from the compressor section.

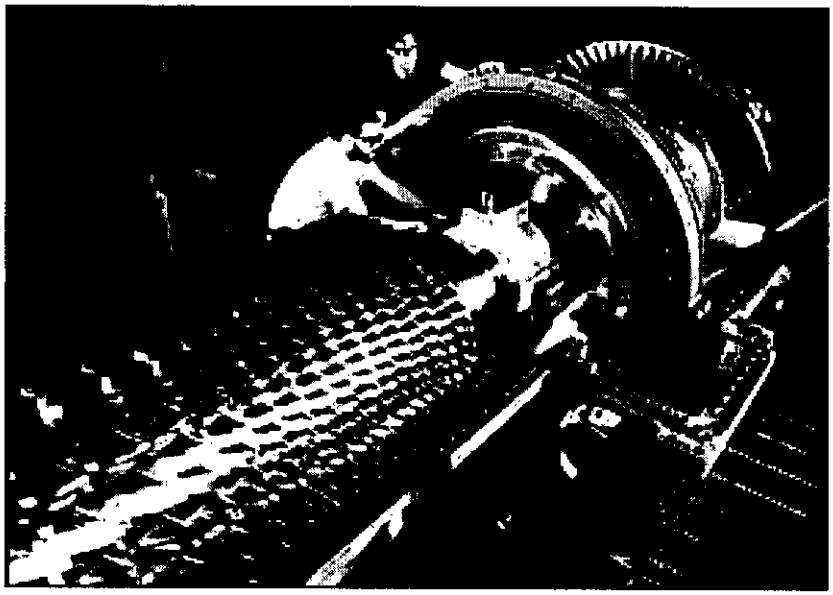

Figure 4 – Internal View of GE 7FA. (GE Website)

Flame temperatures in a typical combustor section can reach 3600 degrees Fahrenheit (°F). Units such as the 7FA operate at lower flame temperatures, which minimize NO_X formation. The hot combustion gases are then diluted with additional cool air and directed to the turbine section at temperatures of approximately 2400 °F. Energy is recovered in the turbine section in the form of shaft horsepower, of which typically more than 50 percent is required to drive the internal compressor section. The balance of recovered shaft energy is available to drive the external load unit such as an electrical generator.

There are three basic operating cycles for gas turbines. These are simple, regenerative and combined cycles. In the CPV project, the unit will operate primarily in combined cycle mode, meaning that the gas turbine drives an electric generator while the exhausted gases are used to raise steam in a heat recovery steam generator (HRSG). The steam is then fed to a separate steam turbine, which also drives an electrical generator.

Figure 5 is a process flow diagram for a combined cycle unit basically similar to the proposed CPV project. CPV will also include fuel oil back-up, SCR, and power augmentation.

At high ambient temperature, the units cannot generate as much power because of lower compressor inlet air density. To partially compensate for the loss of output (which can be on the order of 20 MW compared to referenced temperatures), a chilling unit or evaporative inlet fogger may be installed ahead of the combustion turbine inlet to increase air density. Neither of these features is planned for the CPV project.

Other possibilities include placing a gas-fired duct burner between the combustion turbine and the HRSG, power augmentation and peaking. *Peaking* is simply running the unit at greater than design fuel input. *Power augmentation* is accomplished by injecting some steam from the HRSG into the rotor (power) section of the combustion turbine. According to CPV, power augmentation will be employed in this project at temperatures above 59 °F "to make additional electrical output that is lost due to increasing temperature.

Additional process information related to the combustor design, and control measures to minimize NO_X formation are given in the draft BACT determination distributed with this evaluation.

5. RULE APPLICABILITY

The proposed project is subject to preconstruction review requirements under the provisions of 40 CFR 52.21, Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-214, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.).

This facility is located in St. Lucie County, an area designated as attainment for all criteria pollutants in accordance with Rule 62-204.360, F.A.C. The proposed project is subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD), because the potential emission increases for PM/PM_{10}, CO, SO_2, SAM and NO_X exceed the significant emission rates given in Chapter 62-212, Table 62-212.400-2, F.A.C.

This PSD review consists of a determination of Best Available Control Technology (BACT) for PM/PM_{10}, SO_2, SAM, CO, and NO_X. An analysis of the air quality impact from proposed project upon soils, vegetation and visibility is required along with air quality impacts resulting from associated commercial, residential, and industrial growth.

The emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules:

5.1 State Regulations

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-214	Requirements For Sources Subject To The Federal Acid Rain Program
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

5.2 Federal Rules

40 CFR 52	Subpart K, State of Florida Implementation Plan
40 CFR 60	NSPS Subparts GG and Kb
40 CFR 60	Applicable sections of Subpart A, General Requirements
40 CFR 72	Acid Rain Permits (applicable sections)
40 CFR 73	Allowances (applicable sections)
40 CFR 75	Monitoring (applicable sections including applicable appendices)
40 CFR 77	Acid Rain Program-Excess Emissions (future applicable requirements)

6. SOURCE IMPACT ANALYSIS

6.1 Emission Limitations

The proposed project will emit the following PSD pollutants (Table 212.400-2): particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, sulfuric acid mist, carbon monoxide, and negligible quantities of, mercury and lead. The applicant's proposed annual emissions are summarized in the Table below and form the basis of the source impact review. The Department's proposed permitted allowable emissions for these Units are summarized in the Draft BACT document and Specific Conditions Nos. 12 through 16 of Draft Permit PSD-FL-323.

6.2 Emission Summary

The maximum potential emissions for all PSD pollutants as a result of the construction of this facility are presented below:

FACILITY EMISSIONS (TOTAL TPY) AND PSD APPLICABILITY

Pollutants	Gas Firing[1]	Gas Firing[2]	Oil Firing[3]	Ancillary Equipment	Total[4]	PSD Significance	PSD REVIEW ?
PM/PM_{10}	40	36	6	6	48[5]	25/15	Yes
SO_2	44	40	35	<2	76	40	Yes
NO_X	75	68	28	6	102	40	Yes
CO	153	143	25	2	170	100	Yes
Ozone (VOC)	13	12	3	1	16	40	No
Sulfuric Acid Mist	9	4	4	<1	8	7	Yes
Mercury	<<0.1	<<0.1	<<0.1		<0.1	0.1	No
Lead	<<0.6	<<0.6	<<0.6		<0.6	0.6	No
HAPs					8[6]	NA	NA

1. Based on 8760 hours of gas firing including 2000 hours of Power Augmentation.
2. Based on 8040 hours of gas firing including 2000 hours of Power Augmentation.
3. Based on 720 hours of fuel oil firing.
4. Based on 8040 hours of gas firing (2000 hours of Power Augmentation) and 720 hours of fuel oil firing.
5. A PM/PM_{10} total of 48 TPY includes 4 TPY from the cooling tower and ~2 TPY from other ancillary equipment. The 42 TPY includes front-half catch and sulfates only (turbine). A total of 96 TPY includes sulfates, filterables, condensables and PM/PM_{10} emissions from all ancillary equipment.
6. Less than 10 TPY for any single HAP and less than 25 TPY for all HAPs. Case-by-case MACT does not apply.

6.3 Control Technology

Emissions control will be primarily accomplished by good combustion of inherently clean fuels. During gas operation, the combustors will operate in lean pre-mixed mode to minimize the flame temperature and nitrogen oxides formation potential. The DLN-2.6 combustors will control combustion turbine emissions not to exceed 8 ppmvd CO and 9 ppmvd NO_X @15% O_2 between 50 and 100% of full load under normal operating conditions and during gas burning. Further control for NO_X will be achieved by SCR to 2.5 (natural gas) and 10 (fuel oil) ppmvd @15% O_2. Emissions of CO during oil burning are expected not to exceed 17 ppmvd @15% O_2 at 90% to 100% of full load. A full discussion is given in the Draft Best Available Control Technology (BACT) Determination (see Permit Appendix BD). The Draft BACT is incorporated into this evaluation by reference

6.4 Existing Air Quality in the Vicinity of the project

6.4.1 Description of Vicinity

Refer to Figures 1 and 2 above. The CPV Cana Power Generating Facility will be in the City of Port St. Lucie, which has a population of 80,000 people compared to the 185,000 in St. Lucie County. The proposed project site is located North of Jensen Beach.

The proposed site is approximately 3 miles West of the Interstate I-95. Refer to Figure 5 below. The exact location is within the sector southeast of the intersection of SR 609 and SR 709. A railway runs parallel to SR 709.

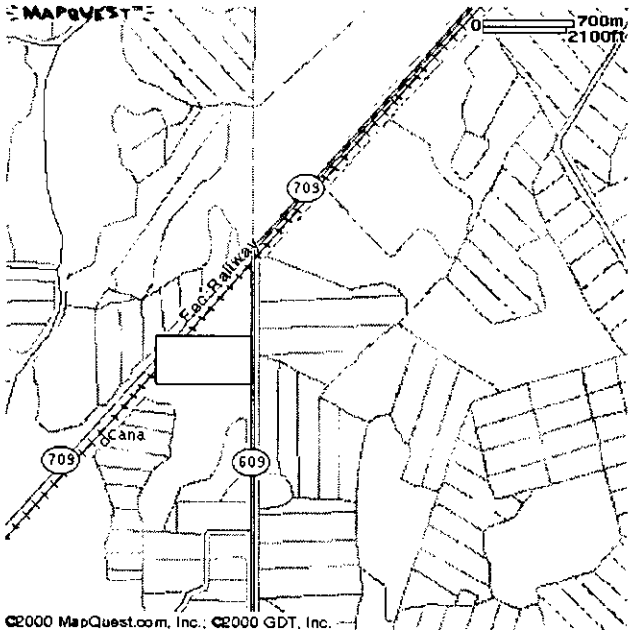

Figure 5 – CPV Cana Project Site

6.4.2 Climate

The average annual high temperature for Port St. Lucie is 83 degrees and the average low is 65 degrees. Winds are predominately out of the North and East. Refer to Figure 6 below.

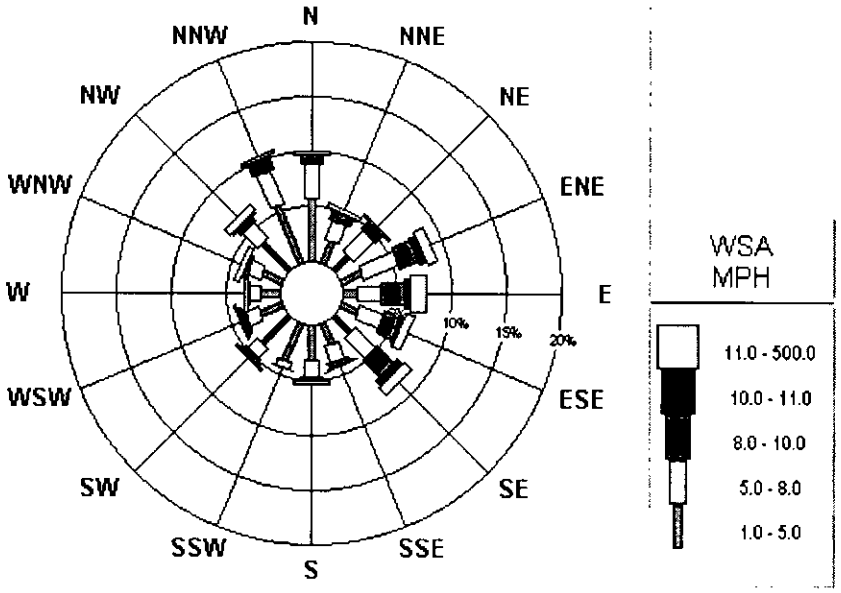

Figure 6 – St. Lucie County Wind Rose – July 2000 to July 2001

6.4.3 Major Stationary Sources in St. Lucie County

The current largest sources of air pollutants in St. Lucie County are listed below:

MAJOR SOURCES OF NO_X IN ST. LUCIE COUNTY (2000)

Owner/Company	Site Name	Tons per year
Florida Power & Light	St Lucie Nuclear Power Plant	15
Florida Gas Transmission (FGT)	FGT Station 20	323
Ft. Pierce Utilities Authority	H.D. King Power Plant	109
Tropicana Products	Tropicana Products	58
Cargill Citro Pure	Cargill Citro Pure/Ft Pierce	24
Florida Rock Industries	Fl Rock Ft. Pierce Mine	14
CPV Gulfcoast (under construction)	Gulfcoast Power Generating Facility	126
CPV Cana	**Cana Power Generating Facility**	**102**

MAJOR SOURCES OF SO_2 IN ST. LUCIE COUNTY (2000)

Owner/Company	Site Name	Tons per year
Florida Power & Light	St Lucie Nuclear Power Plant	1
Florida Gas Transmission (FGT)	FGT Station 20	6
Ft. Pierce Utilities Authority	H.D. King Power Plant	3
Dickerson Florida, In	Dickerson/Asphalt Plant #14	10
CPV Gulfcoast (under construction)	Gulfcoast Power Generating Facility	76
CPV Cana	**Cana Power Generating Facility**	**76**

MAJOR SOURCES OF VOC IN ST. LUCIE COUNTY (2000)

Owner/Company	Site Name	Tons per year
Florida Gas Transmission (FGT)	FGT Station 20	26
Ft. Pierce Utilities Authority	H.D. King Power Plant	6
Tropicana Products	Tropicana Products	1136
Cargill Citro Pure, L.	Cargil Citro Pure/Ft Pierce	131
Arch Mirror South In	Arch Mirror South	76
Maverick Boat Company	Maverick Boat Company	70
Sunshine Mirror Com	Sunshine Mirror	46
S2 Yachts, Inc	S2 Yachts	55
CPV Gulfcoast (under construction)	Gulfcoast Power Generating Facility	15
CPV Cana	**Cana Power Generating Facility**	**16**

MAJOR SOURCES OF PM/PM_{10} IN ST. LUCIE COUNTY (1999)

Owner/Company	Site Name	Tons per year
Florida Power & Light	St Lucie Nuclear Power Plant	2
Ft. Pierce Utilities Authority	H.D. King Power Plant	10
Cargill Citro Pure, L.	Cargil Citro Pure/Ft Pierce	14
Dickerson Florida, Inc	Dickerson/Asphalt Plant #14	3
Florida Rock Industries	Fl Rock Ft. Pierce Mine	5/2
CPV Gulfcoast (under construction)	Gulfcoast Power Generating Facility	102
CPV Cana (Future)	**Cana Power Generating Facility**	**96**

6.4.4 Air Quality Monitoring in St. Lucie County

St. Lucie County has 4 monitors at 2 sites measuring PM, ozone, and NO_2. The 2001 St. Lucie County monitoring network is shown in Figure 7.

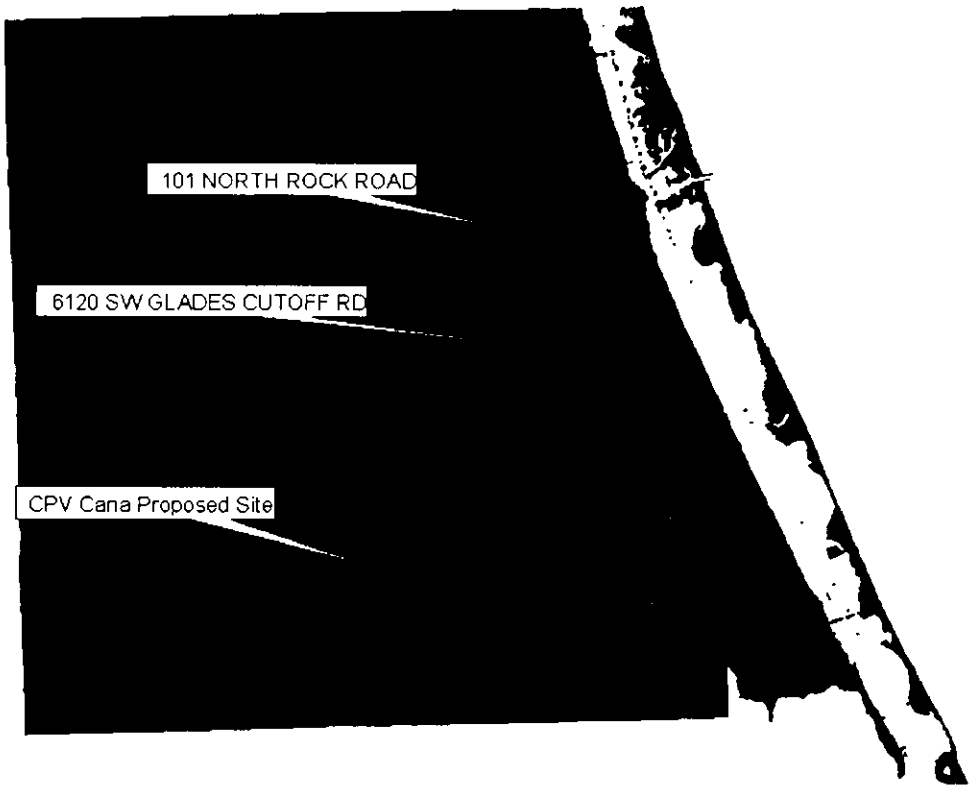

Figure 7 – St. Lucie County Monitoring Network

6.4.5 Ambient Air Quality in St. Lucie County

Measured ambient air quality is given in the following table. The highest measured values are all less than the respective National Ambient Air Quality Standards. The average measurements are all much less than the respective standards.

1999 AMBIENT AIR QUALITY NEAREST TO PROJECT SITE

Pollutant	Site Address	Averaging Period	Ambient Concentration				
			1st High	2nd High	Mean	Standard	Units
PM_{10}	6120 SW Glades Cutoff Rd., Ft. Pierce	24-hour	73	39		150 [c]	ug/m^3
		Annual			20	50 [b]	ug/m^3
SO_2	1050 15th Street West, Riviera Beach	3-hour	17	14		500 [a]	ppb
		24-hour	13	13		100 [a]	ppb
		Annual			2	20 [b]	ppb
NO_2	101 N. Rock Road, Ft. Pierce	Annual			10	53 [b]	ppb
CO	3700 Belvedere Rd., W. Palm Beach	1-hour	6	5		35 [a]	ppm
		8-hour	4	3		9 [a]	ppm
Ozone	101 N. Rock Road, Ft. Pierce	1-hour	0.083	0.083	0.044 [d]	0.12 [c]	ppm
Lead	Jog Road Incinerator, West Palm Bch	24-hour	0	0	0	1.5 [b]	ug/m^3

a - Not to be exceeded more than once per year.
b - Arithmetic mean.
c - Not to be exceeded on more than an average of one day per year over a three-year period.
d – Mean ozone value reflects the average daily 1-hour maximum reading.

6.5 Air Quality Impact Analysis

6.5.1 Introduction

The proposed project will increase emissions of five pollutants at levels in excess of PSD significant amounts: PM/PM_{10}, CO, NO_X, SO_2, and SAM. PM_{10}, SO_2 and NO_X are criteria pollutants and have national and state ambient air quality standards (AAQS), PSD increments, and significant impact levels defined for them. CO is a criteria pollutant and has only AAQS and significant impact levels defined for it. There are no applicable PSD increments, AAQS or de minimis monitoring levels for SAM; the BACT determination will set the emission limits for SAM.

The applicant's initial PM/PM_{10}, CO, NO_X, and SO_2 air quality impact analyses for this project predicted no significant impacts in the Class II area in the vicinity of the project. Therefore, no further applicable AAQS and PSD increment impact analyses for CO, NO_X, PM and SO_2 were required in the Class II area. The nearest PSD Class I area is the Everglades National Park (ENP) located about 200 km to the south-southwest. Due to the distance of the project from the Everglades, the applicant was not required to perform a PSD Class I air quality analysis. Also, the maximum predicted impacts for all pollutants were below their respective *de minimis* ambient impact levels. Therefore, pre-construction monitoring at the proposed site was not required for this project. Based on the preceding discussion, the air quality analyses required by the PSD regulations for this project were the following:

- A significant impact analysis for PM_{10}, CO, SO_2, and NO_2 in the surrounding Class II Area;
- An analysis of impacts on soils, vegetation, visibility, and of growth-related air quality modeling impacts.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A more detailed discussion of the required analyses follows.

6.5.2 Ambient Monitoring Requirements

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. The monitoring requirement may be satisfied by using existing representative monitoring data, if available. Substantial monitoring data exist for the area as discussed in the previous sections.

An exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. The table below shows that predicted impacts from the combustion turbines are substantially less than the respective de minimus levels; therefore, preconstruction ambient air quality monitoring is not required for any pollutant. Additionally, the approximate high values measured at existing ambient monitoring sites in St. Lucie County are included for comparison purposes.

Installation of additional monitors near the proposed site will probably not show any increases from the plant because of the very low impact levels. Basically, the highest contribution from the plant would be on the order of 14 percent or less of the highest measured concentrations.

MAXIMUM PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE DE MINIMIS AMBIENT IMPACT LEVELS

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimis Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Impact Greater Than De Minimis?
PM_{10}	24-hour	4	10	~ 75	NO
NO_2	Annual	0.17	14	~ 20	NO
SO_2	24-hour	4.85	13	~ 35	NO
CO	8-hour	8	575	~ 4500	NO

6.5.3 Models and Meteorological Data Used in the Air Quality Analysis

PSD Class II Area

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project in the surrounding Class II Area. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. It incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfied the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations from the Vero Beach Airport, Florida. The 5-year period of meteorological data was from 1990 through 1994. This station was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the project site. The surface observations included wind direction, wind speed, temperature, stability class, and mixing height.

6.5.4 Significant Impact Analysis

In order to conduct a significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. The highest predicted short-term concentrations and highest predicted annual averages predicted by this modeling are compared to the appropriate significant impact levels for the Class II Area. If this modeling at worst load conditions shows significant impacts, additional modeling which includes the emissions from surrounding facilities is required to determine the project's impacts on the existing air quality and any applicable AAQS or PSD increments. If no significant impacts are shown, the applicant is exempted from doing any further modeling.

For the Class II analysis a combination of fence line, near-field and far-field receptors were chosen for predicting maximum concentrations in the vicinity of the project. The fence line receptors consisted of discrete Cartesian receptors spaced at 50 meter intervals around the facility fence line. The remaining receptor grid consisted of densely spaced Cartesian receptors at 100 meters apart starting at and extending to 2 kilometers at 100 meter spacing from the fence line. Receptor rings were also placed at 200-meter increments out to 5 kilometers. Beyond 5 kilometers, polar receptor rings with a spacing of 500 meters were used out to 10 kilometers from the facility.

The following table shows the results of the significant impact modeling for the Class II area:

MAXIMUM PROJECT AIR QUALITY IMPACTS FROM THE CPV CANA PROJECT FOR COMPARISON TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Significant Impact?
SO_2	Annual	0.2	1	NO
	24-Hour	4.9	5	NO
	3-Hour	15	25	NO
PM_{10}	Annual	0.2	1	NO
	24-Hour	4.3	5	NO
CO	8-Hour	8	500	NO
	1-Hour	20	2000	NO
NO_2	Annual	0.2	1	NO

The results of the significant impact modeling show that there are no significant impacts for the Class II area.

6.5.5 Additional Impacts Analysis

Impact On Soils, Vegetation, And Wildlife

Very low emissions are expected from this natural gas-fired combustion turbine in comparison with conventional power plants generating equal power. Emissions of acid rain and ozone precursors will be very low. The maximum ground-level concentrations predicted to occur for PM_{10}, CO, NO_X and SO_2 as a result of the proposed project, including background concentrations and all other nearby sources, will be less than the respective ambient air quality standards (AAQS).

The project impacts are also less than the significant impact levels for PM_{10}, CO, NO_X, and SO_2, which in-turn, are less than the applicable allowable increments for each pollutant. Because the AAQS are designed to protect both the public health and welfare, and the project impacts are less than significant, it is reasonable to assume the impacts on soils, vegetation, and wildlife will be minimal or insignificant.

Effects from sulfuric acid mist are also expected to be minor due to the low emissions expected from the CPV Cana plant. The combination of low NO_X and VOC emissions insures that the project will not contribute significantly to regional ozone levels or to any impacts caused by such ozone levels.

Impact On Visibility

Pipeline Natural gas is a clean fuel and produces little particulate emissions. The backup fuel oil will be limited to 0.05 percent sulfur and will exhibit relatively low particulate emissions. The very low NO_X, SO_2, and ammonia emissions will also minimize plume opacity and any effects on regional visibility.

The Class I Everglades National Park, where visibility impacts are normally of greater concern, is nearly 200 kilometers from the proposed site. Therefore impacts on visibility are expected to be insignificant.

Growth-Related Air Quality Impacts

According to the applicant, the project will employ between 100 and 200 workers during the various phases of construction. Most of the labor will be drawn from the local labor force. Ultimately the project will require 20 to 25 permanent employees, some of who will be drawn from the local labor force.

This project is a response to statewide and regional growth and also accommodates more growth. There are no adequate procedures under the PSD rules to fully assess these impacts. However, the type of project proposed has a small overall physical "footprint," and the lowest air emissions per unit of electric power generating capacity.

Hazardous Air Pollutants

The project is not a major source of hazardous air pollutants (HAPs) and is not subject to any maximum achievable control technology (MACT) requirements pursuant to Department rules or Section 112 of the Clean Air Act.

7. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations.

In making this preliminary determination, the Department also drafted a permit and a determination of Best Available Control Technology that may be modified based on comments from the applicant, agencies, and the public.

Teresa Heron, Review Engineer
Debbie Galbraith, Meteorologist
A. A. Linero, P.E. Administrator

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1110103-001-AC and PSD-FL-323

CPV Cana Power Generating Facility
Combined Cycle Power Project

St. Lucie County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to CPV Cana Ltd. The permit is to construct a combined cycle electrical power generating plant in Port St. Lucie in St. Lucie County. A Best Available Control Technology (BACT) determination was required pursuant to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration of Air Quality (PSD), for emissions of particulate matter (PM/PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2), sulfuric acid mist (SAM), and nitrogen oxides (NO_X). A maximum achievable control technology (MACT) determination for hazardous air pollutants was not required. The applicant's name and address are CPV Pierce Ltd., 35 Braintree Hill Office Park, Suite 107, Braintree, Massachusetts 02184.

The project consists of: a nominal 170 megawatt General Electric 7FA combustion turbine-electrical generator, an unfired heat recovery steam generator, a separate steam-electrical generator, a 170-foot stack, a mechanical draft cooling tower, a 975,000 gallon fuel oil storage tank, and other ancillary equipment. Back-up distillate fuel oil will be burned for a maximum of 720 hours per year.

NO_x emissions will be controlled by selective catalytic reduction (SCR) to achieve 2.5 parts per million by volume, dry, at 15 percent oxygen (ppmvd) while burning gas and 10 ppmvd while burning low sulfur distillate fuel oil. Emissions of CO will be controlled to 9 and 20 ppmvd while burning gas and fuel oil respectively. Emissions of PM/PM_{10}, SO_2, sulfuric acid mist, volatile organic compounds, and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas and low sulfur (0.05 percent) distillate fuel oil. Ammonia emissions (NH_3) generated due to NO_X control will be limited to 5 ppmvd.

The following table summarizes the maximum emissions (in tons per year) of regulated air pollutants as a result of this project.

Pollutants	Maximum Potential Emissions	PSD Significant Emission Rate
PM/PM_{10} (filterable & condensable)	96	25/15
Sulfuric Acid Mist	8	7
SO_2	76	40
NO_x	102	40
VOC	16	40
CO	170	100
HAP	8	NA

An air quality impact analysis was conducted. Maximum impacts due to proposed emissions from the project are less than the applicable PSD Class II significant impact levels for all applicable pollutants. Therefore no increment consumption analysis was required. Given the distance from the Everglades and the rather low emissions, the National Park Service advised the Department that it does not anticipate any significant impacts on resources from emissions from this proposed facility. Therefore a Class I analysis was not required. The Department concludes that emissions from the facility will not cause or contribute to a violation of any state or federal ambient air quality standards.

The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam cycle submitted by the applicant and reviewed by the Department.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments and requests for a public meeting should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant

change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 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 days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall 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 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 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301

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. 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.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida, 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southeast District Office 400 North Congress Avenue W. Palm Beach, Florida 33416-5425 Telephone: 561/681-6600 Fax: 561/681-6755	Dept. of Environmental Protection Port St. Lucie Branch Office 1801 S.E. Hillmoor Dr., C 204 Port St. Lucie, Florida 34952 Telephone: 561/398-2806 Fax: 561/398-2815

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. Key documents can be accessed at www.dep.state.fl.us/air/permitting/construction.htm by clicking on the Southeast Region of the map of Florida.

In the Matter of an
Application for Permit by:

Mr. Gary Lambert, Manager
CPV Cana, Ltd.
35 Braintree Hill Office Park, Suite 107
Braintree, Massachusetts 02184

DEP File No. 1110103-001-AC (PSD-FL-323)
Combined Cycle Facility
St. Lucie County

/

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, CPV Cana, Ltd., applied on September 5, 2001 (complete October 25) to the Department to construct a combined cycle electrical power generating plant consisting of a nominal 170 MW combustion turbine-electrical generator, an unfired heat recovery steam generator, a separate steam-electrical generator, a 170-foot stack, a mechanical draft cooling tower, a 975,000 gallon fuel oil storage tank, and other ancillary equipment. The project will be located at a new site in Port St. Lucie, St. Lucie County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to perform proposed work. The Department intends to issue this air construction permit based on the belief that the applicant has provided reasonable assurances to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114 / Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 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 days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall 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 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 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

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. 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.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Mediation is not available in this proceeding. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or

portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 11/21/01 to the person(s) listed:

Gary Lambert, CPV Atlantic, Ltd.*
Gregg Worley, EPA
John Bunyak, NPS
Isidore Goldman, DEP SED
Danna Civetti, DEP St. Lucie Branch
Chair, St. Lucie County BCC*
Mayor, Port St. Lucie*
Scott Sumner, P.E., TRC
Cathy Sellers, Esq., Moyle Flanagan

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Victoria Gibson (Clerk) 11/21/01 (Date)

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Gary Lambert, Manager
CPV Cana, Ltd.
35 Braintree Hill Office Park
Suite 107
Braintree, MA 02184

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery

C. Signature
X S LeBlanc ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes.

2. Article Number *(Copy from service label)*
7000 2870 0000 7028 2904

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 2870 0000 7028 2904

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	**$**

Postmark Here

Sent To
Gary Lambert
Street, Apt. No.; or PO Box No.
35 Braintree Hill Offc. Park, Ste. 107
City, State, ZIP+ 4
Braintree, MA 02184

PS Form 3800, May 2000 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The Honorable Robert E. Minsky
Mayor of Port St. Lucie
121 SW Port St. Lucie Blvd.
Port St. Lucie, FL 34984-5099

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery 11/26/01

C. Signature
X [signature] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 2870 0000 7028 2898

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7000 2870 0000 7028 2898

Sent To
Robert E. Minsky
Street, Apt. No.; or PO Box No.
121 SW Port St. Lucie Blvd.
City, State, ZIP+4
Port St. Lucie, FL 34984-5099

PS Form 3800, May 2000 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Doug Coward, Chair
St. Lucie County Board of
County Commissioners
2300 Virginia Avenue
Ft. Pierce, FL 34982

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* | B. Date of Delivery 11-26-01

C. Signature
x Bev Dimon ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7000 2870 0000 7028 2850

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7000 2870 0000 7028 2850

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	**$**

Postmark Here

Sent To: Doug Coward
Street, Apt. No.; or PO Box No.: 2300 Virginia Ave.
City, State, ZIP+ 4: Ft. Pierce, FL 34982

PS Form 3800, May 2000 See Reverse for Instructions

Department of
Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

November 21, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Gary Lambert, Manager
CPV Cana, Ltd
35 Braintree Hill Office Park, Suite 107
Braintree, Massachusetts 02184

Re: DEP File No. 1110103-001-AC (PSD-FL-323)
CPV Cana Power Generating Facility
Combined Cycle Power Project

Dear Mr. Lambert:

Enclosed is one copy of the Draft Permit, Technical Evaluation and Preliminary Determination, and Draft BACT Determination, for the CPV Cana Power Generating Facility to be located in Port St Lucie, St Lucie County. The Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included.

The "PUBLIC NOTICE" must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call Ms. Teresa Heron at 850/921-9529 or Ms. Debbie Galbraith at 850/921-9537.

Sincerely,

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

CHF/th

Enclosures

PERMITTEE:

CPV Cana, Ltd.
35 Braintree Hill Office Park, Suite 107
Braintree, Massachusetts 02184

File No.	1110103-001-AC
Permit No.	PSD-FL-323
SIC No.	4911
Expires:	December 31, 2004

Authorized Representative:

Gary Lambert, Executive Vice President

PROJECT AND LOCATION:

Air construction permit pursuant to the requirements for the Prevention of Significant Deterioration of Air Quality (PSD) for the construction of a nominal 245 MW gas-fired combined cycle electrical power plant. The steam-electrical generator is limited to less than 75 MW. Diesel fuel with a maximum sulfur content of 0.05 percent will be used as back-up fuel. The plant will be known as the CPV Cana Power Generating Facility.

The project will be located in Port St. Lucie in St. Lucie County. UTM coordinates are Zone 17; 550.9 km E; 3018.1 km N.

STATEMENT OF BASIS:

This permit is issued under the provisions of Chapter 403 of the Florida Statutes, Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

The attached Appendices are made a part of this permit:

Appendix GC Construction Permit General Conditions
Appendix BD BACT Determination
Appendix GG NSPS Subpart GG Requirements

Howard L. Rhodes, Director
Division of Air Resources Management

SECTION I - FACILITY INFORMATION

FACILITY DESCRIPTION

The proposed CPV facility is a combined cycle power plant. Key components include:

- One nominal 170 megawatt (MW) gas-fired combustion turbine-electrical generator with an un-fired heat recovery steam generator (HRSG) and 170-foot stack;
- A selective catalytic reduction unit located within the HRSG;
- A 975,000 million gallon storage tank for backup No. 2 distillate fuel oil;
- A separate steam-electrical generator;
- A five-cell mechanical draft cooling tower;
- Ancillary facilities including miscellaneous equipment buildings, ammonia storage, demineralized water storage, fire water storage, one diesel-fired fire 250 hp water pump, and a 500 kW emergency generator.

EMISSION UNITS

This permit addresses the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
001	Power Generation	One 170-megawatt combustion turbine-electrical generator with unfired heat recovery steam generator
002	Fuel Storage	One 975,000 gallon fuel oil storage tank
003	Water Cooling	One five-cell mechanical cooling tower
004	Ancillary Equipment	One diesel-fired 250 hp water pump, one 500 kW emergency generator, and an aqueous ammonia storage tank.

REGULATORY CLASSIFICATION

Title V: This facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

PSD: This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). With respect to Table 62-212.400-2, this facility modification results in emissions increases greater than 40 TPY of NO_X and SO_2, 25/15 TPY of PM/PM_{10}, 100 TPY of CO, and 7 TPY of sulfuric acid mist. These pollutants require PSD review and determinations of Best Available Control Technology pursuant to Rule 62-212.400, F.A.C.

Title III: This facility is not a major source of hazardous air pollutants (HAPs). This facility is not subject to MACT applicability.

Title IV: The new combined cycle unit is subject to certain Acid Rain provisions of Title IV of the Clean Air Act.

NSPS: The new combined cycle gas turbine is subject to New Source Performance Standards 40 CFR 60, Subpart GG for Gas Turbines and the Storage Tank is subject to 40 CFR 60, Subpart Kb.

NESHAP: The permittee did not identify any emission unit as being subject to a National Emissions Standards for Hazardous Air Pollutants (NESHAP).

SITING: The project is not subject to Section 403.501-518, F.S., Florida Electrical Power Plant Siting Act, based on information regarding gross electrical power generated from the steam (Rankine) cycle submitted by the applicant and reviewed by the Department.

PERMIT SCHEDULE

- xx/xx/02 Air Construction Permit Issued
- xx/xx/01 Notice of Intent to Issue published in _____
- 11/19/01 Distributed Intent to Issue Permit
- 10/25/01 Application deemed complete
- 09/05/01 Received PSD Application

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but are not incorporated into this permit. These documents are on file with the Department.

- Application received on September 5, 2001
- Comments from the Fish and Wildlife Service dated 06/12/01
- Department letter to CPV dated October 2, 2001
- CPV responses dated October 25, 2001
- Department's Intent to Issue and Public Notice Package dated November 21, 2001.
- Letter from EPA Region IV dated _____
- Department's Final Determination and Best Available Control Technology Determination issued concurrently with this Final Permit.

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
2. Compliance Authority: All documents related to reports, tests, and notifications should be submitted to the DEP Southeast District Office, 400 North Congress Avenue W, West Palm Beach, Florida, 33401 and phone number 561/681-6755, fax 561-681-6755. Copies shall be sent to the DEP Port St. Lucie Branch Office, 1801 S.E. Hillmoor Dr, C 204, Port St. Lucie, Florida 34952 and phone number 561/398-2806, fax 561/398-2815.
3. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
4. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
5. Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
6. Modifications: The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change. [Chapters 62-210 and 62-212, F.A.C.]
7. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., for good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
8. PSD Approval to Construct Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]

9. Completion of Construction: The permit expiration date is December 31, 2004. Physical construction shall be complete by June 30, 2004. The additional time provides for testing, submittal of results, and submittal of the Title V permit to the Department.

10. Permit Expiration Date Extension: The permittee, for good cause, may request that this PSD permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (Rule 62-4.080, F.A.C.).

11. BACT Determination: In conjunction with extension of the 18 month periods to commence or continue construction, the extension of the December 31, 2004 permit expiration date, or any increases in MW generated by steam, heat input limits, hours of operation, oil firing, low or baseload operation, short-term or annual emission limits, annual fuel heat input limits or similar changes; the permittee may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [40 CFR 52.21(j)(4); 40CFR 51.166(j) and Rule 62-4.070 F.A.C.]

12. Application for Title IV Permit: An application for a Title IV Acid Rain Permit must be submitted to the DEP's Bureau of Air Regulation in Tallahassee at least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW and a copy to the U.S. Environmental Protection Agency Region IV office in Atlanta, Georgia [40 CFR 72]

13. Application for Title V Permit: An application for a Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy to the Department's Southeast District Office. [Chapter 62-213, F.A.C.]

OPERATIONAL REQUIREMENTS

14. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

15. Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

16. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without the applicable air control device operating properly. [Rule 62-210.650, F.A.C.]

17. Unconfined Particulate Matter Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

TESTING REQUIREMENTS

18. Test Notification: The permittee shall notify each Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. Notification shall include the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and conducting the test. [Rule 62-297.310(7)(a)9., F.A.C. and 40 CFR 60.7, 60.8]

19. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

20. Applicable Test Procedures

- *Required Sampling Time.* Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be sixty (60) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. [Rule 62-297.310(4)(a)1. and 2., F.A.C.]
- *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet. [Rule 62-297.310(4)(b), F.A.C.]
- *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C. [Rule 62-297.310(4)(d), F.A.C.]

21. Determination of Process Variables

- *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards. [Rule 62-297.310(5)(a), F.A.C.]
- *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5)(b), F.A.C.]

22. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

23. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.

24. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2)(b), F.A.C.]

RECORDS

25. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]

REPORTS

26. Emissions Performance Test Results Reports: A report indicating the results of any required emissions performance test shall be submitted to each Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.].

27. Annual Operating Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's Southeast District Office by March 1st of each year.

APPLICABLE STANDARDS AND REGULATIONS

1. Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-17, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 52, 60, 72, 73, and 75.

2. Applicable Requirements: Issuance of a permit does not relieve the owner or operator of an emissions unit from complying with any applicable requirements, any emission limiting standards or other requirements of the air pollution rules of the Department or any other such requirements under federal, state, or local law, notwithstanding that these applicable requirements are not explicitly stated in this permit. In cases where there is an ambiguity or conflict in the specific conditions of this permit with any of the above-mentioned regulations, the more stringent local, state, or federal requirement applies.
[Rules 62-204.800 and Rules 62-210.300 and 62-4.070 (3) F.A.C.]

3. Construction Authorization: The permittee is authorized to construct/install:

   a. EU 001: A combined cycle unit consisting of a General Electric Model PG7241FA gas turbine-electrical generator set, an unfired heat recovery steam generator (HRSG), and a steam turbine-electrical generator set. The combined cycle unit shall be designed as a system to generate a nominal 170 MW of shaft-driven electrical power and less than 75 MW of steam-generated electrical power. power generation facilities consisting of three simple cycle combustion turbines with a nominal generating capacity of 170 MW each. (The unit is also subject to Subpart GG of 40 CFR 60, an NSPS for gas turbines as specified in Appendix GG of this permit.)

   b. EU 002: One nominal 975,000-gallon distillate fuel oil storage tank. This unit is subject to NSPS requirements as stated in Section III, Specific Condition No.3. {Permitting Note: Tanks store fuel with relatively low Reid Vapor Pressure. Potential VOC emissions are expected to be less than 0.5 tons per year.}

   c. EU 003: One five-cell mechanical draft cooling tower with drift eliminators: This unit shall be designed and maintained to reduce drift to 0.0005 percent of the circulating water flow rate. {Permitting Note: Potential PM/PM_{10} emissions are expected to be less than 0.8 lb/hr and 3.5 ton/year}.

   d. EU 004: Ancillary equipment as follows:

      - One 500 MW Emergency Generator: This generator shall be operated with diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.1 for PM/PM_{10}, SO_2, or VOC, less than 4.0 for NO_X, and less than 1.1 for CO.}

- One 250 HP Diesel Fire Water Pump: This engine shall be operated with diesel fuel with a maximum sulfur content of 0.05%. {Permitting Note: Potential emissions in tons per year are expected to be less than 0.2 for PM/PM_{10}, 2.2 for NO_X, 0.5 for CO, 0.02 for SO_2 and 0.2 for VOC}
- One Aqueous Ammonia Storage Tank: This tank shall contain aqueous ammonia (less than 20 percent concentration by volume) and is not subject to applicable provisions of 40 CFR 68, Chemical Accident Provisions.
- One Exhaust Stack: The stack shall be approximately 170 feet tall and 18.5 feet in diameter. A separate bypass stack and damper may be installed to facilitate startup of the steam cycle while operating the combustion turbine in Low Emissions Modes 5, 5Q, and 6Q.

[Application, Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60 Subparts GG and Kb]

4. NSPS Requirements: The combined cycle gas turbine (Emissions Unit 001) shall comply with the applicable provisions of 40CFR60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The diesel fuel storage tank (Emissions Unit 002) shall comply with all applicable provisions of 40CFR60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels, adopted by reference in Rule 62-204.800, F.A.C. Emissions units subject to a specific NSPS subpart shall also comply with the applicable requirements of 40 CFR 60, Subpart A, General Provisions including:
   - 40CFR60.7, Notification and Recordkeeping
   - 40CFR60.8, Performance Tests
   - 40CFR60.11, Compliance with Standards and Maintenance Requirements
   - 40CFR60.12, Circumvention
   - 40CFR60.13, Monitoring Requirements
   - 40CFR60.19, General Notification and Reporting requirements

GENERAL OPERATION REQUIREMENTS

5. Authorized Fuels: The combined cycle gas turbine and ancillary units shall fire only pipeline-quality natural gas or diesel fuel containing no more than 0.05 percent sulfur by weight. [Rules 62-210.200 (Definitions - Potential Emissions) and 62-212.400, F.A.C.]

6. Combined Cycle Gas Combustion Turbine: The maximum heat input to the combined cycle gas turbine shall not exceed 1,680 million Btu per hour (mmBtu/hr) when firing natural gas nor 1,900 mmBtu/hr when firing distillate fuel oil. The heat input limits are based on the lower heating value (LHV) of each fuel, 100% load, and ambient conditions of 25°F temperature, 60% relative humidity, and 14.7 psi pressure. These maximum heat input rates will vary depending upon ambient conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other ambient conditions shall be provided to the Department within 45 days of completing the initial compliance testing. [Design, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

7. Hours of Operation: The combined cycle gas turbine may operate 8760 hours per year while firing natural gas. Diesel fuel firing shall not exceed 720 hours during any consecutive 12 months. Power augmentation while firing gas is permitted 2000 hours per year and is not limited if oxidation catalyst is installed. The 2000-hour limit may be revised at the request of the applicant based upon review of actual performance and control equipment cost-effectiveness following proper public notice.
[Applicant Request, Rule 62-210.200 (Definitions - Potential Emissions), F.A.C.]

CONTROL TECHNOLOGY

8. Automated Control System: The permittee shall install an automated gas turbine control system (Speedtronic™ Mark VI). The system shall monitor and control the gas turbine combustion process and operating parameters including, but not limited to: air/fuel distribution and staging, turbine speed, load conditions, temperatures, heat input, and fully automated startup/shutdown. [Design; 62-212.400(BACT), F.A.C.]

9. DLN Combustion Technology: The permittee shall install, tune, operate and maintain the General Electric Dry Low-NO_X combustion system (DLN 2.6 or better) to control NO_X emissions from the combined cycle gas turbine. Prior to the initial emissions performance tests for the gas turbine, the dry low-NO_X combustors and automated gas turbine control system shall be tuned to optimize the reduction of CO, NO_X, and VOC emissions.

   Thereafter, the system shall be maintained and tuned in accordance with the manufacturer's recommendations to minimize these pollutant emissions. The permittee shall provide at least 5 days advance notice prior to any tuning session. The permittee shall provide manufacturer's emissions performance versus load diagrams for the DLN and wet injection systems upon installation and completion of testing. [Design; Rule 62-212.400(BACT), F.A.C.]

10. Wet Injection: A wet injection system shall be installed for use during diesel fuel firing to reduce NO_X emissions from the combustion turbine exhaust entering the HRSG.
[Design, Rule 62-212.400, F.A.C.]

11. Selective Catalytic Reduction (SCR) System: The permittee shall install, optimize, operate and maintain an SCR system to control NO_X emissions from the combined cycle gas turbine. The SCR system consists of an ammonia injection grid, catalyst, aqueous ammonia storage, monitoring and control system, electrical, piping and other support equipment. The SCR system shall be designed to control NO_X emissions to the permitted levels with an ammonia slip no greater than 5 ppmvd corrected to 15% oxygen. [Design, Rule 62-212.400, F.A.C.]

12. Drift Eliminators: Drift eliminators shall be installed on the cooling tower to reduce PM/PM_{10} emissions.

EMISSION LIMITS AND STANDARDS

13. Nitrogen Oxides (NO_X) Emissions:

NO_X emissions are defined as oxides of nitrogen measured as NO_2.

a. **Performance Tests**:

When firing natural gas, NO_X emissions from the combined cycle gas turbine shall not exceed 2.5 ppmvd @ 15% oxygen nor 17.2 pounds per hour, based on a 24-hour average.

When firing distillate oil, NO_X emissions from the combined cycle gas turbine shall not exceed 10 ppmvd @ 15% oxygen nor 80 pounds per hour, based on a 24-hour average.

Compliance shall be determined in accordance with EPA Method 7E or Method 20 (40CFR60, Subpart GG).

b. **CEM System**:

When firing natural gas, NO_X emissions from the combined cycle gas turbine shall not exceed 2.5 ppmvd @ 15% oxygen, based on a 24-hour block average.

When firing distillate oil, NO_X emissions from the combined cycle gas turbine shall not exceed 10 ppmvd @ 15% oxygen, based on a 24-hour block average.

Compliance shall be determined by valid data from the required NO_X CEM system.

[Rule 62-212.400, F.A.C., BACT Determination]

14. Carbon Monoxide (CO) Emissions:

a. **Performance Tests**:

When firing natural gas (excluding operation in the Power Augmentation Mode), CO emissions from the combined cycle gas turbine shall not exceed 8 ppmvd @15% O_2 nor 31 pounds per hour, based on a 24-hour average.

When firing natural gas and operating in the Power Augmentation Mode, CO emissions from the combined cycle gas turbine shall not exceed 13 ppmvd @15% O_2 nor 50 pounds per hour, based on a 24-hour average.

When firing diesel fuel, CO emissions from the combined cycle gas turbine shall not exceed 17 ppmvd @15% O_2 nor 70 pounds per hour, based on a 24-hour average.

Compliance shall be determined in accordance with EPA Method 10.

b. **CEM System**:

When firing natural gas, (excluding operation in the Power Augmentation Mode), CO emissions from the combined cycle gas turbine shall not exceed 8 ppmvd @15% O_2 based on a 24-hour block average.

When firing natural gas and operating in the Power Augmentation Mode, CO emissions from the combined cycle gas turbine shall not exceed 13 ppmvd @15% O_2 based on a 24-hour block average.

When firing diesel fuel, CO emissions from the combined cycle gas turbine shall not exceed 17 ppmvd @15% O_2 at 90-100 percent of full load, 19 ppmvd @15% O_2 at 76-89 percent of full load nor 26 ppmvd @ 15% O_2 at 50-75 percent of full load based on a 24-hour block average.

Compliance shall be determined by valid data from the required CO CEM system.

[Rule 62-212.400, F.A.C, BACT Determination]

15. Sulfur Dioxide (SO_2) and Sulfuric Acid Mist Emissions (SAM): The fuel specifications listed Condition No. 4 of this section effectively limit the potential emissions of SO_2 and SAM. Compliance with the fuel sulfur limits shall be demonstrated by the fuel sampling, analysis, record keeping and reporting requirements of Condition No. 26 of this section. [Rule 62-212.400, F.A.C.; 40 CFR 60.333]
16. PM/PM_{10} and Visible Emissions (VE): When firing either natural gas or diesel fuel, visible emissions shall not exceed 10% opacity, based on a 6-minute average as determined by EPA Method 9. The fuel specifications in conditions No. 4 and 26 of this section combined with the efficient combustion design and good operating practices for the combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter.

    {Permitting Note: Particulate matter emissions are expected to be less than 11 pounds per hour when firing natural gas and less than 36 pounds per hour when firing diesel fuel, as determined by EPA Method 5, front-half catch only.} [Rule 62-212.400(BACT), F.A.C.]
17. Ammonia Emissions: The concentration of ammonia in the stack exhaust gas shall not exceed 5 ppmvd @15% O_2 as determined by EPA Method CTM-027. [Rules 62-4.070 and 62-212.400(BACT), F.A.C.]

COMPLIANCE DETERMINATION

18. Test Methods: Required tests shall be performed in accordance with the following reference methods.

EPA Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source • This is an EPA conditional test method. • The minimum detection limit shall be 1 ppm.
5	Determination of Particulate Matter Emissions from Stationary Sources • For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run. • For oil firing, the minimum sampling time shall be one hour per run and the minimum sampling volume shall be 30 dscf per run.
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

10	Determination of Carbon Monoxide Emissions from Stationary Sources • The method shall be based on a continuous sampling train. • The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines

Except for Method CTM-027, the methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CT-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". No other methods may be used for compliance testing unless prior written approval is received from the administrator of the Department's Emissions Monitoring Section in accordance with an alternate sampling procedure pursuant to 62-297.620, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

19. Testing Modes of Operation: The permittee shall conduct all required tests for each mode of operation defined below:
    a. **Standard Operation**: Separate tests shall be conducted when firing the combustion turbine with natural gas as well as low sulfur diesel fuel.
    b. **Alternate Mode of Operation**: Separate tests shall be conducted when firing the combustion turbine with natural gas and implementing the power augmentation mode with steam injection. Hourly rates of steam injection for power augmentation (pounds of steam) shall be restricted to the rates that demonstrated compliance during the test for this alternate mode of operation.

    The maximum steam injection rate (lb steam/hour) for power augmentation shall be established in the operation permit. Note: Alternate mode of operation is not allowed when firing low sulfur fuel oil. [Rule 62-4.070(3), F.A.C.]
20. Initial Compliance Tests: The combined cycle gas turbine shall be tested when firing each authorized fuel to demonstrate compliance with the emission standards for CO, NO_X, visible emissions and ammonia slip. The tests must be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of the combined cycle gas turbine.

    Tests for CO and NO_X shall be conducted concurrently. Certified CEM system data may be used to demonstrate compliance with all CO and NO_X standards.
    [Rule 62-297.310(7)(a)1., F.A.C.; 40 CFR 60.335]
21. Initial and Quarterly Ammonia Stack Compliance Tests: An initial and quarterly stack emissions test shall be conducted when firing natural gas and fuel oil to demonstrate compliance with the limit on ammonia slip. The initial and annual (one of the quarters) NO_X and ammonia tests shall be conducted at four points within the operating range of the gas turbine. The test results for ammonia slip shall also report the ammonia injection rates and average NO_X emissions during each test run. [Rules 62-4.070 (3) and 62-212.400(BACT), F.A.C.]

22. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combined cycle gas turbine shall be tested when firing natural gas to demonstrate compliance with the emission standards for CO, NO_X, ammonia slip and visible emissions. If the combined cycle gas turbine fires more than 200 hours of diesel fuel during the federal fiscal year, it shall also be tested for visible emissions and ammonia slip when firing oil. RATA data can substitute for annual compliance testing for CO and NO_X.

23. Tests After Substantial Modifications: All performance tests required for initial start up shall also be required by the Department after any substantial modifications (and shake down period not to exceed 100 days after re-starting the gas turbine) of air pollution control equipment such as installation of an oxidation catalyst or change of combustors. [Rule 62-4.070 (3) F.A.C]Compliance with the CO/NO_X Emissions Limits: Annual compliance with the applicable CO and NOx emissions standards shall also be demonstrated with valid data collected by the required CEM systems during the required annual RATA at permitted capacity. Refer to Specific Conditions 17 and 21. Continuous compliance shall be demonstrated as specified in Specific Conditon 29. [Rule 62-212.400(BACT) and 62-297.310(7)(a)4., F.A.C.]

24. Compliance with the Ammonia Emissions Limits: The permittee shall calculate and report the ppmvd ammonia slip @15% O_2 at the measured lb/hr emission rate as a means of compliance with the BACT standard. The compliance procedures are described in Specific Conditions 17 and 20. [Rule 62-212.400 F.A.C. (BACT)]

25. Compliance with the VE and PM/PM_{10} Emissions Limits: Compliance with the VE limits shall be demonstrated by stack tests. Compliance with the fuel specifications, CO standards, and visible emissions standards of this section shall serve as surrogate standards for particulate matter. [Rule 62-212.400 F.A.C. (BACT)]

26. Compliance with the SO_2/H_2SO_4- Fuel Sulfur Limits: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

    a. Compliance with the fuel sulfur limit for *natural gas* shall be demonstrated by keeping reports obtained from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM D4084-82, D3246-81 or more recent versions.

    b. Compliance with the *fuel oil* sulfur limit shall be demonstrated by taking a sample, analyzing the sample for fuel sulfur, and reporting the results to each Compliance Authority before initial startup. Sampling the fuel oil sulfur content shall be conducted in accordance with ASTM D4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, and one of the following test methods for sulfur in petroleum products: ASTM D129-91, ASTM D1552-90, ASTM D2622-94, or ASTM D4294-90. More recent versions of these methods may be used. For each subsequent fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor. At the request of a Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

EXCESS EMISSIONS

27. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction are prohibited. These emissions shall be included in the 24-hour compliance averages for NO_X and for CO emissions. [Rule 62-210.700(4), F.A.C.]

28. Excess Emissions Defined: During startup, shutdown, and documented unavoidable malfunction of the combined cycle gas turbine, the following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of operation. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such incidents.
    a. During startup and shutdown, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during any calendar day, which shall not exceed 20% opacity. Data for each 6-minute averaging period shall be exclusive from other 6-minute averaging periods.
    b. Best Operational Standard (Bypass Stack Option): The unit will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. Ammonia injection will be initiated within x, y, and z minutes for cold, warm, and hot startups respectively to minimize NO_X emissions. (Note: Times to be determined during public comment period)
    c. Best Operational Standard (No Bypass): The unit will reach Mode 5Q with x, y, and z minutes for cold, warm, and hot startups respectively (to minimize CO and NO_X emissions). Ammonia injection will be initiated within x, y, and z minutes for cold, warm, and hot startups respectively to minimize NO_X emissions. The following measures shall be employed following shutdowns to reduce subsequent excess startup emissions: (Note: Times and measures to be determined during public comment period)
    d. Low-Load Restriction: Except for startup and shutdown, operation under DLN Modes 1, 2, 3, and 4 is prohibited.
    e. In accordance with Condition No. 29 of this section, specific data collected by the CEM systems during startup, shutdown, malfunction, and tuning may be excluded from the CO and NO_X compliance averaging periods.

    If a CEM system reports emissions in excess of a 24-hour block emissions standard, the permittee shall notify the Compliance Authority within (1) working day with a preliminary report of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.

    [G.E. Combined Cycle Startup Curves Data and Rule 62-210.700, F.A.C.]

MONITORING REQUIREMENTS

29. Continuous Emission Monitoring System: The owner or operator shall install, calibrate, maintain, and operate a continuous emission monitoring (CEM) system in the exhaust stack of each emissions unit to measure and record the emissions of NO_X and CO from these emissions units in a manner sufficient to demonstrate compliance with the CEM emission standards of this permit. The oxygen content or the carbon dioxide (CO_2) content of the flue gas shall also be monitored at the location where NO_X and CO are monitored to correct the measured CO and NO_X emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated by the CEM system using F-factors that are appropriate for the fuel fired. The CEM system shall be used to demonstrate compliance with the CEM emission standards for NO_X and CO specified in this permit.

    a. *Data Collection.* Compliance with the CEM emission standards for NO_X and CO shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. Each hourly value shall be computed using at least one data point in each fifteen minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). The owner or operator shall use all valid measurements or data points collected during an hour to calculate the hourly averages. All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour. If the CEM system measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEM system shall be expressed as ppmvd, corrected to 15% oxygen.

    b. *NO_X Certification.* The NO_X monitor shall be certified and operated in accordance with the following requirements. The NO_X monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. For purposes of determining compliance with the CEM emission standards of this permit, missing data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E, of Appendix A of 40 CFR 60. The NO_X monitor shall be a dual range monitor. The span for the lower range shall not be greater than 10 ppm, and the span for the upper range shall not be greater than 30 ppm, as corrected to 15% O_2.

c. *CO, CO_2, and Oxygen Certification.* The CO monitor and CO_2 monitor shall be certified and operated in accordance with the following requirements. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. The CO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. The oxygen monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of section 7 shall be made each calendar quarter, and reported semi-annually to each Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps. The CO monitor shall be a dual range monitor. The span for the lower range shall not be greater than 20 ppm, and the span for the upper range shall not be greater than 60 ppm, as corrected to 15% oxygen. The RATA tests required for the CO_2 monitor shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60. The RATA tests required for the oxygen monitor shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.

d. *Data Exclusion.* Emissions data for NO_X, CO and CO_2 (or oxygen content) shall be recorded by the CEM system during episodes of startup, shutdown and malfunction. NO_X and CO emissions data recorded during these episodes may be excluded from the block average calculated to demonstrate compliance with the CEM emission standards as provided in this paragraph.

(1) Periods of data excluded for a cold startup shall not exceed four hours in any block 24-hour period. A "*cold startup*" is defined as a startup to combined cycle operation following a complete shutdown lasting at least 48 hours.

(2) Periods of data excluded for a warm startup shall not exceed two hours in any block 24-hour period. A "*warm startup*" is defined as a startup to combined cycle operation following a complete shutdown lasting 8 hours or more, but less than 48 hours.

(3) Periods of data excluded for a hot startup shall not exceed one hour in any block 24-hour period. A "*hot startup*" is defined as a startup to combined cycle operation following a complete shutdown lasting less than 8 hours.

(4) Periods of data excluded for a shutdown shall not exceed three hours in any block 24-hour period. A "*shutdown*" is the process of bringing a gas turbine off line and ending fuel combustion.

(5) Periods of data excluded for a documented unavoidable malfunction shall not exceed two hours in any 24-hour block period. A "*documented unavoidable malfunction*" is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.

(6) If the permittee provides at least five days advance notice prior to a *tuning session*, data may be excluded from the block average calculated to demonstrate compliance with the CEM emission standards. Periods of data excluded for such episodes shall not exceed a total of three hours in any 24-hour block period. Tuning sessions must be performed in accordance with the manufacturer's recommendations. No more than two tuning sessions are expected during any year.

All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented.

Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

e. *Data Exclusion Reports.* A summary report of duration of data excluded from the block average calculation, and all instances of missing data from monitor downtime, shall be reported semi-annually to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. For purposes of reporting "excess emissions" pursuant to the requirements of 40 CFR 60.7, excess emissions shall be defined as the hourly emissions which are recorded by the CEM system during periods of data excluded for episodes of startup, shutdown and malfunction, as allowed above. The duration of excess emissions shall be the duration of the periods of data excluded for such episodes. Reports required by this paragraph and by 40 CFR 60.7 shall be submitted no less than semi-annually, including semi-annual periods in which no data is excluded or no instances of missing data occur.

f. *Data Conversion.* Upon request from the Department, the CEM systems emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

g. *Availability.* The NO_X and CO monitor availability threshold shall not be less than 95% in any calendar quarter. The report required by this section shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the owner or operator shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The owner or operator shall implement the reported corrective actions within the next calendar quarter.

{Permitting Note 1: As required by EPA's March 12, 1993 determination, the NO_X monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NO_X emissions

concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.}

{Permitting Note 2: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

30. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, maintain and operate, an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet emissions limitations over the range of combustion turbine load conditions allowed by this permit by comparing NO_X emissions recorded by the NO_X monitor with ammonia flow rates recorded using the ammonia flow meter. During NO_X monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

31. SCR Operational Requirements: The SCR shall operate at all times that the turbine is operating, except during turbine start-up and shutdown periods, as dictated by the manufacturer's guidelines and in accordance with this permit. During turbine start-up, permittee shall begin use of SCR (i.e., commence ammonia injection) as soon as possible and within two (2) hours of the initial turbine firing or when the temperature of the catalyst bed reaches a suitable predetermined temperature level, whichever occurs first. During turbine shutdown, permittee shall discontinue use of the SCR (i.e., discontinue ammonia injection) when the catalyst bed temperature drops below the predetermined temperature levels, but no more than one hour prior to the time at which the fuel feed to the turbine is discontinued.

    Suitable temperature for activation and deactivation of the SCR shall be established during performance testing. The permittee shall, whenever possible, operate the facility in a manner so as to optimize the effectiveness of the SCR unit while minimizing ammonia slip to below the emission limit. Design, Rule 62-212.400, F.A.C.]

32. Fuel Consumption Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of consumption of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of the combined cycle gas turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction).

Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

33. Fuel Consumption Rates Monthly Monitoring: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption and hours of operation for the gas turbine. The information shall be recorded in a written (or electronic log) and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. [Rule 62-4.070(3), F.A.C.]

NOTIFICATION, REPORTING, AND RECORDKEEPING

34. Records: All measurements, records, and other data required to be maintained by CPV shall be recorded in a permanent form and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. These records shall be made available to DEP representatives upon request. [Rules 62-4.160 and 62-213.440, F.A.C]

35. NSPS Notifications: All notifications and reports required by the 40CFR 60, Subpart A applicable requirements shall be submitted to Compliance Authority.

36. Semi-Annual Reports: Semi-annual excess emission reports, in accordance with 40 CFR 60.7 (a)(7)(c) (2000 version), shall be submitted to each Compliance Authority.

37. Continuous Compliance with the 74.9 MW Steam Power Generated Limitation: Electrical power from the steam-electrical generator shall be limited to 74.9 MW (as measured at the generator) on an hourly basis. CPV Cana shall be capable of demonstrating to the Department, continuous compliance with the 74.9 MW rolling one-hour average limit by the stored information in the power plant's electronic data system.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, 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 any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.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.

G.5 This permit does not relieve the permittee from liability 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, or from penalties therefore; 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.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 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 where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee 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.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Determination of Best Available Control Technology (X)
b) Determination of Prevention of Significant Deterioration (X); and
c) Compliance with New Source Performance Standards (X).

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX GG
NSPS Subpart GG Requirements for Gas Turbines

NSPS SUBPART GG REQUIREMENTS

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in **bold** immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

11. Pursuant to 40 CFR 60.332 Standard for Nitrogen Oxides:

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) section shall comply with:

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

F = NOx emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.004+0.0067(N–0.1)
$N > 0.25$	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

Department requirement: While firing gas, the "F" value shall be assumed to be 0.

[Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" values provided by the applicant are approximately 10.0 for natural gas and 10.6 for fuel oil. The equivalent emission standards are 108 and 102 ppmvd at 15% oxygen. The emissions standards of this permit is more stringent than this requirement.]

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

12. Pursuant to 40 CFR 60.333, Standard for Sulfur Dioxide:

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

13. Pursuant to 40 CFR 60.334, Monitoring of Operations:

(b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

(1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.

Department requirement: The owner or operator is allowed to use vendor analyses of the fuel as received to satisfy the sulfur content monitoring requirements of this rule for fuel oil. Alternatively, if the fuel oil storage tank is isolated from the combustion turbines while being filled, the owner or operator is allowed to determine the sulfur content of the tank after completion of filling of the tank, before it is placed back into service.

[Note: This is consistent with guidance from EPA Region 4 dated May 26, 2000 to Ronald W. Gore of the Alabama Department of Environmental Management.]

(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

Department requirement: The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. The requirement to monitor the nitrogen content of fuel oil fired is waived because a NOx CEMS shall be used to demonstrate compliance with the NOx limits of this permit. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

[Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.]

(c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

Department requirement: NOx emissions monitoring by CEM system shall substitute for the requirements of paragraph (c)(1) because a NOx monitor is required to demonstrate compliance with the standards of this permit. Data from the NOx monitor shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

[Note: As required by EPA's March 12, 1993 determination, the NOx monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NOx emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.]

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

14. Pursuant to 40 CFR 60.335, Test Methods and Procedures:

(a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.

(b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.

(c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:

(1) The nitrogen oxides emission rate (NOx) shall be computed for each run using the following equation:

$$NOx = (NOxo)\,(Pr/Po)^{0.5}\, e^{19(Ho-0.00633)}\,(288°K/Ta)^{1.53}$$

where:

NOx = emission rate of NOx at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NOxo = observed NOx concentration, ppm by volume.

Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

Po = observed combustor inlet absolute pressure at test, mm Hg.

Ho = observed humidity of ambient air, g H_2O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

Department requirement: The owner or operator is not required to have the NOx monitor required by this permit continuously calculate NOx emissions concentrations corrected to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.

[Note: This is consistent with guidance from EPA Region 4.]

(2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

Department requirement: The owner or operator is allowed to conduct initial performance tests at a single load because a NOx monitor shall be used to demonstrate compliance with the BACT NOx limits of this permit.

[Note: This is consistent with guidance from EPA Region 4.]

(3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NOx emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

Department requirement: The owner or operator is allowed to make the initial compliance demonstration for NOx emissions using certified CEM system data, provided that compliance be based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed on the NOx monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.

[Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.]

(d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

Department requirement: The permit specifies sulfur testing methods and allows the owner or operator to follow the requirements of 40 CFR 75 Appendix D to determine the sulfur content of liquid fuels.

[Note: This requirement establishes different methods than provided by paragraph (d) above, but the requirements are equally stringent and will ensure compliance with this rule.]

(e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

CPV Cana Power Generating Facility
PSD-FL-323 and 1110103-001-AC
St. Lucie County, Florida

BACKGROUND

The applicant, CPV Cana, Ltd, proposes to install a construct a combined cycle power plant at a new facility in Port St Lucie, St Lucie County. The proposed project will result in "significant increases" with respect to Table 62-212.400-2, Florida Administrative Code (F.A.C.) of emissions of particulate matter (PM and PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2), sulfuric acid mist (SAM), and nitrogen oxides (NO_X). The project is therefore subject to review for the Prevention of Significant Deterioration (PSD) and a determination of Best Available Control Technology (BACT) in accordance with Rules 62-212.400, F.A.C.

The primary unit to be installed is a nominal 170 MW, General Electric 7FA combustion turbine-electrical generator, fired primarily with pipeline natural gas. The project includes an unfired heat recovery steam generator (HRSG) connected to a separate steam turbine-electrical generator. The project also includes a 975,000-gallon storage tank for backup No. 2 fuel oil, a mechanical draft cooling tower, a 170-foot stack, and other ancillary equipment. Descriptions of the process, project, air quality effects, and rule applicability are given in the Technical Evaluation and Preliminary Determination dated November 21, 2001 accompanying the Department's Intent to Issue.

BACT APPLICATION:

The application was received on September 5, 2001 (complete October 25) and included a proposed BACT proposal prepared by the applicant's consultant, TRC Environmental Corporation in Windsor, Connecticut.

BACT REQUESTED BY THE APPLICANT:

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED BACT LIMIT
Nitrogen Oxides	Selective Catalytic Reduction	2.5 ppmvd @15% O_2 (gas) 10 ppmvd@15% O_2 (oil)
Carbon Monoxide	Combustion Controls	9 ppmvd (gas) 20 ppmvd (oil)
Particulate Matter (front + back-half)	Inherently Clean Fuels Combustion Controls	20 lb/hr (gas) 53 lb/hr (oil)
Sulfur Dioxide Sulfuric Acid Mist	Low Sulfur Fuels	0.0065% sulfur (gas) 0.05% sulfur (oil)
All Pollutants from Auxiliary Units	Low Sulfur Fuels Drift Eliminators on cooling tower	0.0065% sulfur (gas) 0.05% sulfur (oil) 0.0005 percent drift

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation 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.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES:

The minimum basis for a BACT determination is 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines (NSPS). The Department adopted subpart GG by reference in Rule 62-204.800, F.A.C. The key emission limits required by Subpart GG are 75 ppmvd NO_X @ 15% O_2 (assuming 25 percent efficiency) and 150 ppmvd SO_2 @ 15% O_2 (or <0.8% sulfur in fuel). The BACT proposed by the CPV is consistent with the NSPS, which allows NO_X emissions in the range of 110 ppmvd for the high efficiency unit to be purchased by CPV. No National Emission Standard for Hazardous Air Pollutants exists for stationary gas turbines.

There is a National Emission Standard for Hazardous Air Pollutants (NESHAP) under development by EPA, but it is not applicable to this project. Because emissions of HAP are less than 10 tons per year, there is no requirement to conduct a case-by-case maximum achievable control technology determinaion.

DETERMINATIONS BY STATES:

The following table is a sample of information on some recent applications, proposals, and determinations in Florida (primarily) for combined cycle projects. The CPV Cana Project is included for reference.

TABLE 1

RECENT NO_X EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS IN THE SOUTHEAST

Project Location	Capacity Megawatts	NO_X Limit ppmvd @ 15% O_2 and Fuel	Technology	Comments
CPV Cana	245	2.5 – NG 10 – FO	SCR	170 MW GE 7FA CT. Under Review
CPV Pierce	245	2.5 – NG 10 – FO	SCR	170 MW GE 7FA CT. Issued 7/2001
El Paso Manatee	250	2.5 – NG	SCR	175 MW GE 7FA CT. Draft 9/2001
El Paso Belle Glade	250	2.5 – NG	SCR	175 MW GE 7FA CT. Draft 9/2001
El Paso Broward	250	2.5 – NG	SCR	175 MW GE 7FA. Draft 8/2001
Metcalf Energy, CA	600	2.5 – NG	SCR	2x170 MW WH501F & Duct Burners
Enron/Ft. Pierce	~250	3.5 – NG 10 - FO	SCR	170 MW MHI501F CT. Repowering
CPV Atlantic	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT. Issued 5/2001
CPV Gulfcoast	245	3.5 – NG 10 – FO	SCR	170 MW GE 7FA CT. Issued 2/2001
TECO Bayside	1750	3.5 – NG 12 - FO	SCR	7x170 MW GE 7FA CTs. Repowering
FPC Hines II	530	3.5 - NG 12 - FO	SCR	2x170 MW WH501F
Calpine Osprey	527	3.5 – NG	SCR	2x170 MW WH501F. Issued 7/2001
Calpine Blue Heron	1080	3.5 – NG	SCR	4x170 MW WH501F. Draft 2/00
KUA Cane Island 3	250	3.5 – NG (12 – simple cycle) 15 - FO	SCR	170 MW GE 7FA. 11/99 DLN on simple cycle
Lake Worth LLC	250	9 or 3.5 – NG 9.4 or 3.5 – NG (CT&DB) 42 or 16.4 - FO	DLN or SCR DLN or SCR WI or SCR	170 MW GE 7FA. 11/99 Increase allowed for DB under DLN.
Miss Power Daniel	1000	3.5 – NG	SCR	4x170 MW GE 7FA CTs. 11/98

DB = Duct Burner
NG = Natural Gas
FO = Fuel Oil
DLN = Dry Low NO_X Combustion
SCR = Selective Catalytic Reduction
WI = Water or Steam Injection
GE = General Electric
WH = Westinghouse
CT = Combustion Turbine

TABLE 2

RECENT CO, VOC, AND PM EMISSION LIMIT PROPOSALS AND DETERMINATIONS FOR "F-CLASS" COMBINED CYCLE PROJECTS

Project Location	CO - ppmvd (or lb/mmBtu)	VOC - ppmv (or lb/mmBtu)	PM - lb/mmBtu (or gr/dscf or lb/hr)	Technology and Comments
CPV Cana	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Pierce	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
El Paso Belle Glade	9 (7.4 @15% O_2) 15 (12 @15% O_2) (PA)	1.4 - NG	20 lb/hr – (Front & Back) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
El Paso Manatee	9 (7.4 @15% O_2) 15 (12 @15% O_2) (PA)	1.4 - NG	20 lb/hr – (Front & Back) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
El Paso Broward	9 (7.4 @15% O2) 15 (12 @15% O2) (PA)	1.4 - NG	20 lb/hr – (Front & Back) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Metcalf Energy, CA	6 - NG (100% load)	.00126 lb/mmBtu-NG	12 lb/hr – NG (w DB) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Enron Ft. Pierce	3.5 - NG 10 - Low Load 8 - FO	2.2 - NG 16 – Low Load 10 - FO	10% Opacity	Oxidation Catalyst Clean Fuels Good Combustion
CPV Atlantic	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
CPV Gulfcoast	9 - NG (50 - 100% load) 15 - NG (PA) 20 – FO	1.4 – NG 3.5 FO	11 lb/hr – NG (front) 36 lb/hr – FO (front) 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
TECO Bayside	9 – NG (24-hr CEMS) 20 – FO (24-hr CEMS)	1.3 – NG 3 - FO	12 lb/hr – NG 30 lb/hr - FO	Clean Fuels Good Combustion
FPC Hines II	16 - NG (24-hr CEMS) 30 – FO (24-hr CEMS)	2 – NG 10 – FO	10% Opacity – NG 5/9 ammonia – NG/FO	Clean Fuels Good Combustion
Calpine Osprey	10 – NG 17 – NG (DB&PA)	2.3 – NG 4.6 – NG (DB&PA)	24 lb/hr – NG (DB&PA) 10 percent Opacity 9 ppmvd Ammonia Slip	Clean Fuels Good Combustion
Calpine Blue Heron	10 – NG (24-hr CEMS) 17 – NG (DB&PA)	1.2 – NG 6.6 – NG (DB&PA)	32 lb/hr – NG (DB&PA) 10 percent Opacity 5 ppmvd Ammonia Slip	Clean Fuels Good Combustion
KUA Cane Island 3	10 - NG (CT) 20 - NG (CT&DB) 30 - FO	1.4 - NG (CT) 4 - NG (CT&DB) 10 - FO	10% Opacity	Clean Fuels Good Combustion
Lake Worth LLC	9 - NG (CT) 15 – NG (CT & DB) 20 - F.O. (3-hr)	1.4 - NG (CT) 1.8 - NG (CT & DB) 3.5 – F.O.	10% Opacity	Clean Fuels Good Combustion
Miss Power Daniel	~15 - NG(CT) ~25 – NG(DB & CT	~8 - NG(CT) ~12 – NG(CT & DB)	0.010 lb/mmBtu – (CT) 0.011 lb/mmBtu -(CT/DB) 10% Opacity	Clean Fuels Good Combustion

All of the projects listed above control SO_2 and sulfuric acid mist by limiting the sulfur content of the fuel. In every case, pipeline quality natural gas is used and has a sulfur content less than 2 grains per 100 cubic feet. In some cases, the limits are even lower or are expressed in different terms. However all ultimately rely on a fairly uniform gas distribution network and have very little flexibility in actually controlling sulfur content. Similarly, emissions of these two pollutants are controlled by using 0.05 percent sulfur distillate fuel oil.

Some of the projects listed above include front and back half catch for PM limits. Therefore comparison is not simple.

REVIEW OF NITROGEN OXIDES CONTROL TECHNOLOGIES:

Some of the discussion in this section is based on a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas Turbines. Project-specific information is included where applicable.

Nitrogen Oxides Formation

Nitrogen oxides form in the gas turbine combustion process as a result of the dissociation of molecular nitrogen and oxygen to their atomic forms and subsequent recombination into seven different oxides of nitrogen. *Thermal NO_X* forms in the high temperature area of the gas turbine combustor. Thermal NO_X increases exponentially with increases in flame temperature and linearly with increases in residence time. Flame temperature is dependent upon the ratio of fuel burned in a flame to the amount of fuel that consumes all of the available oxygen.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_X formation. *Prompt NO_X* is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_X is relatively small in near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_X control by lean combustion.

In all but the most recent gas turbine combustor designs, the high temperature combustion gases are cooled to an acceptable temperature with dilution air prior to entering the turbine (expansion) section. The sooner this cooling occurs, the lower the thermal NO_X formation. Cooling is also required to protect the first stage nozzle. When this is accomplished by air-cooling, the air is injected into the component and is ejected into the combustion gas stream, causing a further drop in combustion gas temperature. This, in turn, lowers achievable thermal efficiency for the unit.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_X formation can be appreciated from Figure 1 which is from a General Electric discussion on these principles.

Fuel NO_X is formed when fuels containing bound nitrogen are burned. This phenomenon is not important when combusting natural gas.

Uncontrolled NO_X concentrations from combustion turbines would be from 100 to over 600 parts per million by volume, dry, corrected to 15 percent oxygen (ppmvd @15% O_2). The Department estimates uncontrolled NO_X concentrations at approximately 200 ppmvd @15% O_2 for the turbine of the CPV Cana Project.

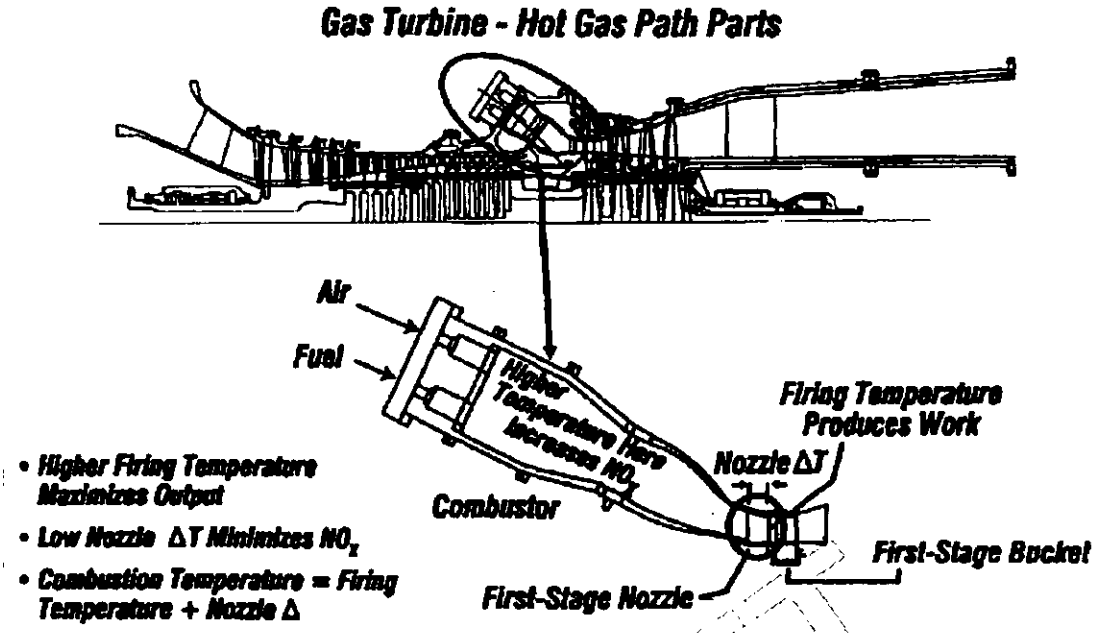

Figure 1 – Relation Between Flame Temperature and Firing Temperature

NO_X Control Techniques

Wet Injection

Injection of either water or steam directly into the combustor lowers the flame temperature and thereby reduces thermal NO_X formation. Typical emissions achieved by wet injection are in the range of 15–25 ppmvd when firing gas and 42 ppmvd when firing fuel oil in large combustion turbines. These values often form the basis, particularly in combined cycle turbines, for further reduction to BACT limits by other techniques. Carbon monoxide (CO) and hydrocarbon (HC) emissions are relatively low for most gas turbines. However steam and (more so) water injection may increase emissions of both of these pollutants.

Combustion Controls: Dry Low NO_X (DLN)

The excess air in lean combustion cools the flame and reduces the rate of thermal NO_X formation. Lean premixing of fuel and air prior to combustion can further reduce NO_X emissions. This is accomplished by minimizing localized fuel-rich pockets (and high temperatures) that can occur when trying to achieve lean mixing within the combustion zones.

The above principle is incorporated into the General Electric DLN-2.6 can-annular combustor shown in Figure 2. Each combustor includes six nozzles within which fuel and air have been fully pre-mixed. There are 16 small fuel passages around the circumference of each combustor can known as quarternary fuel pegs. The six nozzles are sequentially ignited as load increases in a manner that maintains lean pre-mixed combustion and flame stability.

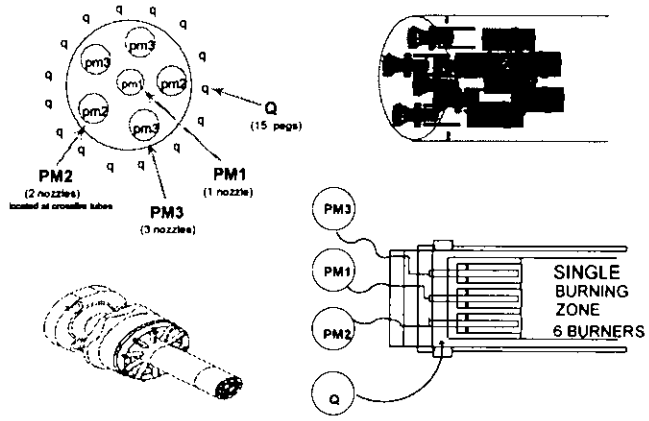

Figure 2 – DLN-2.6 Fuel Nozzle Arrangement

Design emission characteristics of the DLN-2.6 combustor while firing natural gas are given in Figure 3 for a unit tuned to meet a 15 ppmvd NO_X limit (by volume, dry corrected to at 15 percent oxygen) at JEA's Kennedy Station. The combustor can be tuned differently to achieve emissions as low as 9 ppmvd of NO_X.

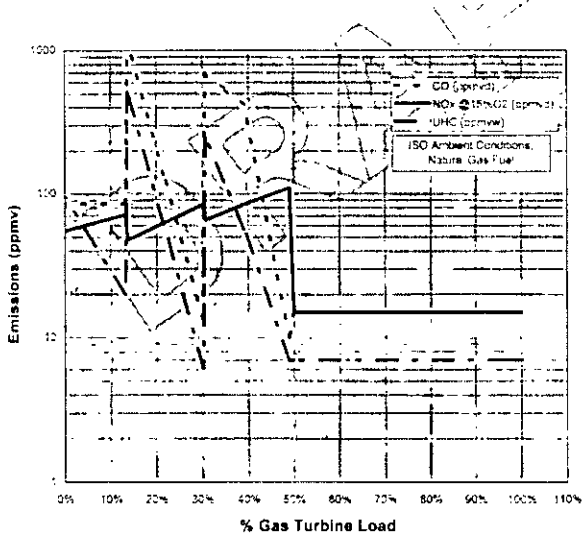

Figure 3 – Emissions Characteristics for DLN-2.6 (if tuned to 15 ppmvd NO_X)

The combustor emits NO_X at concentrations of 15 ppmvd at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppmvd may occur at less than 50 percent of capacity. Note that VOC comprises a very small amount of the "unburned hydrocarbons" which in turn is mostly non-VOC methane.

Following are the results of the new and clean tests conducted on a dual-fuel GE PG7241FA combustion turbine operating in combined cycle mode and burning natural gas at the City of Tallahassee Purdom Station Unit 8.[1] The DLN 2-6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 12 ppmvd. The results are all superior to the emission characteristics given in Figure 3 above.

Table 1 - City of Tallahassee Purdon Power Plant (Station Unit 8) Test Results

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)
70	7.2	
80	6.1	
90	6.6	
100	8.7	0.85
Limit	12	25

Following are the results of the new and clean tests conducted on a dual-fuel GE PG7241FA combustion turbine operating in simple cycle mode and burning natural gas at the Tampa Electric Polk Power Station.[2] The DLN 2-6 combustors for this project were guaranteed to achieve 9 ppmvd of NO_X while burning natural gas although the permit limit is 10.5 ppmvd. Again, the results are all superior to the emission characteristics given in Figure 3 above.

Table 2 - Tampa Electric Polk Power Station Test Results

Percent of Full Load	NO_X (ppmvd @15% O_2)	CO (ppmvd)	VOC (ppmvd)
50	5.3	1.6	0.5
70	6.3	0.5	0.4
85	6.2	0.4	0.2
100	7.6	0.3	0.1
Limit	10.5	15	7

Recent conversations with other operators indicate that the Low NO_X characteristics extend to operations somewhat less than 50 percent of full load, though such operation is not (yet) guaranteed by GE.[3]

Emissions characteristics by wet injection NO_X control while firing oil are shown in Figure 4 for the DLN-2.0, a predecessor of the DLN2-6. Operation on fuel oil is not in the premixed mode. Specialized premixed DLN burners for fuel oil operation were installed in a project in Israel[4] where water is scarce, but the Department has no information on the results.

Mitsubishi (who also make a 501F) is also developing a dual-fuel premixed DLN. Optimization of premix fuel-air nozzle and performance was verified in high-pressure combustion tests. Commissioning tests on gas and oil burning were completed at an undesignated site.[5] The details are not available in English.

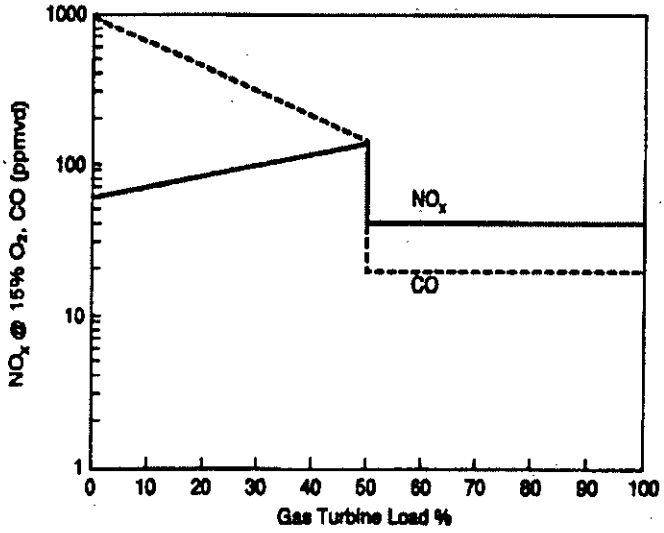

Figure 4 - Emissions Performance for DLN-2 Combustors Firing Fuel Oil in Dual Fuel GE 7FA Turbine

An important consideration is that power and efficiency are sacrificed in the effort to achieve low NO_X by combustion technology. This limitation is seen in Figure 5 from an EPRI report.[6] Basically developments such as single crystal blading, aircraft compressor design, high technology blade cooling have helped to greatly increase efficiency and lower capital costs. Further improvements are more difficult in large part because of the competing demands for air to support lean premix combustion and to provide blade cooling. New concepts are under development by GE and the other turbine manufacturers to meet the challenges implicit in Figure 5.

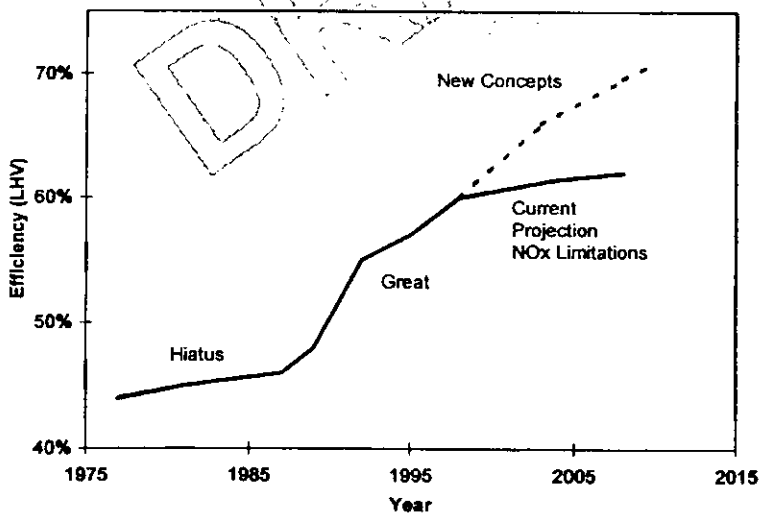

Figure 5 – Efficiency Increases in Combustion Turbines

Further NO_X reductions related to flame temperature control are possible such as closed loop steam cooling. This feature is available only in larger units (Westinghouse G or General Electric H Class technology) than the units planned by CPV. The fluid is circulated through the internal portion of the nozzle component or around the transition piece between the combustor and the nozzle and does

not enter the exhaust stream. Instead it is normally sent back to a steam generator. The difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained.

Another important result of steam cooling is that a higher firing temperature can be attained with no increase in flame temperature. Flame temperatures and NO_X emissions can therefore be maintained at comparatively low levels even at high firing temperatures (refer back to figure 1). At the same time, thermal efficiency should be greater when employing steam cooling. A similar analysis applies to steam cooling around the transition piece between the combustor and first stage nozzle.

Catalytic Combustion: XONON ™

Catalytic combustion involves using a catalytic bed to oxidize a lean air and fuel mixture within a combustor instead of burning with a flame as described in the DLN technology above. In a catalytic combustor the air and fuel mixture oxidizes at lower temperatures, producing less NO_X.[7] In the past, the technology was not reliable because the catalyst would not last long enough to make the combustor economical.

There has been increased interest in catalytic combustion as a result of technological improvements and incentives to reduce NO_X emissions without the use of add-on control equipment and reagents. Westinghouse is working to replace the central pilot in its DLN technology with a catalytic pilot in a project with Precision Combustion Inc.

Catalytica has developed a system know as XONON™, which works by partially burning fuel in a low temperature pre-combustor and completing the combustion in a catalytic combustor. The overall result is low temperature partial combustion (and thus lower NO_X production) followed by flameless catalytic combustion to further attenuate NO_X formation.

In 1998, Catalytica announced the startup of a 1.5 MW Kawasaki gas turbine equipped with XONON™.[8] The turbine is owned by Catalytica and is located at the Gianera Generating Station of Silicon Valley Power, a municipally owned utility serving the City of Santa Clara, California. Previously, this turbine and XONON™ system had successfully completed over 1,200 hours of extensive full-scale tests at a project development facility in Oklahoma, which documented XONON's ability to limit emissions of NO_X to less than 3 ppmvd.

Recently, Catalytica and GE announced that the XONON™ combustion system has been specified as the *preferred* emissions control system with GE 7FA turbines that have been ordered for Enron's proposed 750 MW Pastoria Energy Facility.[9] The project was expected to enter commercial operation by the summer of 2001. However actual installation of XONON on the Pastoria project is doubtful.

In principle, XONON™ will work on a combined cycle project. However, the Department does not have information regarding the status of the technology for fuel oil firing, cycling operations, or reasonable assurance that the technology is technically and economically feasible for a GE 7FA unit in an attainment area.

Selective Catalytic Combustion: SCR

Selective catalytic reduction (SCR) is an add-on NO_X control technology that is employed in the exhaust stream following the gas turbine. SCR reduces NO_X emissions by injecting ammonia into the flue gas in the presence of a catalyst. Ammonia reacts with NO_X in the presence of a catalyst and excess oxygen yielding molecular nitrogen and water. The catalysts used in combined cycle, low

temperature applications (conventional SCR), are usually vanadium or titanium oxide and account for almost all installations. For high temperature applications (Hot SCR up to 1100 °F), such as simple cycle turbines, zeolite catalysts are available but used in few applications to-date. SCR units are typically used in combination with wet injection or DLN combustion controls.

In the past, sulfur was found to poison the catalyst material. Sulfur-resistant catalyst materials are now becoming more available. Catalyst formulation improvements have proven effective in resisting sulfur-induced performance degradation with fuel oil in Europe and Japan, where conventional SCR catalyst life in excess of 4 to 6 years has been achieved, while 8 to 10 years catalyst life has been reported with natural gas.

Excessive ammonia use tends to increase emissions of CO, ammonia (slip) and particulate matter (when sulfur-bearing fuels are used).

Kissimmee Utilities Authority (KUA) will install SCR at the Cane Island Unit 3 project. The KUA project will meet a limit of 3.5 ppmvd with a combination of DLN and SCR. Permits were issued recently to Competitive Power Ventures (CPV), Calpine, Florida Power Corporation, and Tampa Electric to achieve 3.5 ppmvd. More recently a permit was issued to CPV for its Pierce, Polk County project with a limit of 2.5 ppmvd @15% O_2 by SCR. Draft permits were issued to El Paso for planned projects in Palm Beach, Manatee, and Broward Counties with a limit of 2.5 ppmvd @15% O_2 by SCR.

Figure 6 below is a diagram of a HRSG including an SCR reactor with honeycomb catalyst and the ammonia injection grid. The SCR system lies between low and high-pressure steam systems where the temperature requirements for conventional SCR can be met. Figure 7 is a photograph of FPC Hines Energy Complex. The external lines to the ammonia injection grid are easily visible. The magnitude of the installation can be appreciated from the relative size compared with nearby individuals and vehicles.

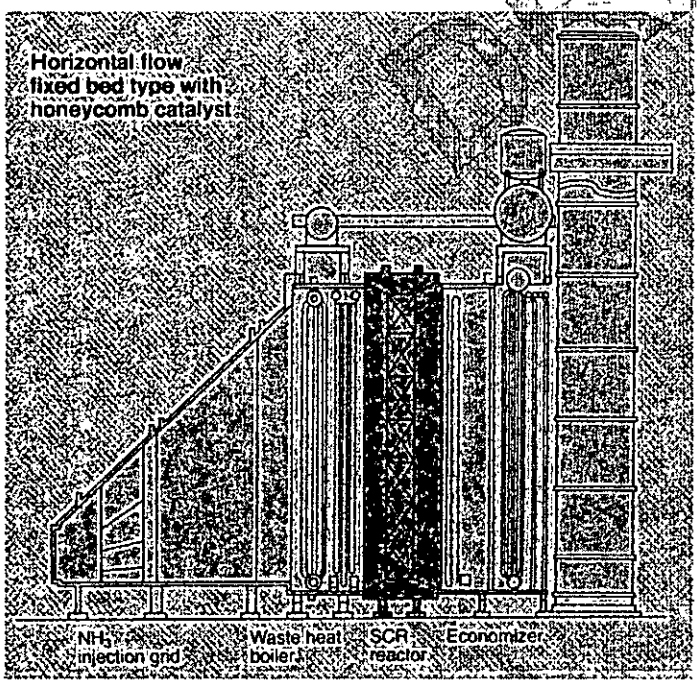

Figure 6 – SCR System within HRSG

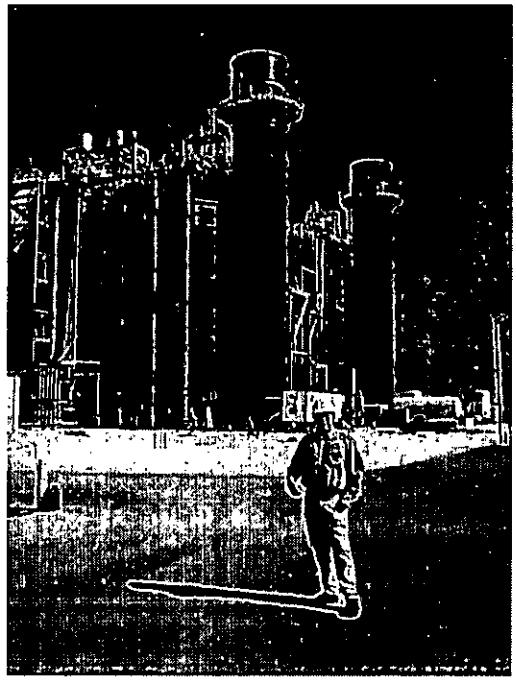

Figure 7 – FPC Hines Power Block I

Selective Non-Catalytic Reduction (SNCR)

Selective non-catalytic reduction works on the same principle as SCR. The differences are that it is applicable to hotter streams than conventional or hot SCR, no catalyst is required, and urea can be used as a source of ammonia. No applications have been identified wherein SNCR was applied to a gas turbine because the exhaust temperature of 1100 °F is too low to support the NO_X removal mechanism.

The acceptable temperature for the removal reactions is between 1400 and 2000 °F. Temperatures on the order of 1800 °F can be achieved in supplementally-fired HRSGs with very large duct burners. An example is the Santa Rosa Energy Center, which incorporates a 585-mmBtu/hr duct burner. SNCR is not feasible for un-fired HRSG planned for the CPV project.

$SCONO_X$™

$SCONO_X$ is a catalytic add-on technology (and registered trademark) that achieves NO_X control by oxidizing and then absorbing the pollutant onto a honeycomb structure coated with potassium carbonate. The pollutant is then released as molecular nitrogen during a regeneration cycle that requires dilute hydrogen gas. The technology has been demonstrated on small units in California and has been purchased for a small source in Massachusetts.[10]

California regulators and industry sources have stated that the first 250 MW block to install $SCONO_X$ will be at PG&E's La Paloma Plant near Bakersfield.[11] The overall project includes several more 250 MW blocks with SCR for control.[12] USEPA has identified an "achieved in practice" BACT value of 2.0 ppmvd over a three-hour rolling average based upon the recent performance of a Vernon, California natural gas-fired 32 MW combined cycle turbine equipped with $SCONO_X$™.

$SCONO_X$ technology (at 2.0 ppmvd) is considered to represent LAER in non-attainment areas where cost is not a factor in setting an emission limit. It competes with less-expensive SCR in those areas, but has the advantages that it does not cause ammonia emissions in exchange for NO_X reduction. Advantages of the $SCONO_X$ process include in addition to the reduction of NO_X, the elimination of ammonia and the control of VOC and CO emissions. $SCONO_X$™ has not been applied on any major sources in ozone attainment areas.

Recently EPA Region IX acknowledged that $SCONO_X$ was demonstrated in practice to achieve 2.0 ppmv NO_X.[13] Permitting authorities planning to issue permits for future combined cycle gas turbine systems firing exclusively on natural gas, and subject to LAER must recognize this limit which, in most cases, would result in a LAER determination of 2.0 ppmv. Recently, Goaline submitted information to EPA and states in support of its contention that the technology has achieved 1 ppmvd in practice.[14]

REVIEW OF SULFUR DIOXIDE (SO_2) AND SULFURIC ACID MIST (SAM)

SO_2 control processes can be classified into five categories: fuel/material sulfur content limitation, absorption by a solution, adsorption on a solid bed, direct conversion to sulfur, or direct conversion to sulfuric acid. A review of the BACT determinations for combustion turbines contained in the BACT Clearinghouse shows that the exclusive use of low sulfur fuels constitutes the top control option for SO_2.

For this project the applicant has proposed as BACT the use of 0.05% sulfur oil and pipeline natural gas. The applicant estimated total emissions for the project at 76 TPY of SO_2 and 8 TPY of SAM. The Department expects that emissions will be lower because of the limited oil consumption and because typical natural gas distributed in Florida contains less than the 0.0065% sulfur specification proposed as BACT.

REVIEW OF PARTICULATE MATTER (PM/PM_{10}) CONTROL TECHNOLOGIES:

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the design and operation of the NO_X controls. The particulate matter emitted from this unit will mainly be less than 10 microns in diameter (PM_{10}).

Natural gas and 0.05 percent sulfur No. 2 (or superior grade) distillate fuel oil will be the only fuels fired and are efficiently combusted in gas turbines. Such fuels are necessary to avoid damaging turbine blades and other components already exposed to very high temperature and pressure. Natural gas is an inherently clean fuel and contains no ash. The fuel oil to be combusted contains a minimal amount of ash and will be used for approximately 720 hours per year making any conceivable add-on control technique for PM/PM_{10} either unnecessary or impractical.

A technology review indicated that the top control option for PM/PM_{10} is a combination of good combustion practices, fuel quality, and filtration of inlet air. As previously mentioned, the NO_X control technology of SCR increases PM/PM_{10} emissions due to formation of ammonium nitrates and ammonium sulfates. The problem is more significant when firing fuel oil (despite the low sulfur specification). This effect will be minimized by limiting fuel oil firing to less than 720 hours per year and limiting ammonia emissions (slip) to 5 ppmvd.

Total annual emissions for this project are expected not to exceed 96 tons per year (including filterable and condensable particulate fractions as well as emissions from ancillary equipment emission units)

For the cooling tower, drift eliminators will be incorporated into the design specifications, which will limit drift from the cooling tower to less than 0.0005 percent of the circulating water flow rate. The dissolved and suspended solids in water are reported in the application as 4200 mg/l.

REVIEW OF CARBON MONOXIDE (CO) CONTROL TECHNOLOGIES

CO is emitted from combustion turbines due to incomplete fuel combustion. Most combustion turbines incorporate good combustion to minimize emissions of CO. There is a great deal of uncertainty regarding actual CO emissions from installed units. Despite the relatively high BACT limits typically proposed when using combustion controls, much lower emissions have actually been reported from several facilities without use of oxidation catalyst. For example, although Westinghouse does not offer a single digit CO guarantee on the 501F, the units installed at the FPC Hines Energy Complex achieved CO emissions in the range of 1-3 ppmvd on both gas and fuel oil.[15] As previously discussed, GE 7FA units achieved similar results when firing gas at the City of Tallahassee Purdom Unit 8 and the TECO Polk Power Station Unit 2.

CO emissions *should* be low (at least at full load) because of the very high combustion temperatures characteristic of "F-Class" turbines. It appears that contract writing has not yet "caught up" with the field experience to consistently guarantee low CO emissions for F-Class units, at least at high loads.

One alternative is to complete the combustion by installation of an oxidation catalyst. Among the most recently permitted projects with oxidation catalyst requirements are the 500 MW Wyandotte Energy project in Michigan, the El Dorado project in Nevada, Ironwood in Pennsylvania, Millenium in Massachusetts, and Sutter Calpine in California. The permitted CO values of these units are between 3 and 5 ppmvd. Catalytic oxidation was recently installed at a cogeneration plant at Reedy Creek (Walt Disney World), Florida to avoid PSD review, which would have been required due to increased operation at low load. Seminole Electric will install oxidation catalyst to meet the permitted CO limit at its planned 244 MW Westinghouse 501FD combined cycle unit in Hardee County, Florida.[16]

A recent draft permit was issued by the Department that limits CO to 3.5 ppmvd on a Mitsubishi 501F combustion turbine. Enron will install an oxidation catalyst at Ft. Pierce in order to avoid very high emissions at low load (<70 percent of full load). This results in the ability to meet the low level at full load. This would not have been a concern if the units were GE7FAs for the reasons discussed above.

A recent permit was issued by the Bay Area AQMD in California for the Metcalf Energy Center. The limit for CO is 6 ppmvd (at full load). No Catalyst is required. However it is doubtful that performance can be maintained at low load.

The limit proposed by CPV when firing natural gas is 9 ppmvd (equals 8 ppmvd @15% O_2) at the entire operating range between 50 and 100 percent of full load. This is consistent with the description of the DLN-2.6 technology. The expected results are 1-2 ppmvd and actually better than what the Enron and Metcalf projects will achieve across the 50-100 percent operating range.

A higher limit of 15 ppmvd (equals 13 ppmvd @15% O_2) is proposed during power augmentation. Under this mode, steam from the HRSG is re-injected into the combustors to boost power production. One consequence is that CO emissions can increase. The emission limit of 20 ppmvd (equals 17 ppmvd @15% O_2) during limited fuel oil firing appears reasonable, although much lower values are likely to be achieved.

Total annual emissions of CO for this project (including ancillary equipment emission units) are expected not to exceed 170 tons per year.

REVIEW OF VOLATILE ORGANIC COMPOUND (VOC) CONTROL TECHNOLOGIES

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. The high flame temperature is very efficient at destroying VOC. The applicant has proposed good combustion practices to control VOC. The limits proposed by CPV for this project are 1.4 ppmvw for gas and 3.6 ppmvw for oil firing. According to GE, VOC emissions less than 1.4 ppm were achieved during recent tests of the DLN-2.6 technology when firing natural gas.[17]

Based on the chosen equipment, the Department believes that annual VOC emissions will be less than 40 TPY. The applicant has estimated an annual emission level of 16 tons per year (including ancillary equipment emission units). Therefore, a BACT determination is not required.

BACKGROUND ON SELECTED GAS TURBINE

CPV plans to the purchase a 170 MW (nominal) General Electric 7FA combined cycle gas turbine with an unfired heat recovery steam generator (HRSG). Per the discussion above, such units are capable of achieving and have achieved (with DLN and SCR technology) all of the emission limits proposed by CPV as BACT.

The GE Speedtronic™ Mark VI Gas Control System will be used. This control system is designed to fulfill all gas turbine control requirements. These include control of liquid, gas, or both fuels in accordance with the requirements of the speed, load control under part-load conditions, temperature control under maximum capability conditions, or during start-up conditions. The Mark VI also monitors the DLN process and controls fuel staging and combustion modes to maintain the programmed NO_X values prior to the SCR unit.[18]

STARTUP AND SHUTDOWN EMISSIONS

The Department defines "Startup" as follows[19]:

"Startup" - The commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.

The Department permits excess emissions during startup and shut down as follows:[20]

Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.

The Department defines "Excess Emissions" as follows:[21]

"Excess Emissions" - Emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions which occur during startup, shutdown, sootblowing, load changing or malfunction.

The U.S. EPA Region IV office recently recommended that the Department consider "establishment of startup and shutdown BACT for CO and NO_X such as mass emission limits (e.g., pounds of emissions in any 24-hour period) that include startup and shutdown emissions, or future emission limits derived from monitoring results during the first few months of commercial operation."[22]

The Department reviewed a number of emission estimates and permit conditions addressing startup and shutdowns for projects in California, Georgia, Washington, and Mississippi and has determined that much of the information is based on estimates that are very difficult to verify.

A review of published General Electric information indicates that features are incorporated into the design of the DLN-2.6 technology specifically aimed at minimizing emissions. One of the key elements was to incorporate lean pre-mixed burning while operating the unit in low load and startup.[23] This is in contrast with the previous DLN-2.0 technology that relied on diffusion mode combustion at four of the burners in each combustor during startup and low load operation.

During startup of GE 7FA simple cycle unit, NO_X concentrations in the exhaust are greater than during full-load operation. The concentrations are estimated at 20 to 80 ppmvd @15% O_2 during the first 10 minutes or so after the unit is actually firing fuel. This occurs while only one to four of the six nozzles shown in Figure 2 are in operation on each combustor.

Within the following 5 minutes, the unit switches to Mode 5 (or 5 Q), during which NO_X concentrations are typically less than 10 ppmvd even though the unit is not yet at full load.[24] The Low-NO_X modes occur when at least the five outer nozzles are in operation.

The startup scenarios for a GE 7FA combined cycle unit are as follows:

Hot Start: One hour following a shutdown less than or equal to 8 hours.
Warm Start: Two hours following a shutdown between 8 and 48 hours.
Cold Start: Four hours following a shutdown greater than or equal to 48 hours.

During a combined cycle cold unit startup, the gas turbine will operate at a very low load (less than 10 percent) while the heat recovery steam generator and the steam turbine-electrical generator are heated up. During a portion of the 4 hour startup, emissions will be roughly 60 to 80 ppmvd NO_X @15% O_2. Once the HRSG is heated sufficiently, the ammonia system is turned on to abate emissions.

While NO_X emissions during the initial phase of startup (low load and no ammonia injection) are greater than during full load steady state operation, such startups are infrequent. Also, it is noted that such a cold startup would be preceded by a shutdown of at least 48 hours. Therefore the startup emissions would not cause annual emissions greater than the potential-to-emit under continuous operation. Similar analyses can be performed for warm startups and hot startups.

The combined cycle startup scenario described above can (at least in theory) be modified by use of a bypass stack and damper.[25] Under this scenario, the steam cycle can be slowly brought up to load while the gas turbine reaches full load as fast as it would under simple cycle mode. The exhaust gas can be modulated in such a fashion that the HRSG and steam turbine are ramped up slowly in accordance with their respective specifications. At the same time, the gas turbine will quickly accelerate to the DLN modes (5Q or 6Q) thus minimizing emissions. In this manner the startup NO_X and CO concentrations are reduced to the values observed during simple cycle startup. Thereafter the unit will exhibit the same characteristics (for about three hours) as a simple cycle unit in steady-state operation until the ammonia system is actuated.

Implementation of bypass modulation requires an additional stack and design features to minimize stratification and uneven heating of boiler tube bundles in the HRSG. The initial response from GE is that such a configuration at a project in Hungary resulted in equipment damage and leakage of exhaust gas to the atmosphere resulting in a significant loss in performance.[26]

The Department is gathering information from recently commissioned 7FA units to more accurately estimate startup emissions for NO_X and address carbon monoxide too.

DEPARTMENT BACT DETERMINATION

Following are the BACT limits determined for the CPV project assuming full load. Values for NO_X and CO are corrected to 15% O_2. The emission limits or their equivalents in terms of pounds per hour and NSPS units, as well as the applicable averaging times, are given in the permit Specific Conditions No. 13 through 17.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED BACT LIMIT
Nitrogen Oxides	Selective Catalytic Reduction	2.5 ppmvd @15% O_2 (gas) 10 ppmvd@15% O_2 (oil)
Carbon Monoxide	Combustion Controls	8 ppmvd @15% O_2 (gas) 13 ppmvd @15% O_2 (power augmentation) 17 ppmvd (oil)
Particulate Matter	Inherently Clean Fuels Combustion Controls Ammonia Slip < 5 ppmvd	11 lb/hr (gas) (front-half) 36 lb/hr (oil) (front-half) 10 percent Opacity
Sulfur Dioxide and Sulfuric Acid Mist	Low Sulfur Fuels	0.0065% sulfur (gas) 0.05% sulfur (oil)
All Pollutants from Auxiliary Units	Low Sulfur Fuels Drift Eliminators on cooling tower	0.0065% sulfur (gas) 0.05% sulfur (oil) 0.0005 percent drift

RATIONALE FOR DEPARTMENT'S DETERMINATION

- The Lowest Achievable Emission Rate (LAER) for NO_X is approximately 2 ppmvd at 15 percent oxygen (@15% O_2) while firing natural gas. It has been achieved at the 32 MW Federal Merchant Plant in Los Angeles. The owner, Goal Line, has requested recognition of a 1.3 ppmvd NO_X value as *achieved in practice*.
- There are several projects for large turbines requiring SCR with a NO_X emission limit of 2 ppmvd @15% O_2.
- The "Top" technology in a top/down analysis will achieve 2 ppmvd @15% O_2 by either $SCONO_X$ or SCR.
- CPV proposes a NO_X limit of 2.5 ppmvd (natural gas) and 10 ppmvd (fuel oil) @15% O_2. This is equal to the lowest emission rate in Florida and nearby states to-date
- CPV chose SCR over $SCONO_X$ for technical and economic reasons. CPV estimated the cost of NO_X control at $3,396 and $20,604 per ton of NO_X removed by SCR and $SCONO_X$ respectively.
- If the costs submitted by CPV were *doubled* to $ 6,792 per ton by SCR and halved to $ 10,302 per ton by $SCONO_X$, the former control technology would still be more cost-effective than the latter. The difference of approximately $4,000 per ton of NO_X removed is sufficient reason to select SCR over $SCONO_X$ for this project.
- The Department concludes that 2.5 ppmvd (natural gas) and 10 ppmvd (fuel oil) @15% O_2 (with 5 ppmvd ammonia slip) constitutes BACT for NO_X. This value for the SCR option takes into consideration the measurement uncertainties at low emission rates and minimizes the negative effects of ammonia emissions.
- The CO limits of 8 ppmvd @15% O_2 while firing natural gas and 13 ppmvd @15% O_2 under power augmentation are low and within the range of recent BACT determinations for combustion turbines in the Southeast. The CO limit during the limited hours of fuel oil firing will be set at 17 ppmvd @15% O2 (full load).

- The CO impact on ambient air quality is lower compared to other pollutants because the allowable concentrations of CO are much greater than for NO_X, SO_2, or PM_{10}.
- CPV estimated levelized costs for CO catalyst control at $2,852 to reduce emissions from the range of 8-17 ppmvd @15% O_2 to a 2-4 ppm range. In view of the performance of GE 7FA units cited in the discussion above (Tallahassee and TECO Polk Power data) without add-on control
  (~ 1 ppmvd), it appears to the Department that oxidation catalyst costs are substantially biased to the low side based on actual emissions.
- The Department will set CO limits reflecting the "new and clean test" guarantees rather than actual performance because GE will not (yet) guarantee the lower values. The Department will gather more information and may substantially reduce CO limits in future projects if such performance is maintained at the new installations throughout the state. The Department will also limit the extent to which CPV can operate in power augmentation mode to 2000 hours unless CPV installs oxidation catalyst or proves that actual performance is much better than guaranteed (thus rendering control not cost effective).
- There is no benefit is penalizing the applicant with a lower limit at this time just because the performance at another site was far better than guaranteed or expected. There also appears to be no benefit in installing a catalytic oxidation system. The applicant will install a continuous CO monitor. It is expected that data from continuous measurement will conclusively show that oxidation catalyst is not needed and is not cost effective for this project.
- BACT for sulfur oxides for this project (including the ancillary equipment) is the exclusive use of pipeline natural gas with a specification of 0.0065% sulfur (by weight) content (gas) and 0.05 % sulfur (by weight) content (oil).
- The Department agrees that inlet air filtration, good combustion, and use of inherently clean fuels constitute BACT for PM/PM_{10} for this project (including ancillary equipment emission units). Drift eliminators will be incorporated into the cooling tower design specifications to limit drift from the cooling tower to less than 0.0005 percent of the circulating water flow rate. Furthermore, the Department will set the ammonia limit at 5 ppmvd to minimize additional PM/PM_{10} formation.
- PM_{10} emissions will be very low and difficult to measure. The values of 11 and 36 lb/hr for natural gas and oil respectively will be included in the permit. These values include front-half catch only.
- The Department will set a visible emissions BACT limit at 10 percent. The Department will rely on VE observation as a surrogate for PM/PM_{10} BACT compliance (after the initial PM/PM_{10} test).

BACT EXCESS EMISSIONS APPROVAL

- Excess emissions may occur under the following startup scenarios:

Hot Start:	One hour following a shutdown less than or equal to 8 hours.
Warm Start:	Two hours following a shutdown between 8 and 48 hours.
Cold Start:	Four hours following a shutdown greater than or equal to 48 hours.

- The *starts* are defined by the amount of time the HRSG has been shutdown, following the normal (hot) shutdown procedure described by General Electric, prior to the startup.[27]
- Although startup and shutdown emissions are generally exempt, emissions during startup and shutdown are less than the NSPS limit of 110 ppmvd @15% O_2 (that applies during steady-state operation).
- The Department does not yet have sufficient information from field experience to set start-up and shutdown emissions limits. However, the modes that give rise to high NO_X concentration have been identified.
- Best Operational Standard – Startup BACT (Bypass Stack Option):

  The combustion turbine will start up and operate as a simple cycle unit and modulate exhaust to the HRSG. This requires installation of a bypass stack and damper.

  The unit will reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. Ammonia injection will be initiated within x, y, and z minutes for cold, warm, and hot startups respectively to minimize NO_X emissions. (Note: Times to be determined during public comment period)

  The Department does not have a cost estimate for the additional stack and design requirements, but believes the additional power and flexibility offered by full load simple cycle operation during the cold startup of the steam cycle will defray some of the additional costs.
- If the startup BACT described above is not feasible, then the applicant will submit an alternative Best Operational Practice. The procedure shall include features that minimize the time required to complete a startup following a shutdown. This could include installing dampers where necessary to reduce the rate of cooling when the unit is down. It shall include a more precise description regarding commencement of ammonia injection. The procedure (based on the following paragraph) shall be submitted prior to issuance of the final permit.
- Best Operational Standard – Startup BACT (No Bypass Stack):

  The unit will reach Mode 5Q with x, y, and z minutes for cold, warm, and hot startups respectively (to minimize CO and NO_X emissions). Ammonia injection will be initiated within x, y, and z minutes for cold, warm, and hot startups respectively to minimize NO_X emissions. The following measures shall be employed following shutdowns to reduce subsequent excess startup emissions: (Note: Times and measures to be determined during public comment period)
- The Department reserves the option of finalizing the Best Operational Standard for startup based on comments received during the comment period.
- The NO_X and CO monitors will provide information that will allow the Department to set startup emission limits at future projects.
- Oxidation catalyst can reduce CO emissions from startup. However, based on the few startups expected and the startup procedures to be implemented, oxidation catalyst will not be cost-effective in reducing CO emissions.
- Pursuant to the Rule 62-210.700 F.A.C., the Department through this BACT determination will allow excess emissions as follows:

Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction as defined in Rule 62-210.200 F.A.C., where emissions exceed the applicable NO_X standard. These excess emissions periods shall be reported as described in the permit. A valid hourly emission rate shall be calculated for each hour in which at least two NO_X concentrations are obtained at least 15 minutes apart [Rules 62-4.070 F.A.C., 62-210.700 F.A.C.]

COMPLIANCE PROCEDURES

The following compliance procedures apply to this BACT determination. The details are contained in the permit.

POLLUTANT	COMPLIANCE PROCEDURE
Visible Emissions (initial, annual)	Method 9
PM/PM_{10}	Method 5 (Front-half catch)
VOC	Method 25A corrected by methane from Method 18
CTM-027 (initial, quarterly, annual)	Procedure for Collection and Analysis of Ammonia in Stationary Sources
SO_2/SAM	Record keeping for the sulfur content of fuels delivered to the site
CO (initial, annual, CEMS)	Method 10; CO-CEMS (continuous 24-hr)
NO_X (continuous 24-hr)	NO_X CEMS, O_2 or CO_2 diluent monitor, and flow device as needed
NO_X (initial and annual)	Annual Method 20 (can use RATA if at capacity); Method 7E

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

A. A. Linero, P.E. Administrator, New Source Review Section
Teresa Heron, Review Engineer, New Source Review Section
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

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

Date:

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

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Department of Environmental Protection

Jeb Bush
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

David B. Struhs
Secretary

NOV 1 9 2001

Certified - Return Receipt Requested 7000 0600 0024 1598 1052

Gary A. Lambert, Vice President
CPV Cana, L.L.C.
35 Braintree Hill Office, Suite 107
Braintree, MA 02184

RE: CPV Cana Ltd.
Notice of Intent to Issue
Permit Number: ES 56-0186976-001

Dear Mr. Lambert:

Enclosed are the Notice of Intent to Issue and draft Environmental Resource Permit No ES 56-0186976-001 pursuant to Part IV of Chapter 373, Florida Statutes, and Title 62, Florida Administrative Code.

If you have any questions about this document, please contact me at 561/681-6640.

Sincerely,

Indarjit Jagnarine

Indarjit Jagnarine
Professional Engineer III
Submerged Lands & Environmental
Resources Program

Department of Environmental Protection

Jeb Bush
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

David B. Struhs
Secretary

NOTICE OF INTENT TO ISSUE
ENVIRONMENTAL RESOURCE PERMIT

In the Matter of an Application for Permit
and Water Quality Certification by:

APPLICANT: CPV Cana, Ltd.
35 Braintree Hill Office, Suite 107
Braintree, MA 02184

Attn.: Gary A. Lambert, Vice President

PROJECT: CPV Cana, Ltd.
Environmental Resource Permit Number: File No. ES 56-0186976-001
St. Lucie County

The Department of Environmental Protection gives notice of its intent to issue an environmental resource permit under Part IV of Chapter 373, Florida Statutes (F.S.), and Title 62, Florida Administrative Code (F.A.C.). A draft copy of permit is attached. Issuance of the environmental resource permit constitutes certification of compliance with state water quality standards pursuant to section 401 of the Clean Water Act, 33 U.S.C. 1341.

Where applicable, issuance of the environmental resource permit also constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Management Act.

I. DESCRIPTION OF THE PROPOSED ACTIVITY

CPV Cana, Ltd. proposes to construct and operate a peaking electric generating facility and associated infrastructure. The facility will be sited on a 61.54-acre parcel in St. Lucie County. To serve the proposed development, a surface water management system is designed to meet water quality and quantity requirements in accordance with the Environmental Resource Permit rules, regulations and criteria. No wetlands are proposed to be impacted for this project.

Activity Location: The facility is located at off Range Line Road, approximately 0.75 miles south of the intersection of Glades Cut-off and Range Line Road, St. Lucie County, in Section 01, Township 37 South, Range 38 East.

II. AUTHORITY FOR REVIEW

The Department has permitting authority under Part IV of Chapter 373, F.S., and Chapters 62-330, 62-341 and 62-343, F.A.C. The activity is not exempt from the requirement to obtain an environmental resource permit. Pursuant to operating agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing this application.

III. BACKGROUND AND BASIS FOR ISSUANCE

On July 3, 2001, the applicant, Mr. Gary A. Lambert, Vice President, CPV Cana, Ltd., applied for an Environmental Resource Permit (ERP) to construct and operate a surface water management system to serve the proposed electric generating facility located in St. Lucie County. This permit allows for construction of the CPV Cana, Ltd. energy generating facility and a surface water management system designed to meet water quality and quantity requirements in accordance with the Environmental Resource Permit rules, regulations and criteria. As outlined in the attached draft permit, the applicant has complied with the requirements of rule 40E-4 and 40E-40, Florida Administrative Code.

Based on the above, along with the general and specific conditions of the permit, the applicant has provided reasonable assurance that the construction and operation of the activity, considering the direct, secondary, and cumulative impacts, will comply with the provisions of Part IV of Chapter 373, F.S., and the rules adopted thereunder, including the Conditions for Issuance or Additional Conditions for Issuance of an environmental resource permit, pursuant to Part IV of Chapter 373, F.S., Chapters 62-330, and Sections 40E-4.301 and 40E-4.302, F.A.C. This project meets the presumptive water quality criteria of the SFWMD's Basis of Review. The construction and operation of this facility should therefore not result in violations of water quality standards. The applicant has also demonstrated that the construction of the activity, including a consideration of the direct, secondary, and cumulative impacts, is not contrary to the public interest, pursuant to paragraph 373.414(1)(a), F.S.

IV. PUBLICATION OF NOTICE

The Department has determined that the proposed activity, because of its size, potential effect on the environment or the public, controversial nature, or location, is likely to have a heightened public concern or likelihood of request for administrative proceedings. Under section 403.815 of the Florida Statutes and rule 62-103.150 of the Florida Administrative Code, you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice must be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of sections 50.011 and 50.031 of the Florida Statutes, in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used should be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant must provide proof of publication to:

Department of Environmental Protection
Southeast District
Environmental Resources Permitting
P.O. Box 15425
West Palm Beach, FL 33401

The proof of publication shall be provided to the above address within 7 days of publication. Failure to publish the notice and provide proof of publication within the allotted time shall be grounds for denial of the permit.

V. RIGHTS OF AFFECTED PARTIES

Under this intent to issue, the permit, No. ES 56-0186976-001, is hereby granted subject to the applicant's compliance with any requirement in this intent to publish notice of this intent in a newspaper of general circulation and to provide proof of such publication in accordance with section 50.051 of the Florida Statutes. This action is final and effective on the date filed with the Clerk of the Department unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this intent to issue automatically becomes only proposed agency action on the application, subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. When proof of publication is provided, if required by this intent, and if a sufficient petition is not timely filed, the permit, No. ES 56-0186976-001, will be executed. Because an administrative hearing may result in the reversal or substantial modification of this action, the applicant is advised not to commence construction or other activities until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time have expired and until the permit, No: No. ES 56-0186976-001, has been executed and delivered.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Mediation may also be pursued as specified below.

Under rule 62-110.106(4) of the Florida Administrative Code, a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the Department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a)(4), petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under section 120.60(3) of the Florida Statutes, must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under section 120.60(3) of the Florida Statutes, however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall 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 for an administrative hearing or pursue mediation as provided below within the appropriate time period shall constitute a waiver of those rights.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Under sections 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

In addition to petitioning for an administrative hearing, any person who has previously filed a petition for an administrative hearing may pursue mediation. If a written mediation agreement with all parties to the proceeding (i.e., the applicant, the Department, and any person who has filed a timely and sufficient petition for a hearing) is filed with the Department within 10 days after the deadline for filing a petition for an administrative hearing, the time limitations imposed by sections 120.569 and 120.57 shall be tolled to allow mediation to proceed. The agreement must contain all the information required by rule 28-106.404. The agreement must be received by the clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the deadline noted above. Pursuing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement.

Unless otherwise agreed by the parties, the mediation must be concluded within sixty 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. As noted above, persons seeking to protect their substantial interests that would be affected by such a final decision modified through mediation must file their petitions within 21 days of receipt or publication of this notice as provided above, or they shall be deemed to have waived their right to a proceeding under sections 120.569 and 120.57. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under sections 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 intent to issue a permit, No. ES 56-0186976-001, constitutes an order of the Department. Subject to the provisions of paragraph 120.68(7)(a) of the Florida Statutes, which may require a remand for an administrative hearing, the applicant 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 30 days from the date when the order is filed with the Clerk of the Department. The applicant, or any party within the meaning of section 373.114(1)(a) or 373.4275 of the Florida Statutes, may also seek appellate review of the order before the Land and Water Adjudicatory Commission under section 373.114(1) or 373.4275 of the Florida Statutes. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Executed in West Palm Beach, Florida.

RECEIVED
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BUREAU OF AIR REGULATION

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

11/19/01
Melissa L. Meeker Date
Director of District Management
(561) 681-6661

MLM/TR/VN/ij
Copies furnished to:

USACOE
Al Linero, DEP/TLH MS 5505
South Florida Water Management District - T. Waterhouse, P.E.
South Florida Water Management District – Jeff Rosenfeld
Department of Community Affairs
Richard Stalker – ERP/Compliance & Enforcement
Department of Community Affairs
Scott Glaubitz, B.S.E. Consultants, 312 South Harbor City Blvd., Suite #4, Melbourne Fl 32901

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **INTENT TO ISSUE** and all copies were mailed before the close of business on November 19, 2001, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, under section 120.52(7) of the Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 11/19/01
Clerk Date

Prepared by Indar Jagnarine and Victor Neugebauer

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE ENVIRONMENTAL RESOURCE PERMIT

The Department of Environmental Protection gives notice of its intent to issue an Environmental Resource Permit (File No. ES 56-0186976-001) to CPV Cana, Ltd. to construct an electric generating facility and associated infrastructure. The facility will be sited on a 61.54-acre parcel in St Lucie County. To serve the proposed development, a surface water management system is designed to meet water quality and quantity requirements in accordance with the Environmental Resource Permit rules, regulations and criteria. No wetlands are proposed to be impacted for this project.

The facility is located at off Range Line Road, approximately 0.75 miles south of the intersection of Glades Cut-off and Range Line Road, St. Lucie County, in Section 01, Township 37 South, Range 38 East.

The Department will issue the permit with attached conditions unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57 of the Florida Statutes, before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Petitions by the applicant or any of the parties listed below must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 14 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first.

Under section 120.60(3) of the Florida Statutes, however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall 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 request for mediation 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. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name, address, and telephone number of each petitioner; the Department 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 action;
(c) A statement of how each petitioner's substantial interests are affected by the Department 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 action;
(f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department action; and
(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

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. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation. The election may be accomplished by filing with the Department a mediation agreement with all parties to the proceeding (i.e., the applicant, the Department, and any person who has filed a timely and sufficient petition for a hearing). The agreement must contain all the information required by rule 28-106.404. The agreement must be received by the clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within ten days after the deadline for filing a petition, as set forth above. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement.

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 sections 120.569 and 120.57 for holding an administrative hearing and issuing a final order. Unless otherwise agreed by the parties, the mediation must be concluded within 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 seeking to protect their substantial interests that would be affected by such a modified final decision must file their petitions within 21 days of receipt of this notice, or they shall be deemed to have waived their right to a proceeding under sections 120.569 and 120.57. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under sections 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.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Florida Department of Environmental Protection, Southeast District Office, 400 N. Congress Avenue, 2nd Floor, West Palm Beach.

Department of Environmental Protection

Jeb Bush
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

David B. Struhs
Secretary

ENVIRONMENTAL RESOURCE PERMIT

PERMITTEE:
Gary A. Lambert
Vice President
CPV Cana, Ltd.
35 Braintree Hill Office, Suite 107
Braintree, MA 02184

Permit Number: ES 56-0186976-001
Date of Issue:
Expiration Date of Construction
Phase:
Project: CPV Cana, Ltd -ERP
County: St. Lucie DRAFT

This permit is issued under the authority of Part IV of Chapter 373, F.S., and Title 62, Florida Administrative Code (F.A.C.). The activity is not exempt from the requirement to obtain an Environmental Resource Permit. Pursuant to operating agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing and taking final agency action on this activity.

ACTIVITY DESCRIPTION:

CPV Cana, Ltd.. proposes to construct and operate an electric generating facility and associated infrastructure called CPV Cana, Ltd. The facility will be sited on a 61.54-acre parcel in St. Lucie County. To serve the proposed development, stormwater runoff from the power generating facility is designed to meet State and South Florida Water Management District (SFWMD) water quality and quantity requirements. No wetlands are proposed to be impacted for this project.

ACTIVITY LOCATION:

CPV Cana, Ltd. project is located at off Range Line Road, approximately 0.75 miles south of the intersection of Glades Cut-off Road and Range Line Road, St. Lucie County, in Section 01, Township 37 South, Range 38 East.

This permit also constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Management Act.

This permit also constitutes certification of compliance with water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341.

A copy of this authorization also has been sent to the U.S. Army Corps of Engineers (USACOE) for review. The USACOE may require a separate permit. Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency. You are hereby advised that

authorizations also may be required by other federal, state, and local entities. This authorization does not relieve you from the requirements to obtain all other required permits and authorizations.

The above named permittee is hereby authorized to construct the work shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof. **This permit is subject to the limits, conditions, and locations of work shown in the attached exhibits, and is also subject to the attached General Conditions (1-19) and Specific Conditions (1-10) which are a binding part of this permit.** You are advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities. Failure to comply with all drawings and conditions shall constitute grounds for revocation of the permit and appropriate enforcement action.

Operation of the facility is not authorized except when determined to be in conformance with all applicable rules and with the general and specific conditions of this permit, and as specifically described below.

SURFACE WATER SYSTEM DESIGN:

Project Area: 61.54 acres **Drainage Area**: 31.1 acres

Drainage Basin: SFWMD C-24

Receiving Body: Range Line Road, roadside ditch

Background: On July 3, 2001, the applicant, Mr. Gary A. Lambert, Vice President, CPV Cana Ltd. applied for an Environmental Resource Permit (ERP) to construct/operate a surface water management system to serve the proposed electric generating facility located in St. Lucie County. The proposed plant's steam generator will generate less than 75 megawatts and is, therefore, not required to be reviewed under the Florida Electrical Power Plant Siting Act.

Existing Facility: The site is an abandoned vegetable field/current pasture with one jurisdictional wetland associated with a cattle pond and two off-site jurisdictional wetlands with a small portion of each of the two wetlands encroaching into the site. The site's topography averages 26.5 to 27 feet NGVD. The site is currently zoned utility and industrial.

Proposed Facility:

Proposed Landuse Summary:

Landuse	Basin 1, acres	Basin 2, acres
Powerplant	23.3	-
Lakes (stormwater)	2.9	1.1
Swales	3.4	1
Un-developed	20.44	-
Landscape Buffer	1.3	1.9
Access Paving/Staging	-	6
Total	51.54	10.0

The facility's stormwater management system is designed to meet SFWMD C-24 allowable discharge criteria and water quality volumetric treatment requirements. The site is hydraulically separated into two drainage basins, Basin 1 and Basin 2. Stormwater from Basin 1 (power generating facility site) will be routed to the connected dry retention areas discharging to the on-site stormwater lakes and outfalls into Range Line Road swale via a single weir structure. Basin 2 consists of dry retention, wet detention, landscape areas, construction staging and construction employee parking. Stormwater from Basin 2 will be directed to grass retention areas to the wet detention system and outfalls into Range Line Road swale. The entrance road outside the property boundary is permitted by St. Lucie County.

There will be no chemical discharge to stormwater. All on-site chemicals or additives are stored under roof, on concrete flooring with containment and/or on skids in containment. All containment provides 110% volume.

Stormwater Management System Water Control Structure:

Identification	Structure Type	Elevation (feet NGVD)	Benchmark	Location
Basin 1	6.5 " orifice	26.0	Invert of flood Control Orifice	To Range Line Road, ditch
Basin 2	3" orifice	26.0	Invert of Flood Control Orifice	To Range Line Road, ditch

Basin Information:

Basin	Area (AC)	WSWT Elev. (ft NGVD)	Normal/Dry Ctrl Elev. (ft NGVD)	Method of Determination
Basin 1 & 2	61.54	25.5	26.0	Soil Survey

Discharge Rate: Flow control orifices will limit the discharge rate of stormwater to based on the SFWMD C-24 criteria as follows:

Design Storm Freq.: 10-yr, 3-day **Design Rainfall:** 7.34 inches

Basin	Allow Disch (cfs)	Method of Determination	Design Disch (cfs)	Design Stage (ft. NGVD)
1	1.47	Allowable Discharge – 30.25cfs/mi^2	1.41	27.91
2	.47	"	0.31	27.94

Water Quality: Treatment is provided in dry retention /detention areas computed as the first inch over the site.

Basin	Pervious Area Ac.	Impervious Area for water quality Ac.	Treatment Method	Volume Req'd (ac.ft)	Volume Prov'd (ac.-ft)
1	10.68	20.42	Dry retention	1.39	1.39
2	11.62	4.90	Dry detention	0.82	0.82

Minimum Building Floor Elevation:

The minimum elevation of paved drives/parking areas within Basin 1 is set at 30.5 feet NGVD, which is above the 10-year, 3 day stage of 27.91 feet NGVD. The minimum elevation of paved drives/parking areas within Basin 2 is set at 29.0 feet NGVD, which is above the 10-year, 3-day stage of 27.94 feet NGVD. The minimum elevation of building floors is set at 32.0 feet NGVD which is above the 100-year, 3-day, zero discharge stage of 29.69 feet NGVD.

Environmental Review: The project is located on 61.54 acres of agricultural pasture land. A cattle pond exists in the northern portion of the project site. The cattle pond is vegetated with various pasture grass species. Herbaceous wetlands exist at the border and cross over onto the project site. The on-site wetlands are dominated by Maidencane and sodgrasses. No wetland impacts are proposed. BMP'S such as slit fences and hay bails will be used to protect 40' to 50' wetland buffer areas during construction.

The upland vegetative community consists primarily of a shrub layer of Brazilian Pepper (Schinus terebinthifolius) and Wax Myrtle (Myrica cerifera). The ground cover consists primarily of Bahia (Paspalum notata) and Broomsedge (Andropogon virginicus) along with other forage grasses and sedges.

System Operation: CPV Cana, Ltd.

Water Use Permit Status: A water use permit has not been applied for. A water use permit will be submitted prior to 2002.

Water and Wastewater Supplier: Initially, Water from Floridan Aquifer will be treated for use and deep well for disposal and ultimately by the City of Port St. Lucie.

Save Our Rivers: This project is not within or adjacent to lands under consideration by the Save Our Rivers program.

Swim Basin: This project is not located within a Swim Basin

Right-of-way Permit Status: A right-of-way permit is not required from the South Florida Water Management District.

Well Field Zone of Influence: This project is not located within the zone of influence of a well-field.

GENERAL CONDITIONS:

(1) All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

(2) This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by the Department staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

(3) Activities approved by this permit shall be conducted in a manner which does not cause violations of state water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of state water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving water body exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

(4) The permittee shall notify the Department of the anticipated construction start date within 30 days of the date that this permit is issued. **At least 48 hours prior to commencement** of activity authorized by this permit, the permittee shall submit to the Department an "Environmental Resource Permit Construction Commencement" notice (Form No. 62-343.900(3), F.A.C.) indicating the actual start date and the expected completion date.

(5) When the duration of construction will exceed one year, the permittee shall submit construction status reports to the Department on an annual basis utilizing an "Annual Status Report Form" (Form No. 62-343.900(4), F.A.C.). Status Report Forms shall be submitted the following June of each year.

(6) **Within 30 days after completion of construction** of the permitted activity, the permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual as authorized by law, utilizing the supplied "Environmental Resource Permit As-Built Certification by a Registered Professional" (Form No. 62-343.900(5), F.A.C.). The statement of completion and certification shall be based on on-site observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the Department that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawing. All surveyed dimensions and elevations shall be certified by a registered surveyor.

(7) The operation phase of this permit shall not become effective until the permittee has complied with the requirements of condition (6) above, has **submitted a "Request for Transfer of Environmental Resource Permit Construction Phase to Operation Phase" (Form No. 62-343.900(7), F.A.C.)**; the Department determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the Department in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications Within the South Florida Water Management District - August 1995, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the Department, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 62-343.110(1)(d), F.A.C., the permittee shall be liable for compliance with the terms of the permit.

(8) Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

(9) For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the Department along with any other final operation and maintenance documents required by sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications Within the South Florida Water Management District - August 1995, prior to lot or unit sales or prior to the completion of the system, whichever occurs first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State where

appropriate. For those systems which are proposed to be maintained by the county or municipal entities, final operation and maintenance documents must be received by the Department when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

(10) Should any other regulatory agency require changes to the permitted system, the permittee shall notify the Department in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

(11) This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C.

(12) The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

(13) The permittee is advised that the rules of the South Florida Water Management District require the permittee to obtain a water use permit from the South Florida Water Management District prior to construction dewatering, unless the work qualifies for a general permit pursuant to subsection 40E-20.302(4), F.A.C., also known as the "No Notice" rule.

(14) The permittee shall hold and save the Department harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

(15) Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.

(16) The permittee shall notify the Department in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of section 62-343.130, F.A.C. The permittee transferring the permit shall remain

liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

(17) Upon reasonable notice to the permittee, Department authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

(18) If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate Department office.

(19) The permittee shall immediately notify the Department in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIFIC CONDITIONS:

1. **Zoning.** The site is currently zoned utility and industrial. Prior to construction of the power plant, the applicant shall obtain the required zoning approval for the proposed electric power facility.

2. **Surface water management system.** The surface water system shall be constructed as shown in the attached exhibits. The dry detention basin bottom elevation shall be at 27.0 feet NGVD.

3. There shall be no chemical discharge to stormwater. Stormwater runoff collected in secondary containment storage shall not be disposed into the stormwater system.

4. **Sedimentation Controls.** Silt screens, hay bales or other such sediment control measures shall be utilized during construction. The selected sediment control measures shall be installed around the perimeter of the area to be developed. All areas shall be stabilized and vegetated immediately after construction to prevent erosion.

5. **Maintenance of Storm Drainage System.** Maintenance of the stormwater system is the responsibility of CPV Cana Ltd. A maintenance schedule shall be implemented to ensure that the stormwater management system is functioning as designed.

6. **Exotic Species.** The permittee shall maintain the project sites free from the invasion or establishment of the plants listed on the current year's Florida Exotic Pest Plant Council's Category I Invasive Exotic Species list (copy attached).

7. **Dewatering.** Dewatering activity may require an Industrial Wastewater permit (Tim Powell @ 561/681-6684, DEP/West Palm Beach) and SFWMD approval. Within 30 days of receipt of a dewatering permit, the permittee shall submit a copy of the permit to the Department (ATTN: Stormwater Section).

8. **Additional Water Quality Requirement.** The Department reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

9. **Drawings and Attachments.** Attached Drawing exhibits and DEP forms: 62-343.900(3), (4), (5), (7), and (8) F.A.C., are hereby attached to and become part of this permit.

10. **Compliance with General Conditions.** The permittee shall be aware of and operate under the attached general limiting conditions. General conditions are binding upon the permittee and enforceable pursuant to Chapters 403 and 373 of the Florida Statutes.

Executed in West Palm Beach, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

DRAFT

Melissa L. Meeker **Date**
Director of District Management
Southeast District

MLM/TR/vn/ij

Copies furnished to:
USACOE
Al Linero, DEP/TLH
Department of Community Affairs
South Florida Water Management District - T. Waterhouse, P.E.
South Florida Water Management District – Jeff Rosenfeld
Dennis Murphy, St. Lucie County Richard Stalker, ERP/Compliance & Enforcement
Scott Glaubitz, B.S.E. Consultants, 312 South Harbor City Blvd., Suite #4, Melbourne Fl 32901

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this permit and all copies were mailed to the above listed persons before the close of business on _____.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(11),
Florida Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.

_____

Clerk Date

Prepared by Indar Jagnarine, P.E. and Victor Neugebauer, ES II

CPV CANA, LTD.

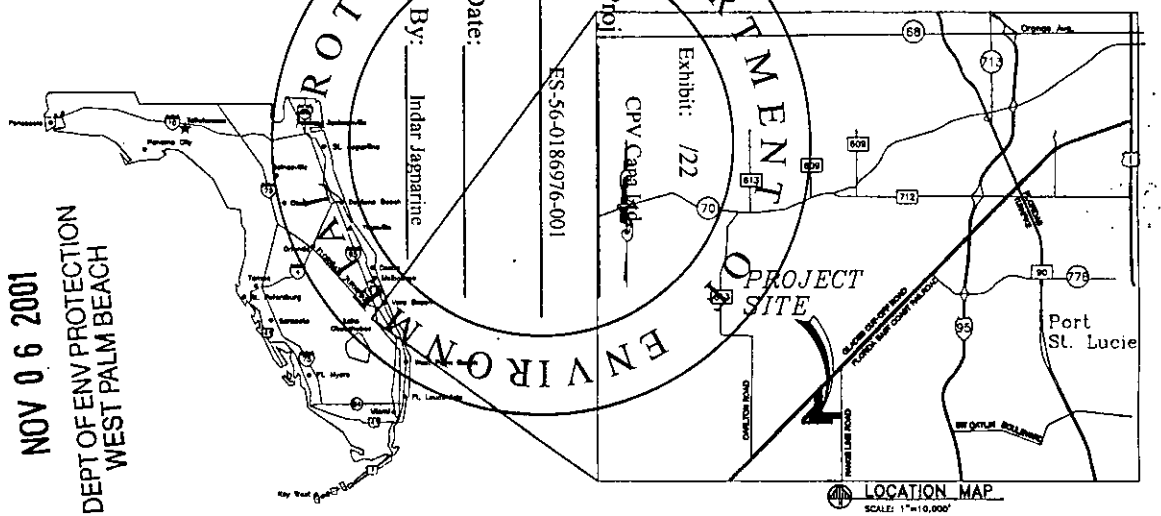
ST. LUCIE COUNTY, FLORIDA
SECTION 1, TOWNSHIP 37 SOUTH, RANGE 38 EAST

INDEX TO DRAWINGS

SHEET NO.	DWG. NO.	DWG. TITLE
1	10553401	COVER SHEET
2	10553402	OVERALL SITE PLAN
3	10553403	SITE PLAN
4	10553404	SITE PLAN
5	10553405	OVERALL UTILITY PLAN
6	10553406	UTILITY PLAN
7	10553407	UTILITY PLAN
8	10553408	OVERALL DRAINAGE PLAN
9	10553409	DRAINAGE PLAN
10	10553410	DRAINAGE PLAN
11	10553411	OVERALL LANDSCAPE PLAN
12	10553412	LANDSCAPE PLAN
13	10553413	LANDSCAPE PLAN
14	10553414	OVERALL IRRIGATION PLAN
15	10553415	IRRIGATION PLAN
16	10553416	IRRIGATION PLAN
17	10553417	SITE LIGHTING PLAN
18	10553418	CROSS SECTIONS
19	10553419	PAVING AND DRAINAGE DETAILS
20	10553420	POTABLE WATER DETAILS
21	10553421	SANITARY SEWER DETAILS
22	10553422	DEWATERING PLAN
23	10553100	BOUNDARY SURVEY - AREA 1
24	10553110	BOUNDARY SURVEY - AREA 2
25	10553425	EXISTING CONDITIONS
26	10553426	TREE SURVEY AREA 1 & AREA 2
27	10553427	SITE WITH AERIAL OVERLAY
28	10553428	SITE WITH TREE OVERLAY
29	10553429	GENERAL NOTES
30	10553430	GENERAL NOTES

RECEIVED
NOV 06 2001
DEPT OF ENV PROTECTION
WEST PALM BEACH

ENVIRONMENTAL PROTECTION DEPARTMENT
Proj:
Date:
By: Indar Jagnarine
ES-56-0186976-001
Exhibit: /22
CPV Cana Ltd.



LOCATION MAP
SCALE: 1"=10,000'

ENGINEERS

B.S.E. CONSULTANTS, INC.
312 S. HARBOR CITY BLVD., SUITE 4
MELBOURNE, FLORIDA 32901
PHONE (321) 725-3674
FAX (321) 723-1159

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CPV CANA, LTD.
C/O COMPETITIVE POWER VENTURES, INC.
35 BRAINTREE HILL OFFICE PARK, SUITE 107
BRAINTREE, MA 02184
(CONTACT) PETER J. PODURGIEL
PHONE (781) 848-0253

LEGAL

MOYLE FLANIGAN KATZ RAYMOND & SHEEHAN P.A.
625 NORTH FLAGLER DRIVE, 9TH FLOOR
WEST PALM BEACH, FLORIDA 33401
PETER BRETON
PHONE (561) 822-0385

ENVIRONMENTAL PERMITTING CONSULTANT

THE LOUIS BERGER GROUP, INC.
75 SECOND AVE., SUITE 700
NEEDHAM, MA 02494
NEIL COLLINS
PHONE (781) 444-3330

ARCHITECT

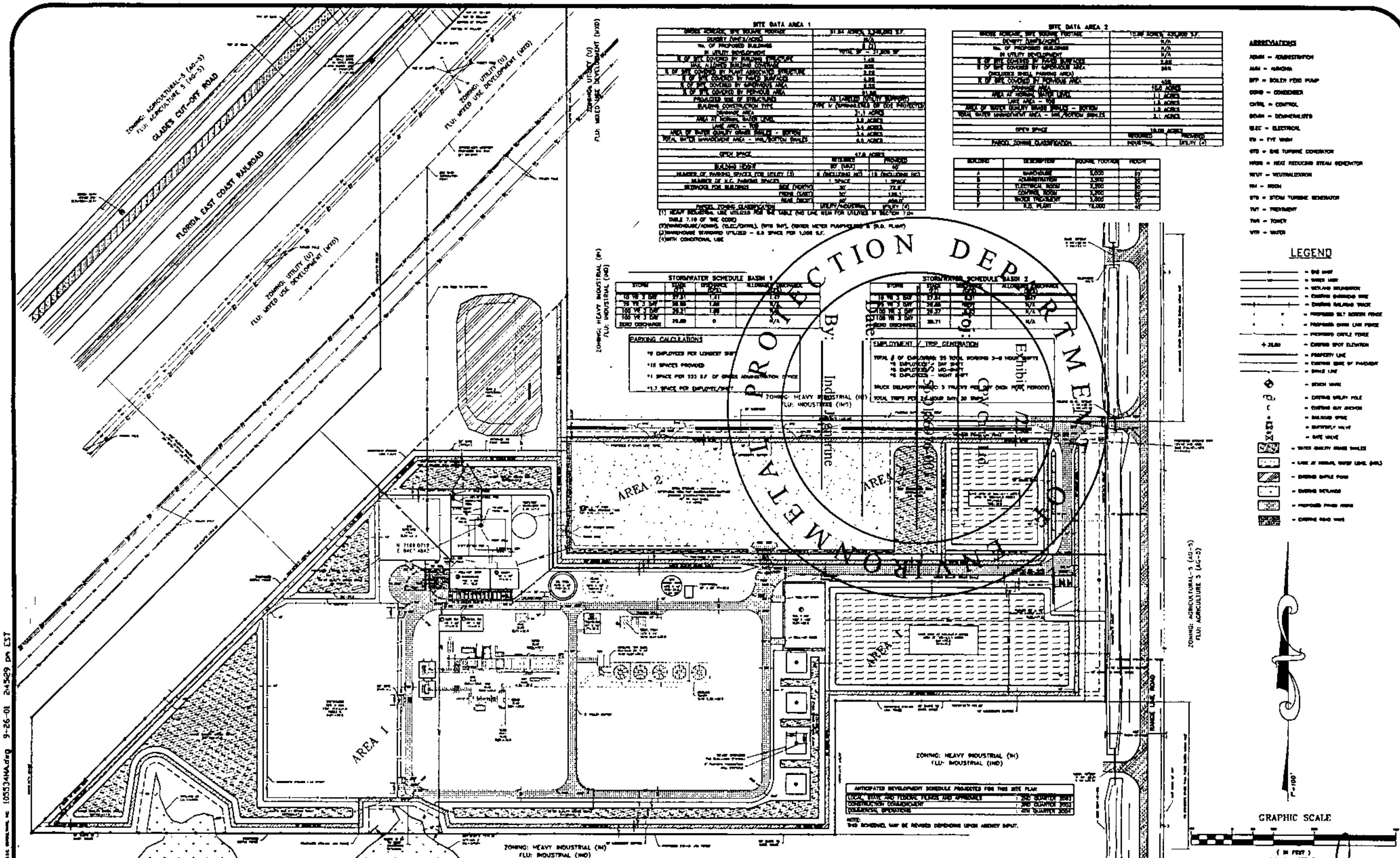
AEP PRO SERVE 'NORTHEAST
119 GANNETT DRIVE
SOUTH PORTLAND, ME 04106
KEITH PRICE
PHONE (207) 541-5800

REVISION: COUNTY COMMENTS - 7/20/2001

SHEET 1 OF 30

PROJECT NO. 10553 DRAWING NO. 10553401

NOV 05 2001


SITE DATA AREA 1
SITE DATA AREA 2
ABBREVIATIONS
LEGEND
STORMWATER SCHEDULE BASIN 1
STORMWATER SCHEDULE BASIN 2
PARKING CALCULATIONS
EMPLOYMENT / TRIP GENERATION
GLADES CUT-OFF ROAD
FLORIDA EAST COAST RAILROAD
AREA 1
AREA 2
ZONING: HEAVY INDUSTRIAL (IH)
FLU: INDUSTRIAL (IND)
ZONING: UTILITY (U)
FLU: MIXED USE DEVELOPMENT (MXD)
ZONING: AGRICULTURAL-5 (AG-5)
FLU: AGRICULTURE 5 (AG-5)
RANGE LINE ROAD
GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.
PROTECTION DEPARTMENT OF ENVIRONMENTAL

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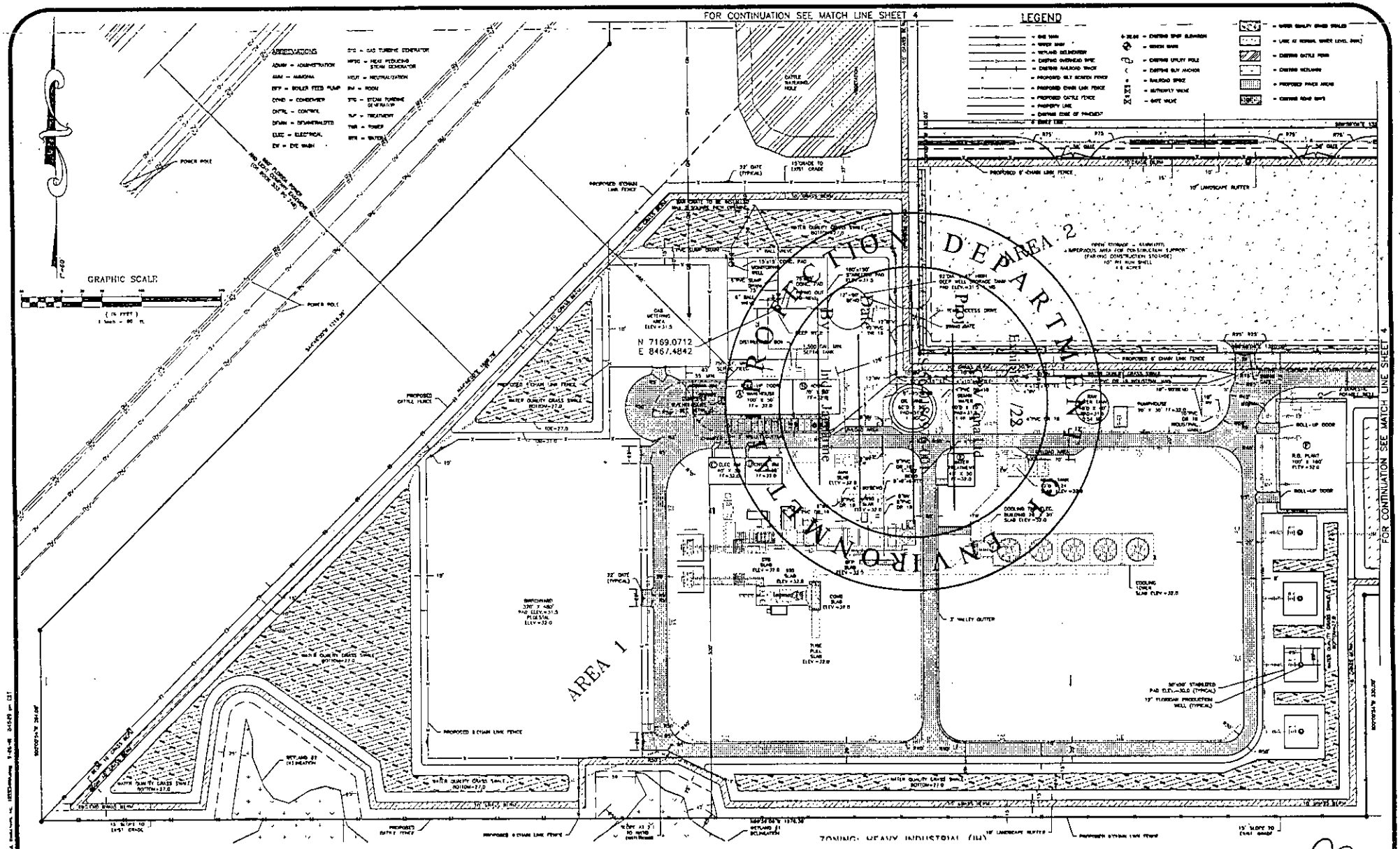
OVERALL SITE PLAN
AREA 1-BASIN 1, AREA 2-BASIN 2

DRAWN: SWC DATE: 4/12/01
CHECKED: DATE: 4/12/01

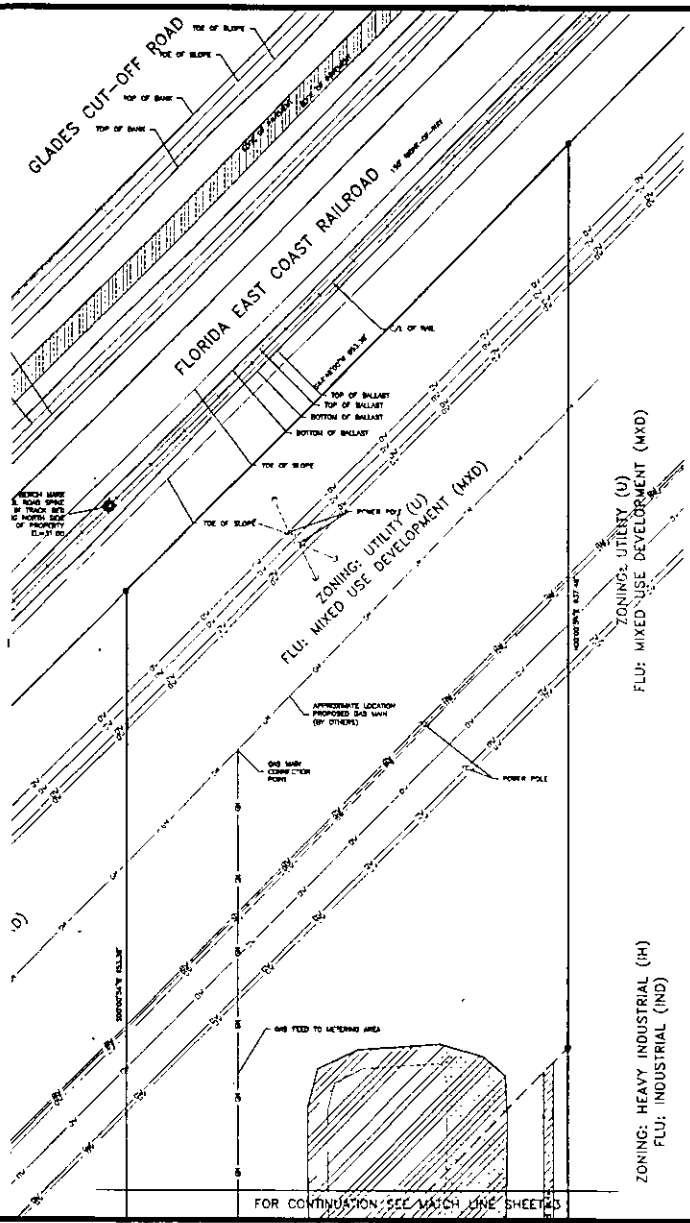
10553-4NA.dwg 9-26-01 2:45:29 pm EST

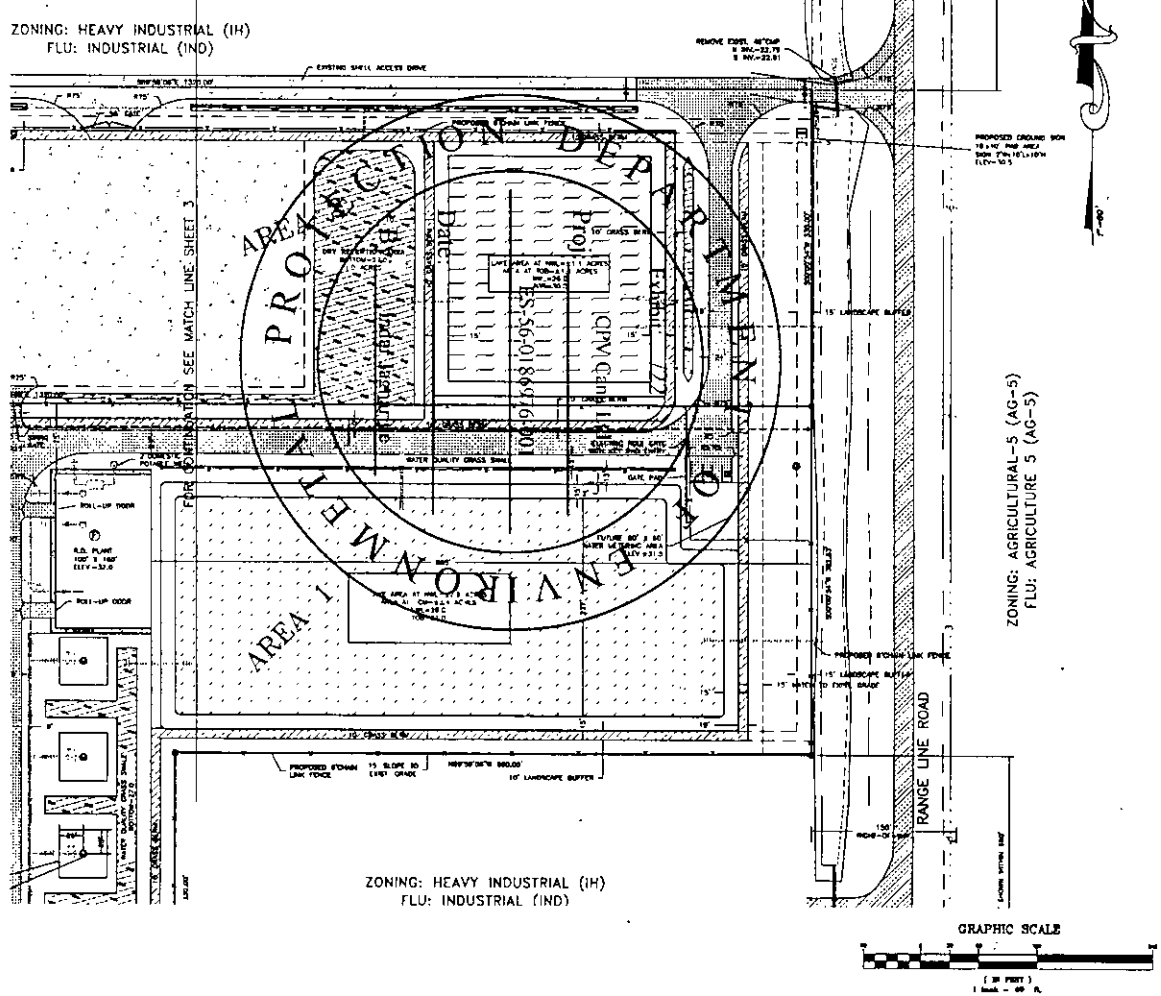
NOV 05 2001



CPV CANA, LTD.	B.S.E. CONSULTANTS, INC. CONSULTING, ENGINEERING, LAND SURVEYING 312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674	SITE PLAN AREA 1–BASIN 1, AREA 2–BASIN 2

NOV. 6 2001





REVISIONS	
3	8/13/01
2	7/20/01
1	4/06/01
DESIGN	DATE 4/13/01
DRAWN	DATE 4/13/01
CHECKED	DATE

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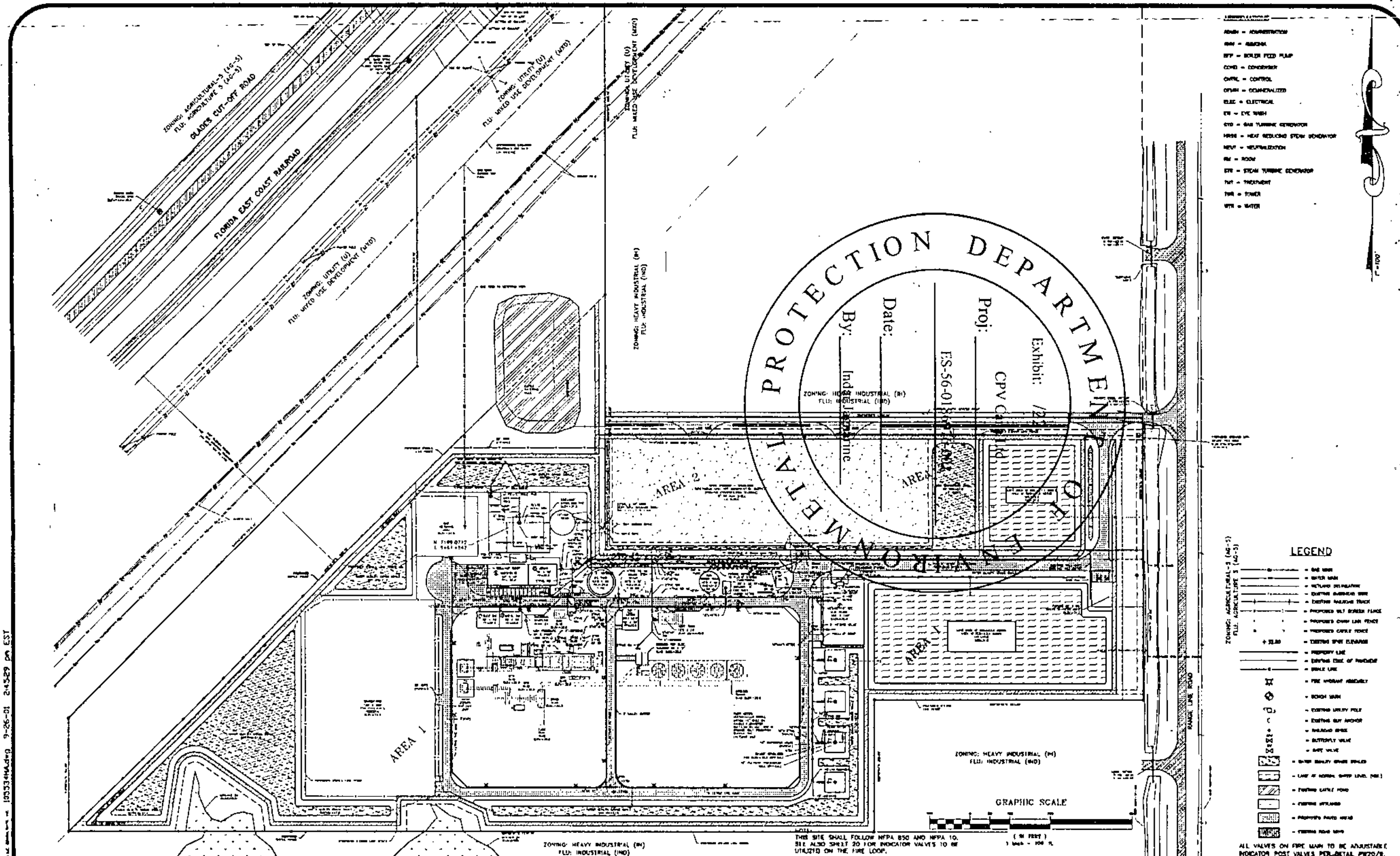
SITE PLAN
AREA 1–BASIN 1, AREA 2–BASIN 2

NOV 0 5 2001



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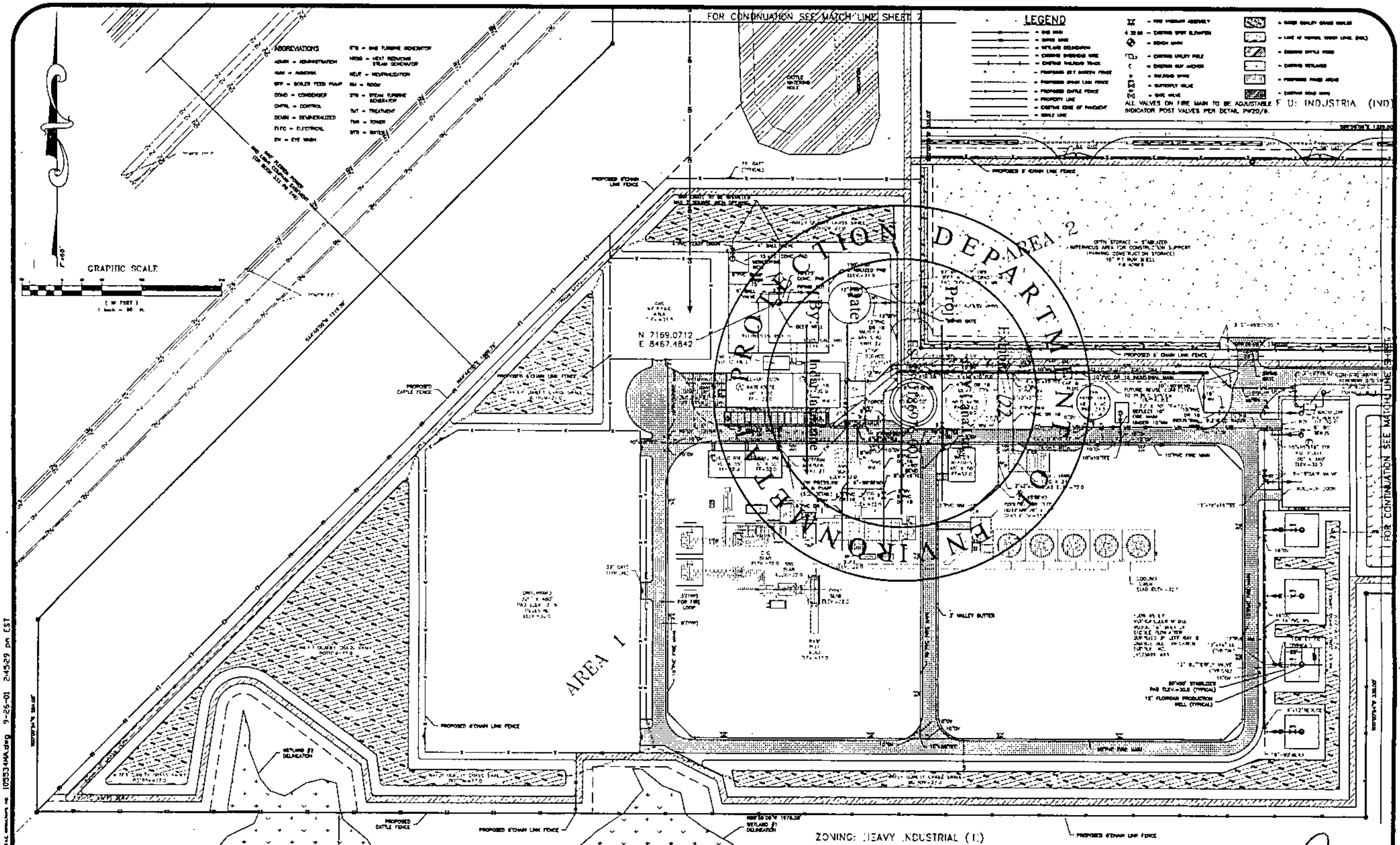
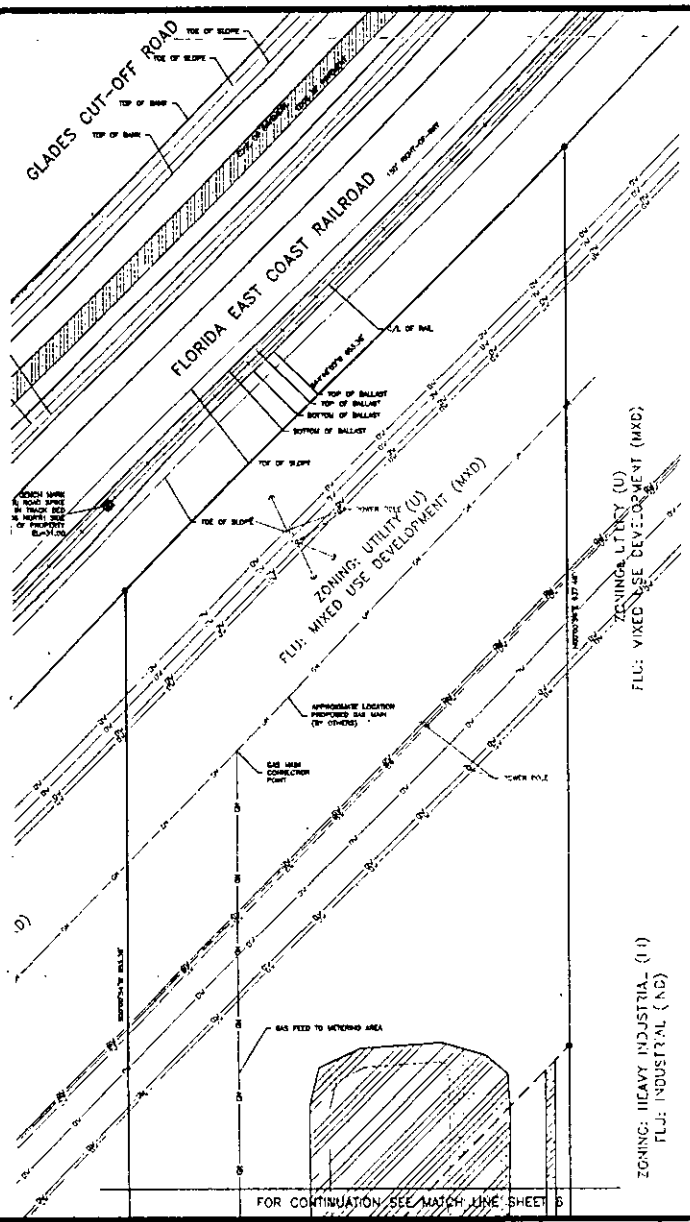
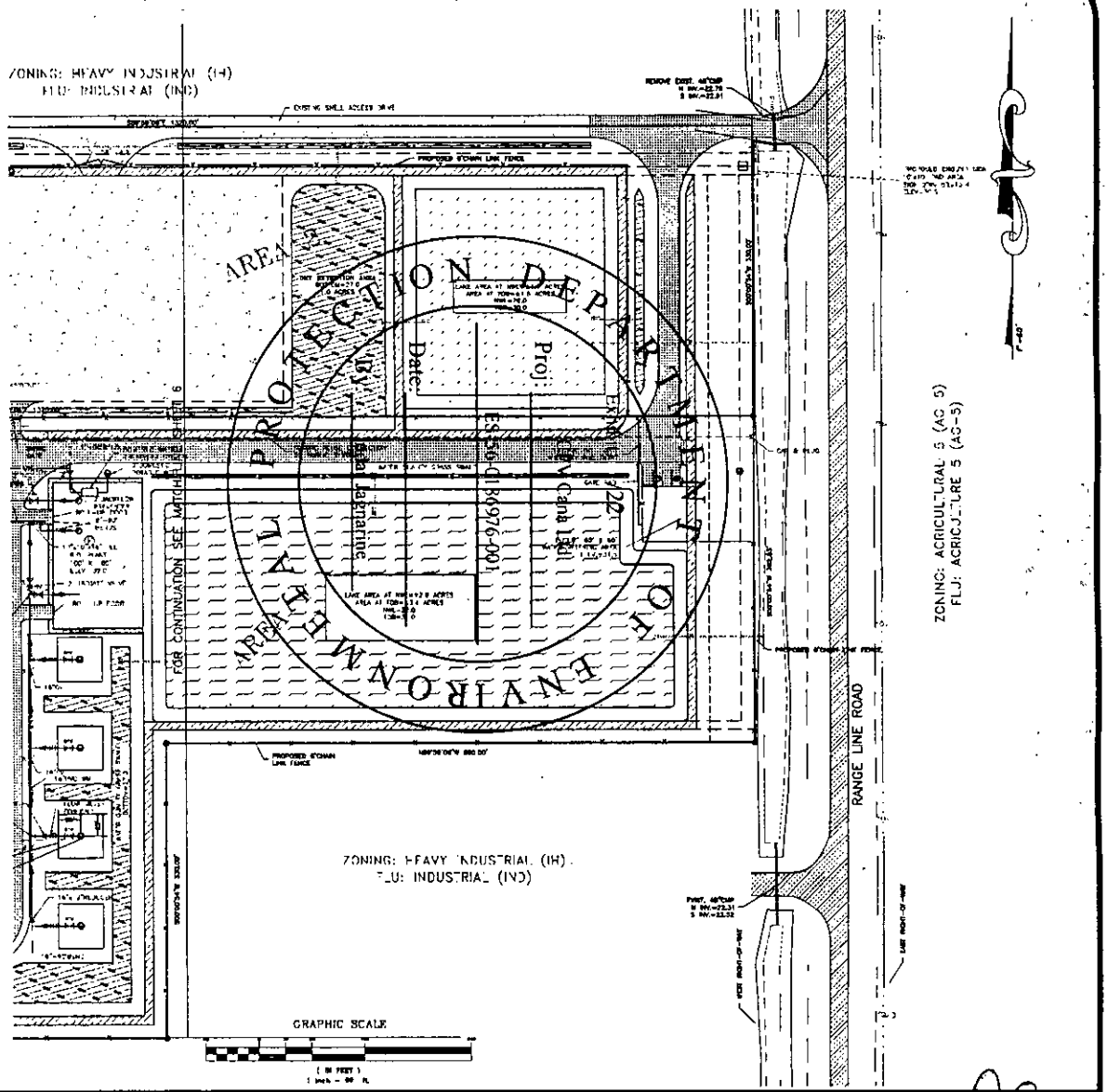
312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

OVERALL UTILITY PLAN
AREA 1-BASIN 1, AREA 2-BASIN 2



CPV CANA, LTD.	B.S.E. CONSULTANTS, INC. CONSULTING, ENGINEERING, LAND SURVEYING 312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674	UTILITY PLAN AREA 1–BASIN 1, AREA 2–BASIN 2	NOV 05 2001





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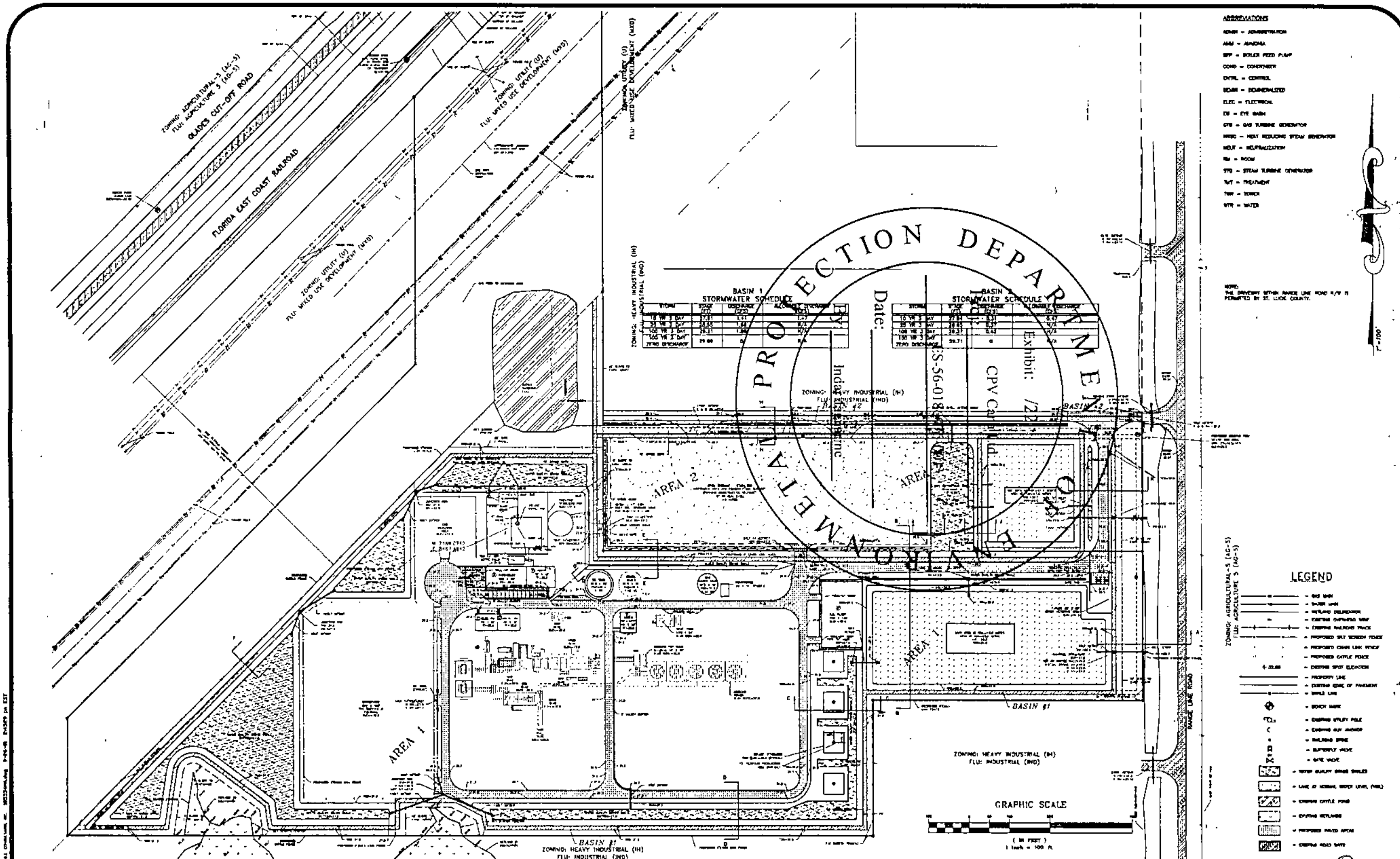
UTILITY PLAN
AREA 1-BASIN 1, AREA 2-BASIN 2

NOV 05 2001



BASIN 1 STORMWATER SCHEDULE

STORM	STAGE (FT)	DISCHARGE (CFS)	ALLOWABLE DISCHARGE (CFS)
10 YR 3 DAY	27.81	1.61	1.47
25 YR 3 DAY	28.55	1.84	N/A
100 YR 3 DAY	29.21	1.89	N/A
100 YR 3 DAY ZERO DISCHARGE	29.80	0	N/A

BASIN 2 STORMWATER SCHEDULE

STORM	STAGE (FT)	DISCHARGE (CFS)	ALLOWABLE DISCHARGE (CFS)
10 YR 3 DAY	27.84	0.31	0.47
25 YR 3 DAY	28.65	0.37	N/A
100 YR 3 DAY	29.37	0.43	N/A
100 YR 3 DAY ZERO DISCHARGE	29.71	0	N/A

REVISIONS 3/13/01 7/20/01 9/08/01
DESIGN SWG DATE 4/12/01
DRAWN BAW DATE 4/12/01

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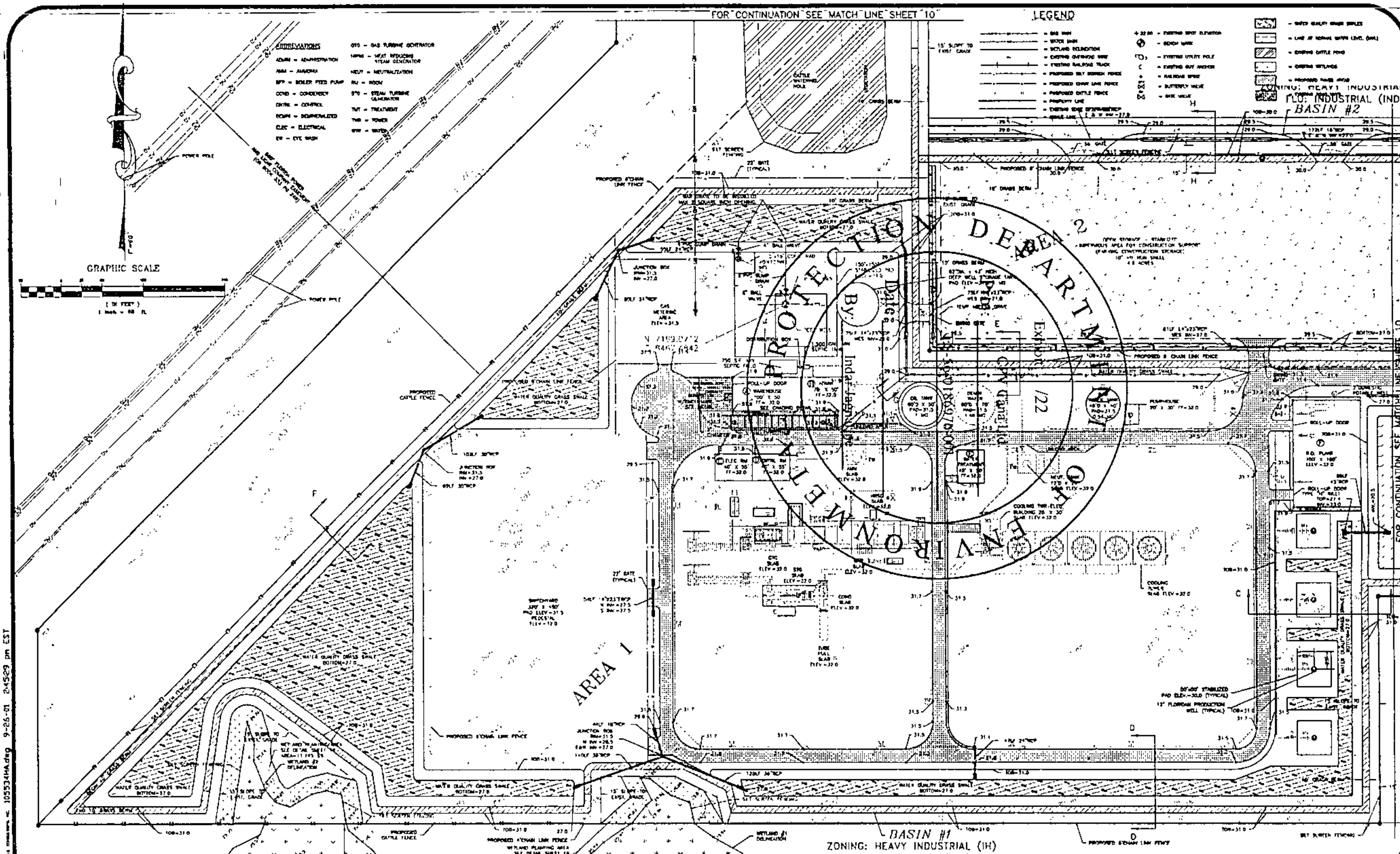
OVERALL DRAINAGE PLAN
AREA 1—BASIN 1, AREA 2—BASIN 2



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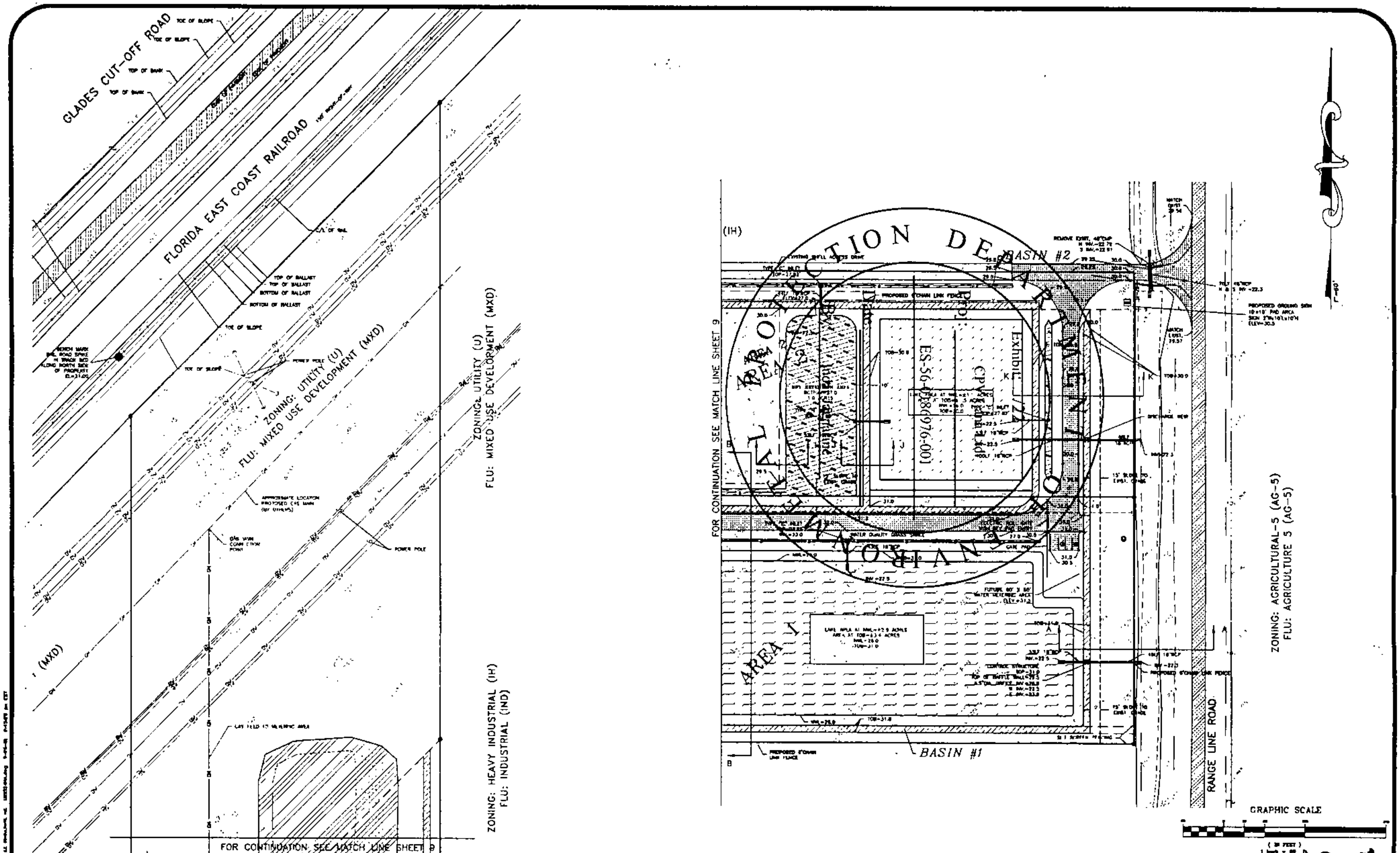
312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

DRAINAGE PLAN.
AREA 1–BASIN 1, AREA 2–BASIN 2

NOV 05 2001



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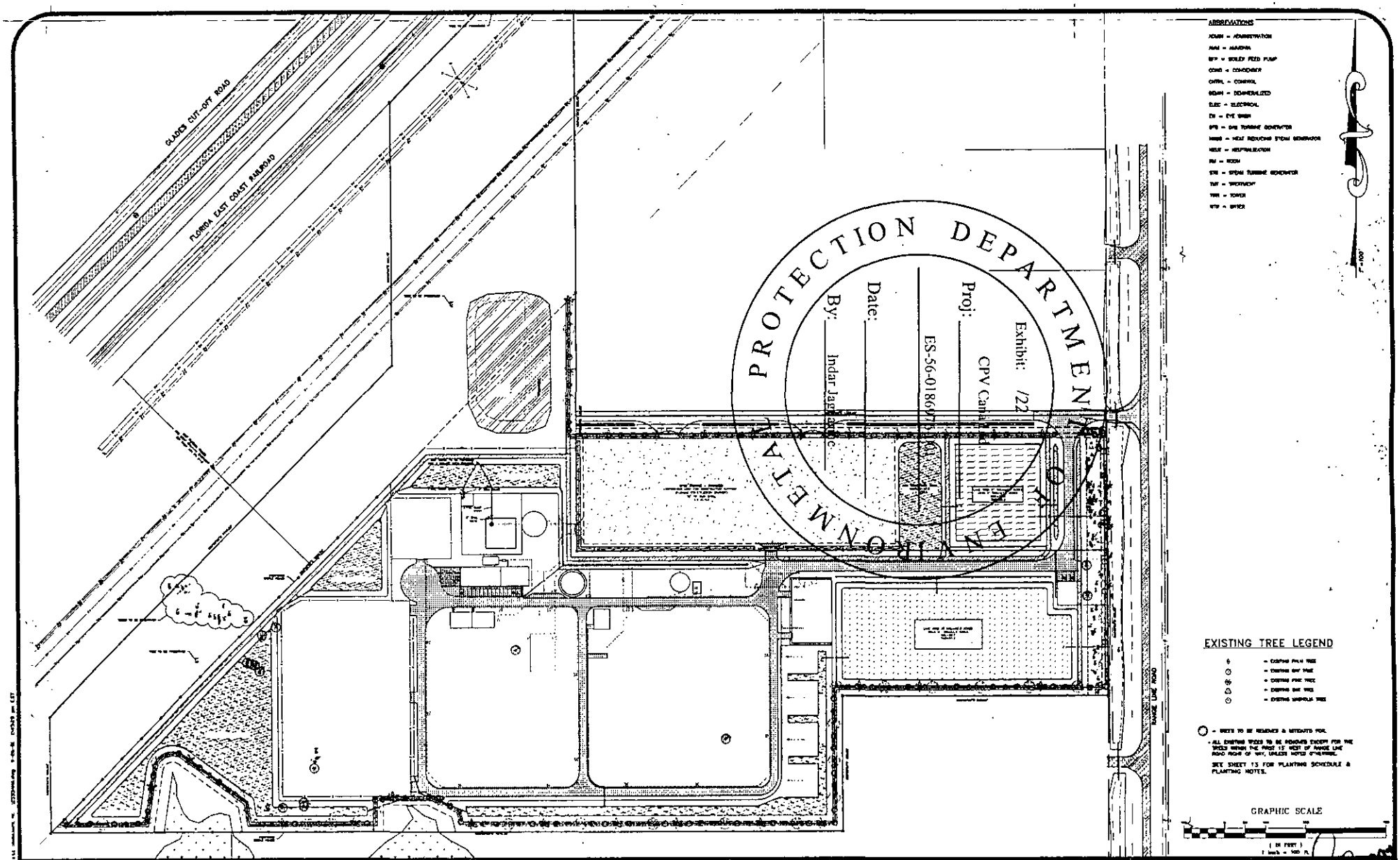
DRAINAGE PLAN
AREA 1—BASIN 1, AREA 2—BASIN 2

DESIGN SMG DATE 4/12/01
DRAWN BAW DATE 4/12/01
CHECKED

NOV 05 2001



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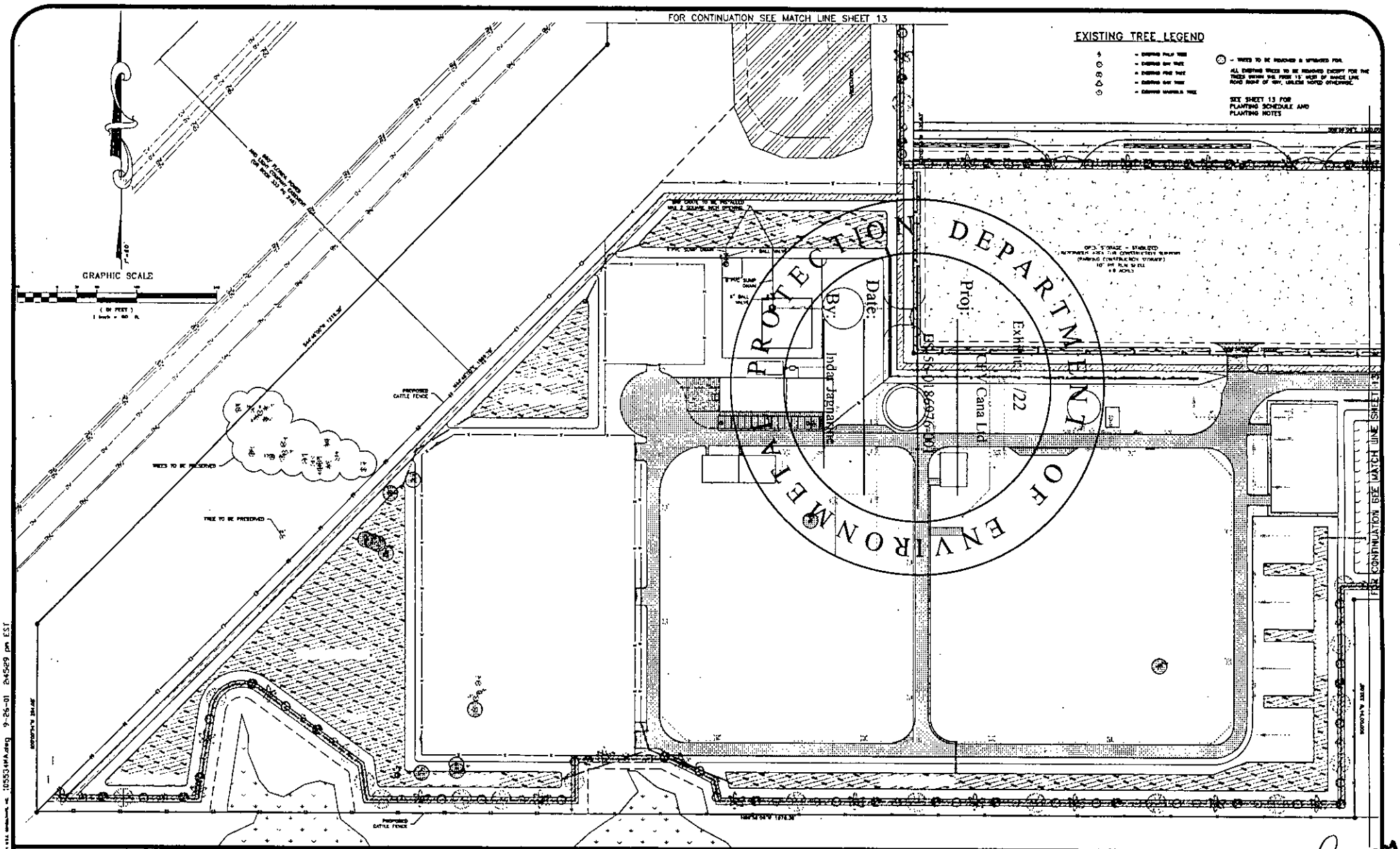
OVERALL LANDSCAPE PLAN
AREA 1-BASIN 1, AREA 2-BASIN 2

NOV 02 2001



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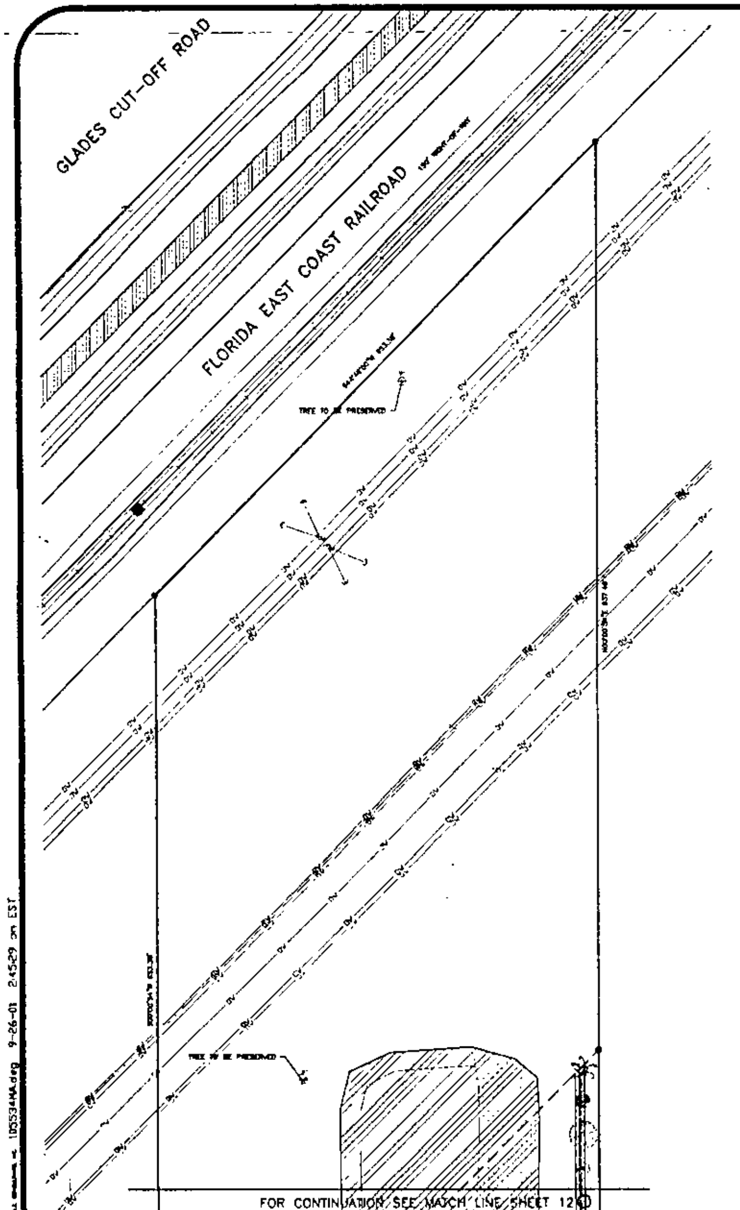
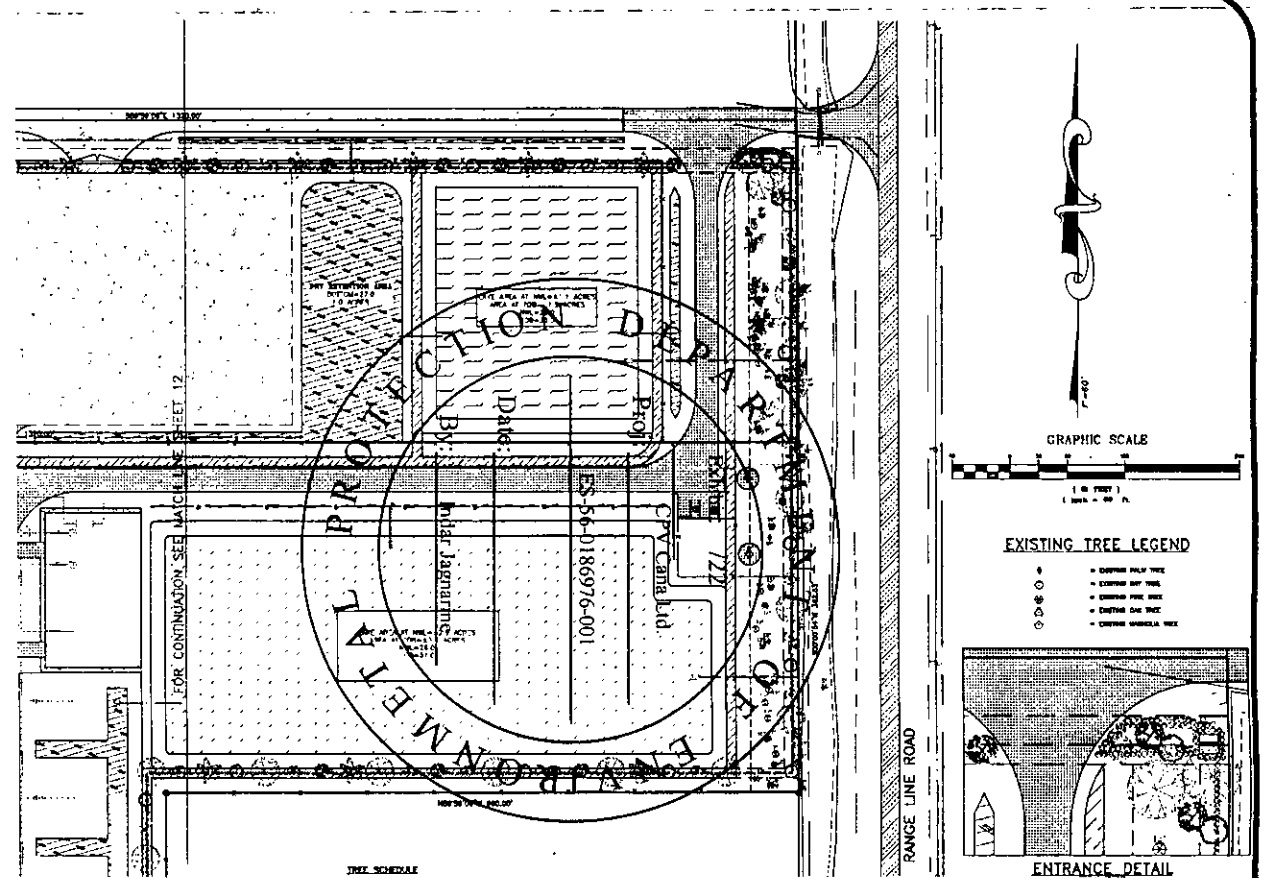
LANDSCAPE PLAN
AREA 1-BASIN 1, AREA 2-BASIN 2





TREE SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	SPECIFICATION	PERIMETER QUANTITY	TERMINAL LANDSCAPE ISLAND QUANTITY
	LIVE OAK	QUERCUS VIRGINIANA	3 1/2" CAL. @ 4.5' ABOVE GRADE, 12' HT., 5' SPREAD, 5' CLEAR TRUNK	36	1
	EAST PALATKA HOLLY	ILEX X ATTENUATA	3 1/2" CAL. @ 4.5' ABOVE GRADE, 12' HT., 5' SPREAD, 5' CLEAR TRUNK	42	0
	SLASH PINE	PINUS ELLIOTTII	3 1/2" CAL. @ 4.5' ABOVE GRADE, 12' HT., 5' SPREAD, 5' CLEAR TRUNK	29	0
	CRAPE MYRTLE	LAGERSTROEMIA INDICA	3 1/2" CAL. @ 4.5' ABOVE GRADE, 12' HT., 5' SPREAD, 5' CLEAR TRUNK	41	0
	CAROLINA CHERRY LAUREL	PRUNUS CAROLINIANA	3 1/2" CAL. @ 4.5' ABOVE GRADE, 12' HT., 5' SPREAD, 5' CLEAR TRUNK	29	2
			TOTAL	177	3

MITIGATION SCHEDULE

TYPE OF TREE	INCHES/TREES TO BE REMOVED	PRESERVED INCHES/TREES	INCHES TO BE REPLACED
PINE, MAGNOLIA, OAK	160	790	0
PALM	11	8	0

SHRUB SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	SPECIFICATION	BUFFER QUANTITY	TERMINAL LANDSCAPE ISLAND QUANTITY
•	SNOW BERRY	CHIOCOCCA ALBA	3 GAL., 3' O.C., 24" HT.	730	23
•	OLEANDER	NERIUM OLEANDER	3 GAL., 3' O.C., 24" HT.	356	8
•	SOUTHERN WAX MYRTLE	MYRICA CERIFERA	3 GAL., 3' O.C., 24" HT.	730	19
			TOTAL	1815	50

NOTES:

1. ALL MULCHED LANDSCAPED AREAS TO BE COVERED WITH TYPAR LITE LANDSCAPE FABRIC, OR EQUAL, PRIOR TO PLANTING AND MULCHING

2. ALL LANDSCAPED AREAS TO 3" MINIMUM DEPTH OF PINE MULCH.

3. TERMINAL ISLAND LANDSCAPE TO BE PLANTED AT THE PROJECT ENTRANCE. 1.8 TIMES THE REQUIRED LANDSCAPING REQUIREMENTS WAS PROVIDED.

(symbol) – TREES TO BE REMOVED & MITIGATED FOR

ALL EXISTING TREES TO BE REMOVED EXCEPT FOR THE TREES WITHIN THE FIRST 30' WEST OF RANGE LINE ROAD RIGHT OF WAY, UNLESS NOTED OTHERWISE.

DESIGN DATE 4/13/01
DRAWN DATE 4/13/01
CHECKED DATE

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LANDSCAPE PLAN
AREA 1–BASIN 1, AREA 2–BASIN 2

NOV 2001

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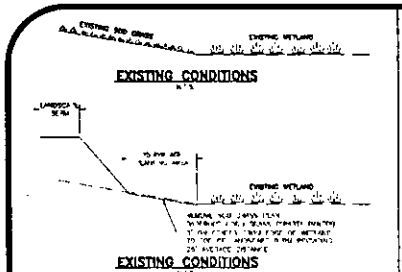
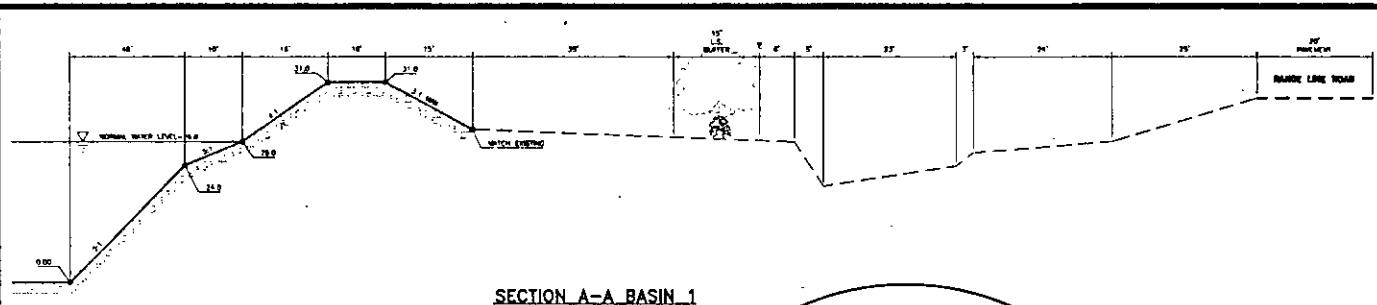


WETLAND BUFFER PLANTING BASIN 1 (CS18 1)



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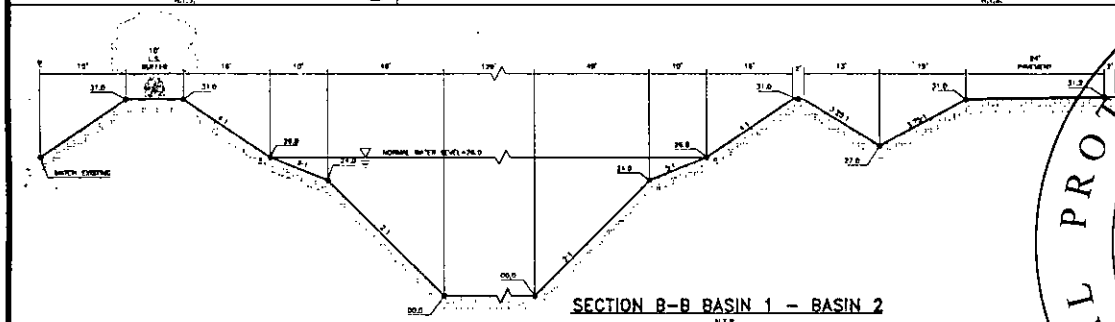
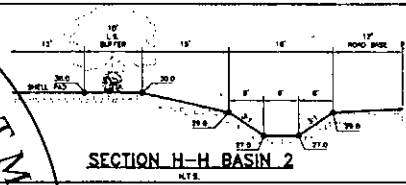


SECTION B-B BASIN 1 – BASIN 2 (CS18 3)



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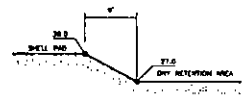

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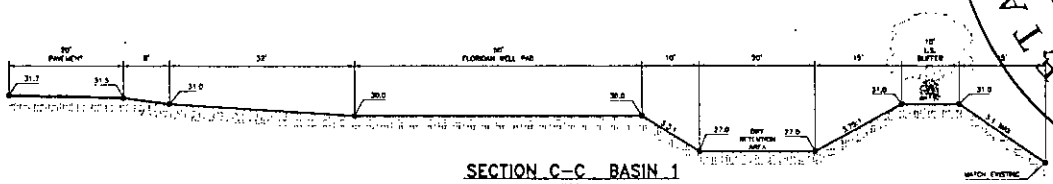

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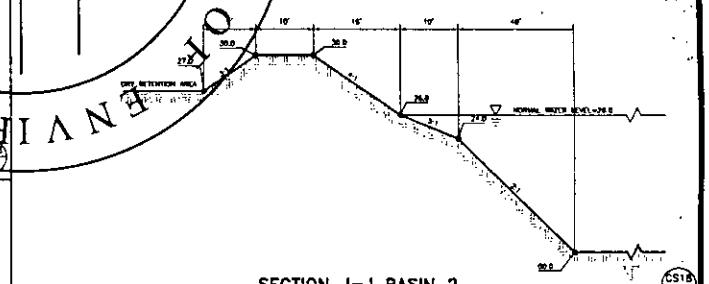

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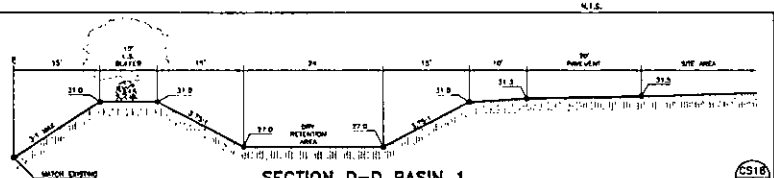

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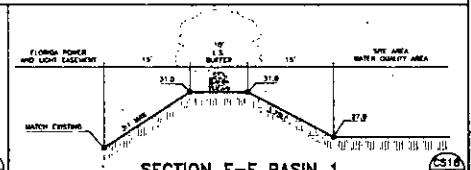

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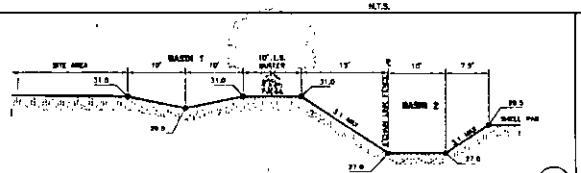

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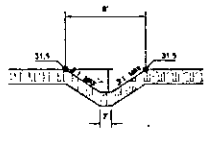

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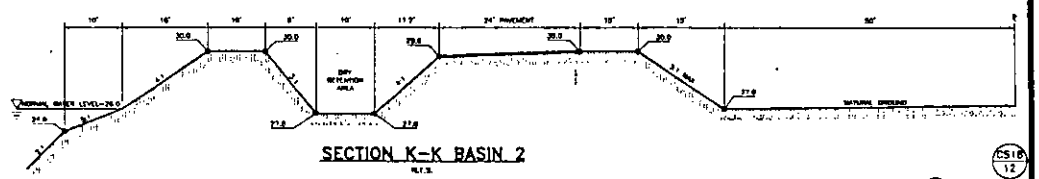

SECTION K-K BASIN 2 (CS18 12)

REVISIONS	
1	7/30/01
2	8/08/01
DESIGN	DATE 4/12/01
DRAWN	DATE 4/12/01
CHECKED	DATE

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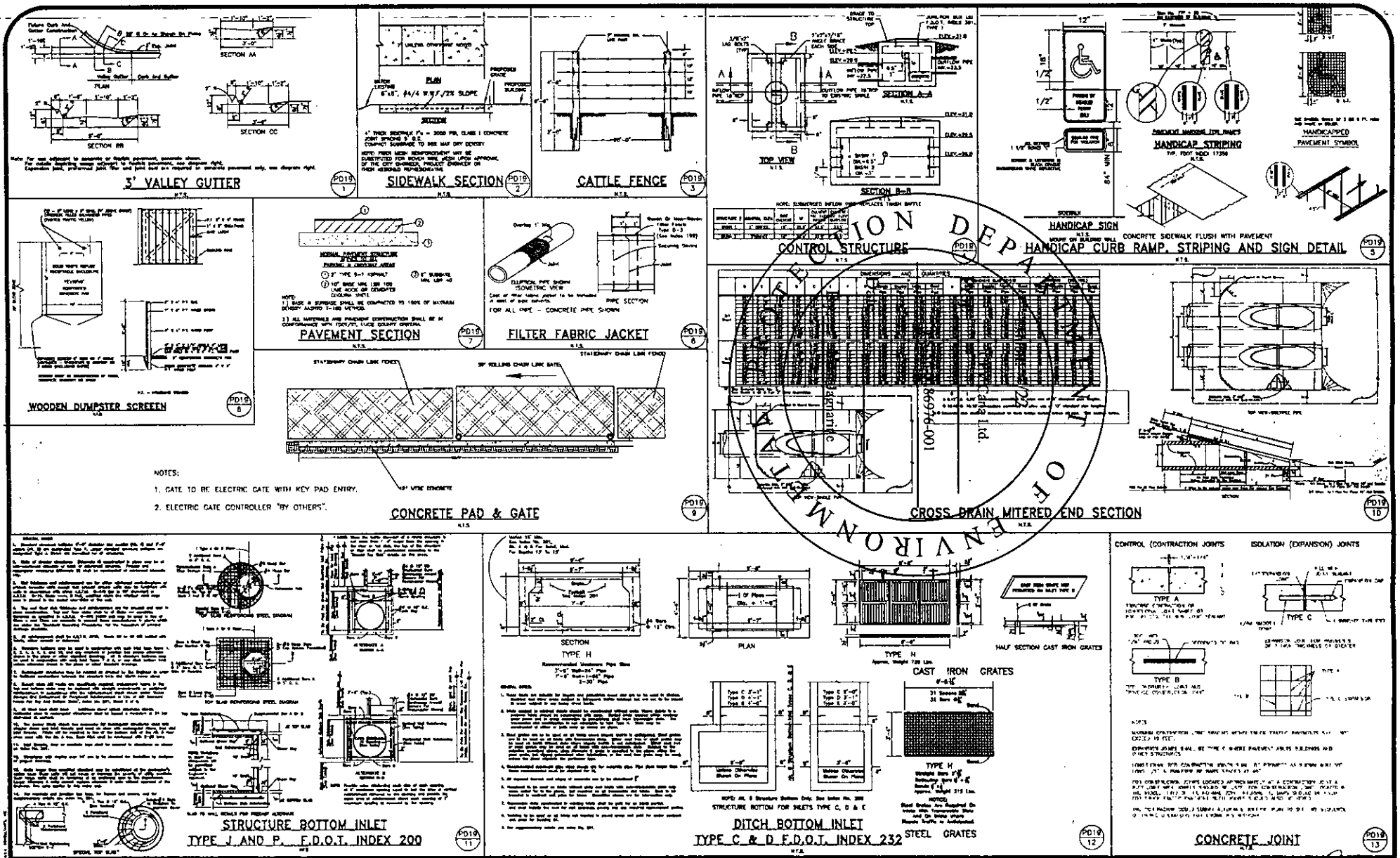
CROSS – SECTIONS
AREA 1–BASIN 1, AREA 2–BASIN 2

DRAWING NO. CS18418
SHEET NO. OF

NOV 05 2001



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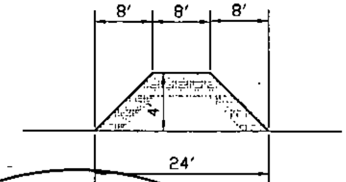
PAVING AND DRAINAGE DETAIL
AREA 1-BASIN 1, AREA 2-BASIN 2

DESIGN BSE DATE 4/12/01
DRAWN BSE DATE 4/12/01
CHECKED DATE

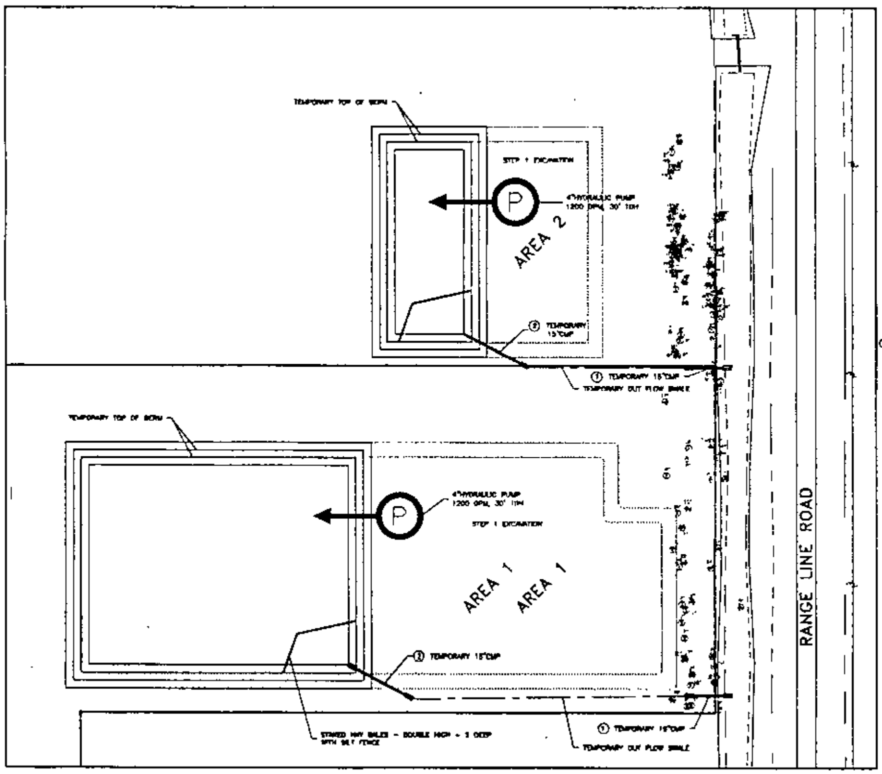
NOV 0 8 2001

DEWATERING PLAN:

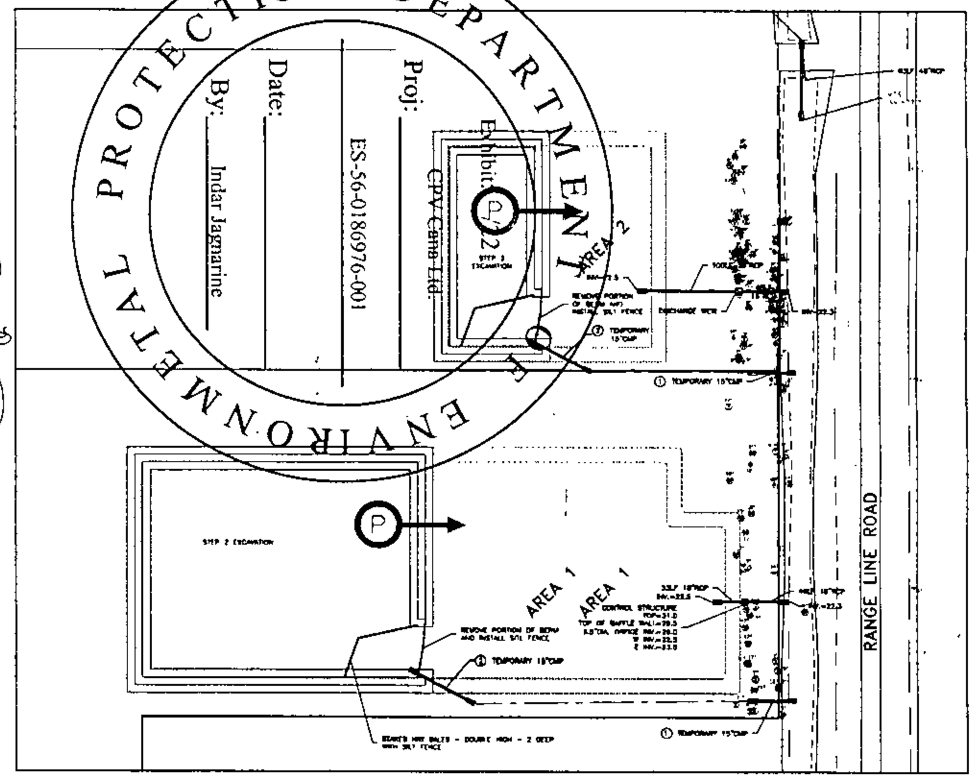
1. INSTALL TEMPORARY 15" DRAINAGE CULVERT (1) TO RANGE LINE ROAD.
2. CONSTRUCT TEMPORARY BERM AS SHOWN.
3. INSTALL TEMPORARY 15" CULVERT (2) THROUGH TEMPORARY BERM, INSTALL HAY BALES & SILT FENCE.
4. EXCAVATE EAST END OF LAKE AS SHOWN (STEP 1).
5. EXCAVATE WEST END OF LAKE AS STEP 2, DEWATER INTO EAST END OF LAKE (EXCAVATED AS STEP 1).
6. REVERSE HYDRAULIC PUMP FOR EXCAVATION OF STEP 2.
7. CONTINUE TO UTILIZE TEMPORARY CULVERTS FOR DEWATERING.
8. CONSTRUCT PERIMETER LANDSCAPE BERMS AND PERIMETER BERMS
9. INSTALL CONTROL STRUCTURE.
10. REMOVE TEMPORARY DEWATERING CULVERTS AND FILL TEMPORARY DEWATERING SWALE.
11. COMPLETE LANDSCAPE BERM ON SOUTH SIDE OF LAKE.
12. COMPLETE LAKE EXCAVATION IN AREA OF REMOVED TEMPORARY DEWATERING CULVERTS.



TEMPORARY BERM



PHASE 1 DEWATERING



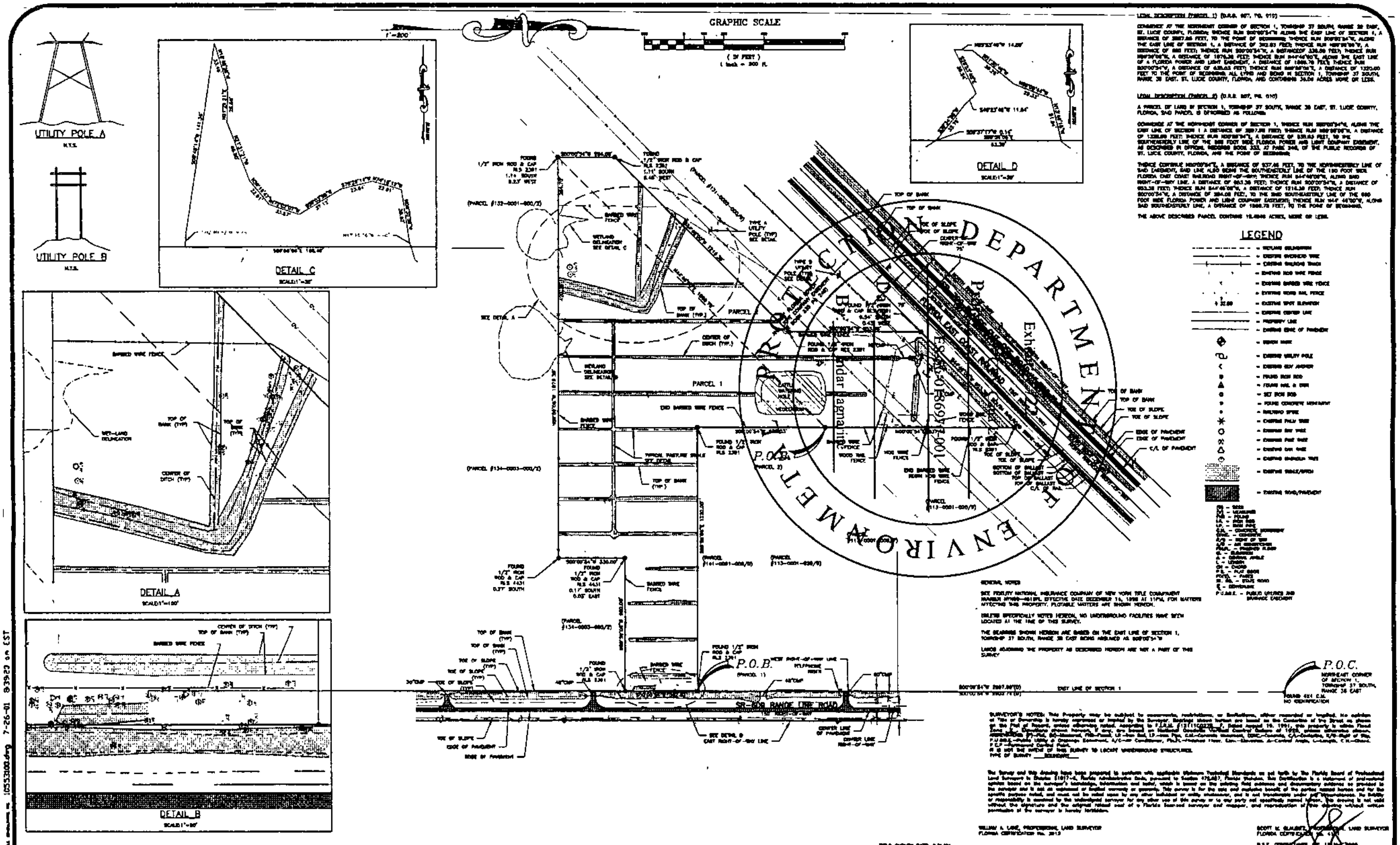
PHASE 2 DEWATERING

GRAPHIC SCALE

CPV CANA, LTD.	B.S.E. CONSULTANTS, INC. CONSULTING, ENGINEERING, LAND SURVEYING 312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674	DEWATERING PLAN AREA 1-BASIN 1, AREA 2-BASIN 2

DESIGN SMG DATE 4/12/01 · DRAWN BAW DATE 4/12/01 · REVISIONS 7/20/01, 6/28/01

NOV 05 2001



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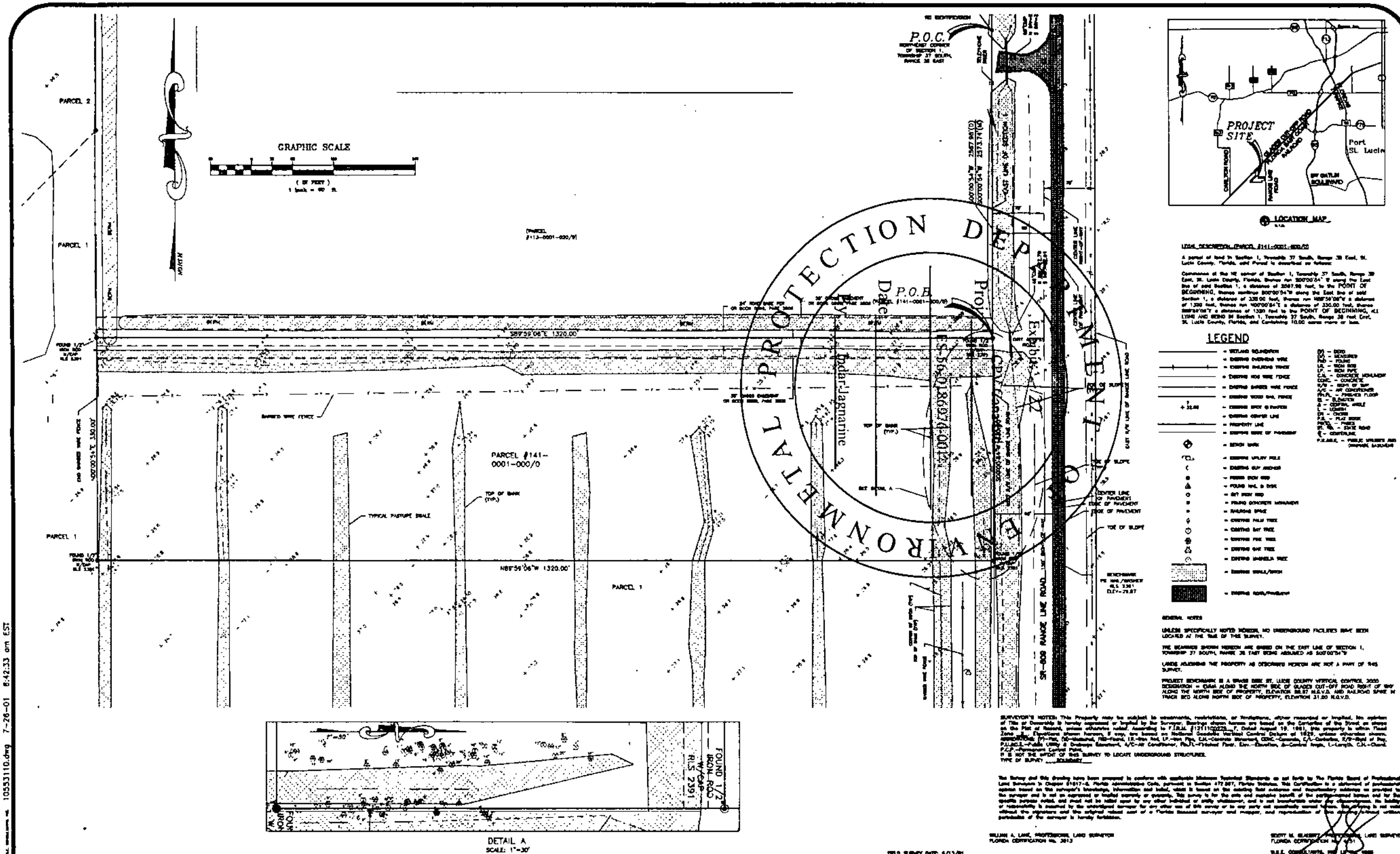
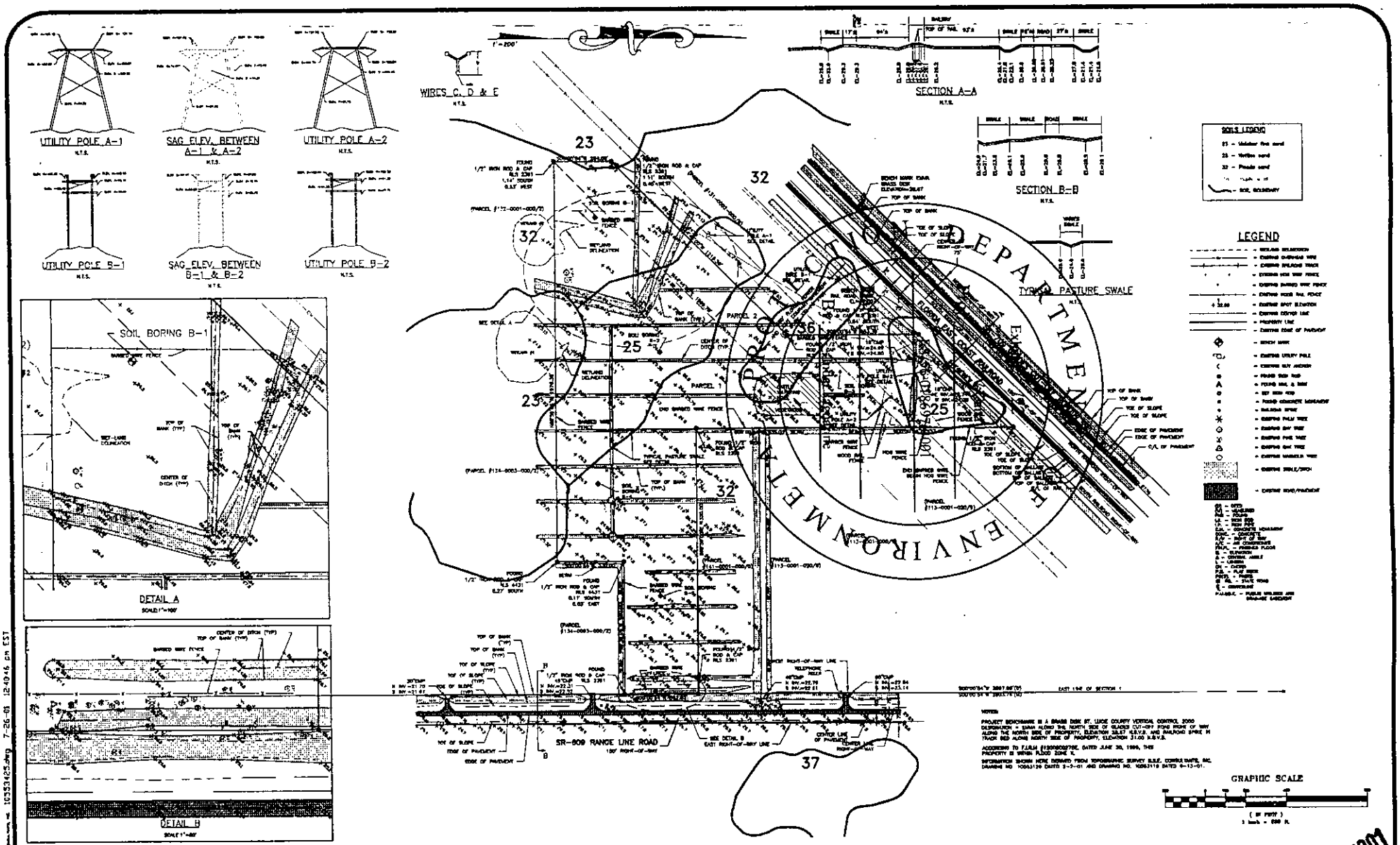
312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

BOUNDARY SURVEY – AREA 1

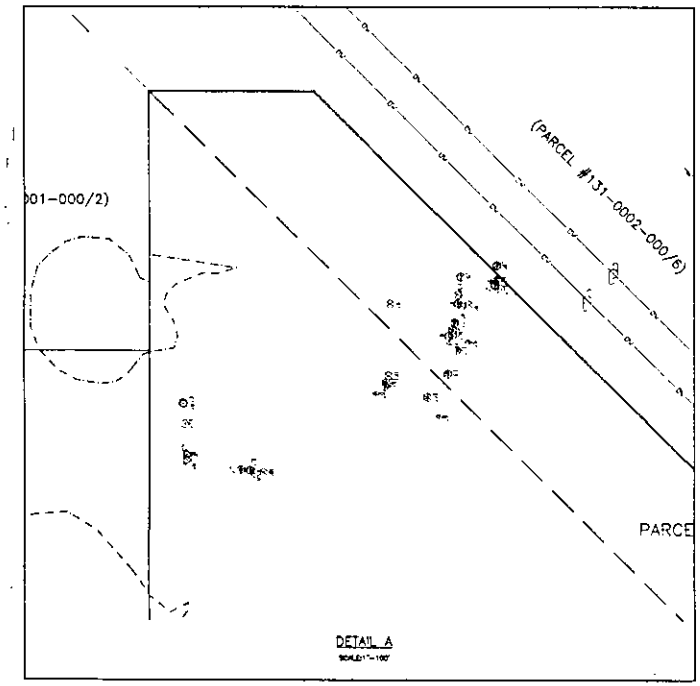
NOV 2001

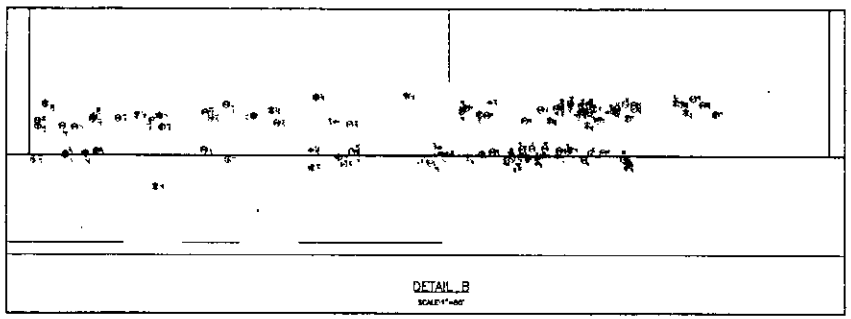


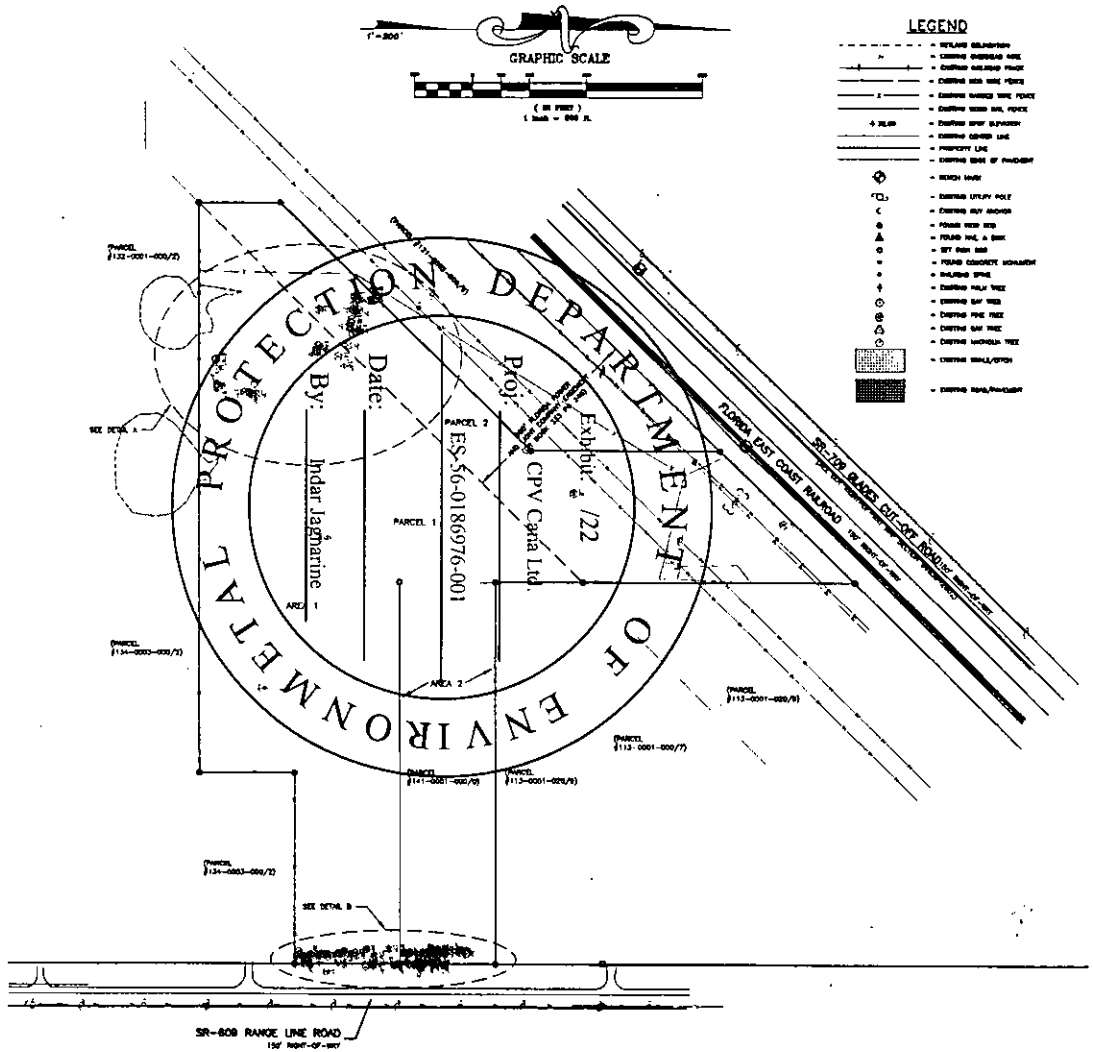
CPV CANA, LTD.	B.S.E. CONSULTANTS, INC. CONSULTING, ENGINEERING, LAND SURVEYING 312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674	BOUNDARY & TOPOGRAPHIC SURVEY — AREA 2



CPV CANA, LTD.	B.S.E. CONSULTANTS, INC. CONSULTING, ENGINEERING, LAND SURVEYING 312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674	EXISTING CONDITIONS	NOV 8 2001







CPV CANA, LTD.

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CONSULTING, ENGINEERING, LAND SURVEYING
312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

TREE SURVEY
AREA 1 & AREA 2

NOV 6 2001

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND CITY OF [illegible] UTILITY SYSTEMS DEPARTMENT REQUIREMENTS AND SPECIFICATIONS. IF ANY CONFLICTS EXIST BETWEEN THE STANDARDS, THE MORE STRINGENT SHALL APPLY.

2. STANDARD SEPARATION FOR ALL WATER AND/OR WASTEWATER MAINS [illegible]

3. [illegible]

4. NO POLLUTION OR EROSION CAUSED BY THIS PROJECT WILL BE ALLOWED IN THE STORMWATER DRAINAGE SYSTEM. [illegible] THE COST OF POLLUTION AND EROSION CONTROL SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTION.

5. CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES [illegible]

6. [illegible]

[illegible]

INSPECTORS AUTHORITY

[illegible]

EARTHWORK

[illegible]

UTILITY EXCAVATION, BACKFILLING & COMPACTING

PART -- GENERAL

1.1 SECTION DESCRIPTION

[illegible]

UTILITY PIPE AND FITTINGS

[illegible]

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Proj: CPV Cana Ltd.

ES-56-0186976-001

CPV CANA, LTD.

B.S.E. CONSULTANTS, INC.

CONSULTING, ENGINEERING, LAND SURVEYING

312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

GENERAL NOTES

NOV 2001

UTILITY VALVES AND APPURTENANCES

FIRE HYDRANT ASSEMBLIES

PERFORMANCE TESTING OF PRESSURE PIPELINES

GRAVITY WASTEWATER COLLECTION SYSTEM

QUALIFIED PRODUCTS LIST

ENVIRONMENTAL PROTECTION DEPARTMENT

Exhibit: /22

By: Indar Jagnarine

REVISIONS

DESIGN SJG DATE 4/12/01

DRAWN EJK DATE 4/12/01

CHECKED DATE

CPV CANA, LTD.

B.S.E. CONSULTANTS, INC.
CONSULTING, ENGINEERING, LAND SURVEYING
312 S. Harbor City Blvd. Suite 4, Melbourne, Florida (321) 725-3674

GENERAL NOTES

NOV

Form #62-343.900(3), F.A.C.
Form Title: Construction Commencement Notice
Date: October 3, 1995

ENVIRONMENTAL RESOURCE PERMIT
Construction Commencement Notice

PROJECT:_____ PHASE:_____

I hereby notify the Department of Environmental Protection that the construction of the surface water management system authorized by Environmental Resource Permit No._____ has commenced / is expected to commence on _____ 200__, and will require a duration of approximately _____ months _____ weeks _____ days to complete. It is understood that should the construction term extend beyond one year, I am obligated to submit the Annual Status Report for Surface Water Management System Construction.

PLEASE NOTE: If the actual construction commencement date is not known, Department staff should be so notified in writing in order to satisfy permit conditions.

_____	_____	_____
Permittee or Authorized Agent	Title and Company	Date

_____	_____
Phone	Address

Form # 62-343.900(4), F.A.C.
Form Title: Annual Status Report
Date: October 3, 1995

ENVIRONMENTAL RESOURCE PERMIT
ANNUAL STATUS REPORT FORM

Florida Department of Environmental Protection

_____
_____
_____

Permit No. _____ County: _____

Project Name: _____ Phase: _____

The following activity has occurred at the above referenced project during the past year, between June 1, 200___ and May 30, 200___.

Permit Condition / Activity	% of Completion	Date of anticipated Completion	Date of Completion

(Use Additional Sheets As Necessary)

Benchmark Description (one per major control structure): _____
_____
_____
_____

_____ _____
Print Name Phone

_____ _____ _____
Permittee's or Authorized Agent's Signature Title and Company Date

This form shall be submitted to the above referenced Department Office during June of each year for activities whose duration of construction exceeds one year.

Form #62-343.900(5), F.A.C.
Form Title: As-Built Certification by a Registered Professional
Date: October 3, 1995

ENVIRONMENTAL RESOURCE PERMIT
AS-BUILT CERTIFICATION BY A REGISTERED PROFESSIONAL

Permit Number: _____

Project Name: _____

I hereby certify that all components of this surface water management system have been built substantially in accordance with the approved plans and specifications and are ready for inspection. Any substantial deviations (noted below) from the approved plans and specifications will not prevent the system from functioning as designed when properly maintained and operated. These determinations are based upon on-site observation of the system conducted by me or by my designee under my direct supervision and/or my review of as-built plans certified by a registered professional or other appropriate individual as authorized by law.

_____ _____
Name (please print) Signature of Professional

_____ _____
Company Name Florida Registration Number

_____ _____
Company Address Date

_____
City, State, Zip Code

_____
Telephone Number (Affix Seal)

Substantial deviations from the approved plans and specifications:

_____

_____

_____

_____

(Note: attach two copies of as-built plans when there are substantial deviations)

Within 30 days of completion of the system, submit two copies of the form to:

_____

_____

_____

Form #62-343.900(7), F.A.C.
Form Title: Request for Transfer to Operation Phase
Date: October 3, 1995

REQUEST FOR TRANSFER OF ENVIRONMENTAL RESOURCE PERMIT CONSTRUCTION PHASE TO OPERATION PHASE

(To be completed and submitted by the operating entity)

Florida Department of Environmental Protection

It is requested that Department Permit No. _____ authorizing the construction and operation of a surface water management system for the below mentioned project be transferred from the construction phase permittee to the operation phase operating entity.

PROJECT:

FROM: Name:
Address:
City:_____State:
Zipcode:

TO: Name:
Address:
City:_____State:
Zipcode:

The surface water management facilities are hearby accepted for operation and maintenance in accordance with the engineers certification and as outlined in the restrictive covenants and articles of incorporation for the operating entity. Enclosed is a copy of the document transferring title of the operating entity for the common areas on which the surface water management system is located. Note that if the operating entity has not been previously approved, the applicant should contact the Department staff prior to filing for a permit transfer.

The undersigned hearby agrees that all terms and conditions of the permit and subsequent modifications, if any, have been reviewed, are understood and are hearby accepted. Any proposed modifications shall be applied for and obtained prior to such modification.

Operating Entity _____

Name _____ Title _____

Telephone _____

Enclosure:
( ) Copy of recorded transfer of title surface water management system
( ) Copy of plat(s)
( ) Copy of recorded restrictive covenants, articles of incorporation, and certificate of incorporation

Form 62-343.900 (8)
Application for Transfer of ERP Permit
Effective Date: 8-14-96

APPLICATION FOR TRANSFER OF ENVIRONMENTAL RESOURCE PERMIT AND NOTIFICATION OF SALE OF A FACILITY OR SURFACE WATER MANAGEMENT SYSTEM

Permit No. _____ Date Issued _____ Date Expires _____

FROM (*Name of Current Permit Holder*) _____

Mailing Address _____

City _____ State _____ Zip Code _____

Telephone: (____) _____

Identification or Name of Facility/Surface Water Management System: _____

Phase of Facility/Surface Water Management System (if applicable): _____

The undersigned hereby notifies the Department of the sale or legal transfer of this facility, or surface-water management system, and further agrees to assign all rights and obligations as permittee to the applicant in the event the Department agrees to the transfer of permit.

Signature of the current permittee: _____

Title (*if any*): _____ Date: _____

TO (*Name of Proposed Permit Transferee*): _____

Mailing Address _____

City _____ State _____ Zip Code _____

Telephone: (____) _____

The undersigned hereby notifies the Department of having acquired the title to this facility, or surface-water management system. The undersigned also states he or she has examined the application and documents submitted by the current permittee, the basis of which the permit was issued by the Department, and states they accurately and completely describe the permitted activity or project. The undersigned further attests to being familiar with the permit, agrees to comply with its terms and with its conditions, and agrees to assume the rights and liabilities contained in the permit. The undersigned also agrees to promptly notify the Department of any future changes in ownership of, or responsibility for, the permitted activity or project.

Signature of the applicant (*Transferee*): _____

Title (*if any*): _____ Date: _____

Project Engineer Name (*if applicable*) _____

Mailing Address _____

City _____ State _____ Zip Code _____

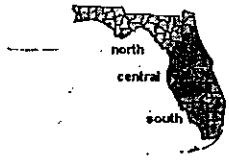
Telephone: (____) _____

Florida Exotic Pest Plant Council's
2001 List of Invasive Species

DEFINITIONS: *Exotic*—a species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida. *Native*—a species whose natural range included Florida at the time of European contact (1500 AD). *Naturalized exotic*—an exotic that sustains itself outside cultivation (it has not "become" native). *Invasive exotic*—an exotic that not only has naturalized but is expanding on its own in Florida plant communities.

Abbreviations used:

for "Gov. list": P = Prohibited by Fla. Dept. of Environmental Protection, N = Noxious weed listed by Fla. Dept. of Agriculture & Consumer Services, U = Noxious weed listed by U.S. Department of Agriculture. for "Reg. Dis.": N = north, C = central, S = south, referring to each species' current distribution in general regions of Florida (not its potential range in the state). See map.



Category I - Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. *This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.*

Scientific Name	Common Name	Gov. list	Reg. Dist.
Abrus precatorius	rosary pea		C, S
Acacia auriculiformis	earleaf acacia		S
Albizia julibrissin	mimosa, silk tree		N, C
Albizia lebbeck	woman's tongue		C, S
Ardisia crenata (= A. crenulata)	coral ardisia		N, C
Ardisia elliptica (=A. humilis)	shoebutton ardisia		S
Asparagus densiflorus	asparagus-fern		C, S
Bauhinia variegata	orchid tree		C, S
Bischofia javanica	bischofia		C, S
Calophyllum antillanum (=C. calaba; C. inophyllum misapplied)	santa maria (names "mast wood," "Alexandrian laurel" used in cultivation)		S
Casuarina equisetifolia	Australian pine	P	N,C,S
Casuarina glauca	suckering Australian pine	P	C, S
Cestrum diurnum	day jessamine		C, S
Cinnamomum camphora	camphor-tree		N,C,S
Colocasia esculenta	wild taro		N,C,S
Colubrina asiatica	lather leaf		S
Cupaniopsis anacardioides	carrotwood	N	C, S
Dioscorea alata	winged yam	N	N,C,S
Dioscorea bulbifera	air-potato	N	N,C,S
Eichhornia crassipes	water-hyacinth	P	N,C,S
Eugenia uniflora	Surinam cherry		C, S
Ficus microcarpa (*F. nitida* & *F. retusa* var. *nitida* misapplied)	laurel fig		C, S
Hydrilla verticillata	hydrilla	P, U	N,C,S
Hygrophila polysperma	green hygro	P, U	N,C,S
Hymenachne amplexicaulis	West Indian marsh grass		C, S
Imperata cylindrica (*I. brasiliensis* misapplied)	cogon grass	N, U	N, C, S
Ipomoea aquatica	waterspinach	P, U	C
Jasminum dichotomum	Gold Coast jasmine		C, S
Jasminum fluminense	Brazilian jasmine		C, S
Lantana camara	lantana, shrub verbena		N,C,S
Ligustrum lucidum	glossy privet		N, C
Ligustrum sinense	Chinese privet, hedge privet		N,C,S
Lonicera japonica	Japanese honeysuckle		N,C,S
Lygodium japonicum	Japanese climbing fern	N	N,C, S
Lygodium microphyllum	Old World climbing fern	N	C, S
Macfadyena unguis-cati	cat's claw vine		N,C, S
Manilkara zapota	sapodilla		S
Melaleuca quinquenervia	melaleuca, paper bark	P, N, U	C, S
Melia azedarach	Chinaberry		N,C,S
Mimosa pigra	cat-claw mimosa	P, N, U	C, S
Nandina domestica	nandina, heavenly bamboo		N
Nephrolepis cordifolia	sword fern		N,C,S
Nephrolepis multiflora	Asian sword fern		C, S
Neyraudia reynaudiana	Burma reed; cane grass	N	S
Paederia cruddasiana	sewer vine, onion vine	N	S
Paederia foetida	skunk vine	N	N,C,S
Panicum repens	torpedo grass		N,C,S
Pennisetum purpureum	Napier grass		C, S
Pistia stratiotes	water lettuce	P	N,C,S
Psidium cattleianum (=P. littorale)	strawberry guava		C, S
Psidium guajava	guava		C, S
Pueraria montana (=P. lobata)	kudzu	N, U	N,C, S
Rhodomyrtus tomentosa	downy rose-myrtle	N	C, S
Rhoeo spathacea (see *Tradescantia spathacea)*			
Ruellia brittoniana	Mexican petunia		N, C, S
Sapium sebiferum	popcorn tree, Chinese tallow tree	N	N, C, S
Scaevola sericea (=Scaevola taccada var. *sericea, S. frutescens)*	scaevola, half-flower, beach naupaka		C, S
Schefflera actinophylla (=Brassaia actinophylla)	schefflera, Queensland umbrella tree		C, S
Schinus terebinthifolius	Brazilian pepper	P, N	N, C, S
Senna pendula (=Cassia coluteoides)	climbing cassia, Christmas cassia, Christmas senna		C, S
Solanum tampicense (=S. houstonii)	wetland night shade, aquatic soda apple	N, U	C, S
Solanum viarum	tropical soda apple	N, U	N, C, S
Syngonium podophyllum	arrowhead vine		C, S
Syzygium cumini	jambolan, Java plum		C, S
Tectaria incisa	incised halberd fern		S
Thespesia populnea	seaside mahoe		C, S
Tradescantia fluminensis	white-flowered wandering jew		N, C
Tradescantia spathacea (= Rhoeo spathacea, Rhoeo discolor)	oyster plant		S
Urochloa mutica (= Brachiaria mutica)	Pará grass		C, S

Category II - Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. *These species may become ranked Category I, if ecological damage is demonstrated.*

Scientific Name	Common Name	Gov. list	Reg. Dist.
Adenanthera pavonina	red sandalwood		S
Agave sisalana	sisal hemp		C, S
Aleurites fordii (= *Vernicia fordii*)	tung oil tree		N, C
Alstonia macrophylla	devil-tree		S
Alternanthera philoxeroides	alligator weed	P	N, C, S
Antigonon leptopus	coral vine		N, C, S
Aristolochia littoralis	calico flower		N, C
Asystasia gangetica	Ganges primrose		C, S
Begonia cucullata	begonia		N, C
Broussonetia papyrifera	paper mulberry		N, C
Callisia fragrans	inch plant, spironema		C, S
Casuarina cunninghamiana	Australian pine	P	C, S
Cordia dichotoma	sebsten plum		S
Cryptostegia madagascariensis	rubber vine		C, S
Cyperus involucratus (*C. alternifolius* misapplied)	umbrella plant		C, S
Cyperus prolifer	dwarf papyrus		C
Dalbergia sissoo	Indian rosewood, sissoo		C, S
Elaeagnus pungens	thorny eleagnus		N, C
Epipremnum pinnatum cv. Aureum	pothos		C, S
Ficus altissima	false banyan		S
Flacourtia indica	governor's plum		S
Flueggea virosa	Chinese waterberry		S
Hibiscus tiliaceus	mahoe, sea hibiscus		C, S
Hiptage benghalensis	hiptage		S
Jasminum sambac	Arabian jasmine		S
Koelreuteria elegans	flamegold tree		C, S
Leucaena leucocephala	lead tree		N, C, S
Limnophila sessiliflora	Asian marshweed		N, C, S
Melinis minutiflora	molasses grass		S
Merremia tuberosa	wood-rose		S
Murraya paniculata	orange-jessamine		S
Myriophyllum spicatum	Eurasian water-milfoil	P	N, C, S
Ochrosia elliptica (=*O. parviflora*)	kopsia		C, S
Oeceoclades maculata	ground orchid		C, S
Passiflora biflora	twin-flowered passion vine		S
Passiflora foetida	stinking passion-flower		C, S
Pennisetum setaceum	green fountain grass		S
Phoenix reclinata	Senegal date palm		C, S
Phyllostachys aurea	golden bamboo		N, C
Pteris vittata	Chinese brake fern		N, C, S
Ptychosperma elegans	solitary palm		S
Rhynchelytrum repens	Natal grass		N, C, S
Ricinus communis	castor bean		N, C, S
Sansevieria hyacinthoides	bowstring hemp		C, S
Sesbania punicea	purple sesban, rattlebox		N, C, S
Solanum diphyllum	twinleaf nightshade		N, C, S
Solanum jamaicense	Jamaica nightshade		C
Solanum torvum	susumber, turkey berry	N, U	N, C, S
Syzygium jambos	rose-apple		C, S
Terminalia catappa	tropical almond		C, S
Terminalia muelleri	Australian almond		C, S
Tribulus cistoides	puncture vine, bur-nut		N, C, S
Urena lobata	Caesar's weed		N, C, S
Wedelia trilobata	wedelia		N, C, S
Wisteria sinensis	Chinese wisteria		N, C
Xanthosoma sagittifolium	malanga, elephant ear		N, C, S

The 2001 list was prepared by the FLEPPC Plant List Committee:

Daniel F. Austin (CO-CHAIR), Department of Biological Sciences, Florida Atlantic University, Boca Raton, FL 33431

Keith Bradley, Institute for Regional Conservation, 22601 S. W. 152nd Ave., Miami, FL 33170

Kathy Craddock Burks (CO-CHAIR), Bureau of Invasive Plant Management, Florida Department of Environmental Protection, 3915 Commonwealth Blvd., MS 710, Tallahassee, FL 32399

Nancy Craft Coile, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, P.O. Box 147100, Gainesville, FL 32614

James G. Duquesnel, Florida Park Service, Florida Department of Environmental Protection, P.O. Box 487 , Key Largo, FL 33037

David W. Hall, Consulting botanist, 6241 N. W. 23rd St., Gainesville, FL 32653

Roger L. Hammer, Department of Parks and Recreation, Miami-Dade County, 22200 S. W. 137th Ave., Miami, FL 33170

Kenneth A. Langeland, Center for Aquatic and Invasive Plants, IFAS, University of Florida, 7922 N. W. 71st St., Gainesville, FL 32606

Robert W. Pemberton, Agricultural Research Station, U.S. Department of Agriculture, 2305 College Ave., Ft. Lauderdale, FL 33314

Daniel B. Ward, Department of Botany, University of Florida , 220 Bartram Hall , Gainesville, FL 32611

Richard P. Wunderlin, Institute for Systematic Botany, Department of Biological Sciences, University of South Florida, Tampa, FL 33620

www.fleppc.org

Florida Department of
Environmental Protection

Memorandum

TO: Clair H. Fancy

THRU: A.A. Linero 11/19

FROM: Teresa Heron

DATE: November 19, 2001

SUBJECT: CPV Cana Power Generating Facility
245 MW Combined Cycle Plant
DEP File No. 1110103-001-AC (PSD-FL-323)

Attached is the draft public notice package for construction of a 245 MW Combined Cycle Plant at the CPV Cana Power Generating facility in St. Lucie County.

The basic unit is a nominal 170-megawatt General Electric 7FA gas and oil-fired combustion turbine-generator. The project includes an un-fired HRSG that will raise sufficient steam to produce another 74.9 MW via a steam-driven electrical generator. A selective catalytic reduction system including ammonia storage is included.

A 975,000 million gallon storage tank will be constructed for the back-up distillate fuel that will be used for no more than 720 hours per year.

Nitrogen Oxides (NO_X) emissions from the gas turbine will be controlled by SCR to 2.5 ppmvd (gas) and 10 ppmvd (oil). The ammonia limit is proposed at 5 ppmvd by agreement with the applicant. This will reduce formation of ammoniated particulate species.

Emissions of carbon monoxide, volatile organic compounds, sulfur dioxide, sulfuric acid mist, and particulate matter (PM/PM_{10}) will be very low because of the inherently clean pipeline quality natural gas, limited fuel oil use and the design of the GE unit.

The applicant submitted information describing the measures that insure the steam generator will produce less than 75 MW.

The proposed issue date of November 21 is Day 28. I recommend your signature and approval of this Intent to Issue.

AAL/th

Attachments

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:

DEP File No. 1110103-001-AC (PSD-FL-323)

CPV Cana Ltd.
CPV Cana Power Generating Facility
Port St. Lucie, St. Lucie County

Project type:

Project is construction of a nominal 245-megawatt combined cycle power plant with a 170 MW GE7FA combustion turbine-electrical generator, a heat recovery steam generator, a separate steam turbine-electrical generator, a 170-foot stack, a five-cell mechanical cooling tower, a nominal 1 million gallon fuel oil tank and ancillary equipment. The unit will operate maximum of 8,760 hours per year of which 2000 hours per year per unit may be in the power augmentation mode and 720 hours per year on No. 2 distillate fuel oil.

The proposed continuous (24-hour) BACT NO_X limits are 2.5 ppmvd @15% O_2 when operating on natural gas and 10 ppmvd @15% O_2 when burning fuel oil. Other pollutants, including particulate matter (PM/PM_{10}), carbon monoxide, volatile organic compounds, sulfur dioxide, and sulfuric acid mist will be controlled by good combustion and use of clean fuels.

Projected impacts from the proposed project are all less than the applicable significant impact limits (SILs) corresponding to the nearby Class II areas and the Class I Everglades National Park. The project will not cause or contribute to a violation of any National Ambient Air Quality Standard or Increment. The National park Service had no adverse comments regarding this project.

Based on information submitted by CPV, it was determined that the project is not subject to Sections 403.501-518, F.S., Florida Power Plant Siting Act.

I HEREBY CERTIFY *that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

A A. Linero, P.E. — 11/19/01
Registration Number: 26032 — Date

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FLORIDA ELECTRICAL POWER PLANT SITING ACT APPLICABILITY DETERMINATION

CPV Cana Power Generating Facility

The meaning of electrical power plant, for the purpose of certification under the act "does not include any steam or solar electrical generating facility of less than 75 megawatts in capacity unless the applicant for such a facility elects to apply for certification under this act." [403.503(13), F.S.]

"The provisions of the act shall apply to any electrical power plant as defined herein, except that the provisions of this act shall not apply to any electrical power plant or steam generating plant of less than 75 megawatts in capacity ....." [403.506(1), F.S.]

A combined cycle plant consists of two cycles. The first is the gas turbine cycle, also known as the *Brayton Cycle.* The second is the steam turbine or *Rankine Cycle.* [Steam, its Generation and Use, Babcock & Wilcox, 1992]

For combined cycles, the Department considers the Act to apply only when electricity generated from the electrical generator operated on the Rankine cycle equals or exceeds 75 MW and not the separate electrical generator operated on the Brayton cycle.

In past permitting actions, the Department has accepted operational limitations on the gross electrical output from the steam turbine-electrical generator as the measure of capacity. [Okeelanta Cogeneration, Destec Tiger Bay, CPV Pierce]

The Department requires a clear description of the manner by which electrical power from the steam turbine-electrical generator will be limited to less than 75 MW.

In its application received by the Department on September 5, 2001, CPV stated the following:

> *"The steam turbine generator (STG) output will be limited to less than 75 MW. Control of STG output will be monitored and controlled via an automatic digital control system (DCS) to ensure the 75 MW output limit is not exceeded. A number of control options have been investigated and the most probable are described below.*
>
> *"When ambient temperature is at 59 °F or greater, excess steam generated in the HRSG will be extracted from the HRSG, bypassing the steam turbine, and injected into the CTG. This mode of operation is referred to as power augmentation. Since there is a limit on the quantity of steam that may be injected into the CTG, it may be necessary to further reduce flow to the STG to limit output or to reduce steam turbine output by other means.*
>
> *"Bypass of a portion of heat exchanger surface in the HRSG is an effective method of reducing steam production by reducing the heat recovered from the combustion turbine flue gas. The proposed design will make use of a low temperature economizer bypass to limit steam production by allowing more of the heat generated by the combustion turbine to be discharged to the atmosphere with the flue gas. This will limit STG output.*

"In many cases, application of both of these control modes will reduce steam output to the turbine to the required quantity. If additional reduction in STG output is required, raising STG discharge pressure by raising the condenser operating temperature will reduce turbine efficiency, reducing electrical output. Output of the STG may be tuned to the desired value by turning cooling tower cells on and off as necessary.

"When ambient temperature falls below 59 °F the manufacturer does not recommend injection of steam into the combustion turbine. If the low temperature economizer bypass combined with an increase cooling water temperature does not reduce STG output sufficiently, excess steam may bypass the steam turbine and be sent directly to the condenser.

"Output of the STG will be controlled automatically utilizing the methods described above through a DCS designed to ensure that the electrical power produced from steam does not exceed 74.9 MW".

The DCS will be programmed by the Engineering Procurement Construction (EPC) engineer to limit the steam turbine output to 74.9 MW. The necessary logic to automatically control steam injection to the gas turbine, cooling tower fan speed, HRSG economizer bypass control, steam bypass control, or reduce gas turbine load will be incorporated in the DCS.

The plant operator can manually lower the steam turbine output value but cannot raise the number beyond the programmed set point limit or alter the DCS logic. Depending on the DCS platform purchased, the logic and set point will either be protected by password or keylock. If the logic or set point must be changed after the plant is in commercial operation, only an authorized DCS representative or a qualified DCS engineer can make the modifications. These modifications can be made using the DCS engineering work station, which will be located in the plant control room. A shutdown of the facility is not required since the changes can be made while the plant is on-line".

The Department accepts CPV's operational description and concludes that the project is not subject to the Florida Electrical Power Plant Siting Act.

A. A. Linero 11/19/01

A. A. Linero, P.E. Administrator
New Source Review Section

Hamilton Oven, P.E. Administrator
Power Plant Siting Office