AIR QUALITY IMPACT ANALYSIS

I. Introduction

The Florida Power & Light Company (FPL) is proposing a repowering project at its Lauderdale plant site, located in eastern Broward County, about one mile east east of the Florida Turnpike and one mile west of Interstate Highway 95. Currently, the FPL Lauderdale plant consists of two fossil fuel steam generating units and 24 gas turbines with a total plant net summer electric generating capability of 1,126 megawatts (MW) (1,248 MW net, winter). The Lauderdale Repowering Project will consist of replacing the existing two steam generators each with two combustion turbines (CT's) and two heat recovering steam generators (HRSG's) operating as a combine cycle plant. The CT's directly drive electric generators to produce electric power. The exhaust gases from the CT's exhaust through the HRSG's, producing steam in the HRSG's. This steam is used to drive the steam turbines of the existing units. The CT's will burn natural gas as the primary fuel and No. 2 fuel oil as an alternate fuel. The operation of these units will result in the significant emissions of regulated air pollutants and, thus, must be reviewed by the Department.

The Lauderdale Repowering Project will be located in a Class II PSD area and is approximately 60 km northeast of the Everglades National Park Class I area. The pollutant emissions estimated by the applicant, considering control equipment, indicate that the following nine compounds will be emitted in PSD-significant amounts: carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM and PM_{10}), sulfur dioxide (SO_2), and lead (Pb), and the non-criteria pollutants beryllium (Be), mercury (Hg), fluorides (F-), and sulfuric acid mist (H_2SO_4). Because the proposed facility will be located in Broward County, a nonattainment area for ozone, it is potentially subject to the Nonattainment Area Review requirements for the pollutant VOC (as volatile organic compounds). This discussion is included in Section VII, Nonattainment Area Analysis.

The air quality impact analysis required by the PSD regulations for these pollutants include:

- An analysis of existing air quality;
- A PSD increment analysis (NO_2, PM and SO_2 only);
- An Ambient Air Quality Standards (AAQS) analysis;
- An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality impacts; and
- A "Good Engineering Practice" (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The AAQS analysis depends on the air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed repowering project at FPL Lauderdale site, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any ambient air quality standard or PSD increment. A discussion of modeling methodology and required analysis follows.

II. Modeling Methodology

For the screening modeling analysis, model results were calculated for a range of operating conditions for which the maximum ground-level impacts would be expected to occur. These operating conditions were based on either the facility's maximum emissions or on its minimum flow rate. The maximum predicted concentrations occurred when the minimum flow rate operating condition was modeled.

The EPA-approved Industrial Source Complex Short-Term (ISCST) dispersion model was used in the air quality impact analysis. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition and transformation. The ISCST 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 in each modeling scenario.

The screening modeling used a radial receptor grid with the center of the grid coinciding with the center of the proposed repowering facility. Radials were spaced at 10 degree increments from 10 to 360 degrees. The grid for the near-field receptors consisted of 435 receptors located at distances of 600, 900, 1200, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 7000 and 8000 meters along the 36 radials. Recepters within the plant property were not included in the modeling analysis. Thirty-six discrete receptors were placed along the plant boundary. There were 22 receptors located along the north and east boundaries of the Everglades National Park for the PSD Class I analysis.

After the screening modeling was completed, refined short-term modeling was conducted using a receptor grid centered on the receptors which had the highest, second-highest short-term concentrations. The receptors were located at intervals of 100 meters between the distances considered in the screening phase along nine radials, at two degree increments, centered on the radial which produced the maximum concentration.

Meteorological data used in the modeling consisted of five years (1982-1986) of hourly surface data taken at Miami, Florida. Mixing heights used in the modeling were based on upper air data from West

Palm Beach, Florida.

Table 1 and Table 2 list the stack parameters and the maximum pollutant emissions for the proposed repowering unit for the operating condition that produced the highest ground-level concentrations. Table 3 lists the significant and net emission rates for the proposed project.

III. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review. In general, one year of quality assured data using an EPA reference, or the equivalent monitor must be submitted. Sometimes less than one year of data, but no less than four months, may be accepted when Departmental approval is given.

An exemption to the monitoring requirement can be obtained if the maximum air quality impact, as determined by air quality modeling, is less than a pollutant-specific "de minimus" concentration. In addition, if current monitoring data exists and these data are representative of the proposed source area, then at the discretion of the Department these data may be used. The maximum predicted ambient impacts of the proposed facility for those pollutants subject to PSD review are listed in Table 4.

Sulfuric acid mist is not listed because there are no significant or de minimus levels for this pollutant. However, an estimate of sulfuric acid mist ground-level concentrations can be obtained from modeling performed on SO_2. Sulfuric acid mist is emitted at 738 TPY as compared to 16,083 TPY for SO_2. The maximum predicted SO_2 concentration is multiplied by this ratio (738/16083) to estimate the maximum ground-level concentration of sulfuric acid mist. A maximum 24-hour concentration of 1.7 ug/m^3 is predicted for sulfuric acid mist. This value is less than the acceptable ambient concentration of 4.76 ug/m^3, as defined by the Department's proposed air toxics criteria.

The predicted maximum impact for CO, NO_2, PM, PM_{10}, Be, and Hg is less than their respective de minimus impact levels. Therefore, no additional monitoring is required for these pollutants.

The predicted maximum impact for SO_2 is greater than its defined de minimus value. The applicant obtained ambient SO_2 monitoring data from the two continuous SO_2 monitoring stations within the Department approved air monitoring network: FPL Davie Substation site located 6 km west-northwest and FPL Pinehurst Substation site located 5 km northeast of the proposed facility, at which the highest concentrations were measured. The highest measured 3-hour concentration was 189 ug/m^3, the highest 24-hour concentration was 42 ug/m^3, and the highest recorded annual mean concentration was 5 ug/m^3. These values are well below the AAQS of 1,300 ug/m^3 for 3-hour average, 260 ug/m^3 for 24-hour average, and 60 ug/m^3 for the

Table 1. Stack Parameters for Proposed Repowering Unit.

Source	Height (m)	Exit Temp. (K)	Exit Velocity (m/s)	Diameter (m)
CT/HRSG	45.7	410.7	21.2	5.5

Table 2. Maximum Pollutant Emissions for Proposed Repowering Unit.

Pollutant	Annual Emission Rate (TPY)	Short-Term Emission Rate (lb/hr)
Particulate Matter	265.4	60.6
Sulfur Dioxide	3923.1	895.7
Nitrogen Oxides	1972.1	440.0
Carbon Monoxide	477.1	108.9
Lead	0.066	0.015
Sulfuric Acid Mist	489.0	111.5
Fluoride	0.24	0.055
Mercury	0.089	0.02
Beryllium	0.019	0.004

Table 3. Significant and Net Emission Rates (Tons per Year) for the proposed Project.

Pollutant	Signifi. Emission Rate	Existing Emissions	Proposed Maximum Emissions	Net Emissions Change	Appli. Pollut. (Yes/No)
CO	100	185	1659	1474	Yes
NO_2	40	2510	5999	3489	Yes
SO_2	40	2318	12232	9914	Yes
PM	25	202	825	623	Yes
PM_{10}	15	145	825	680	Yes
Pb	0.6	0.06	0.21	0.15	No
Be	0.0004	0.0096	0.058	0.0484	Yes
Hg	0.1	0.04	0.35	0.31	Yes
F-	3	0.8	0.77	-0.03	No
H_2SO_4	7	89	1525	1436	Yes

Table 4. Maximum Air Quality Impacts for Comparison to the Significant Impact and De Minimus Ambient Levels (ug/m^3).

Pollutant	Averaging Time	Maximum Predicted Impact	Significant Impact Level	De Minimus Level
CO	1-hour	61.0	2000.0	N/A
	8-hour	13.0	500.0	575.0
NO_2	Annual	0.86	1.0	14.0
PM	24-hour	3.0	5.0	10.0
	Annual	0.32	1.0	N/A
PM_{10}	24-hour	3.0	5.0	10.0
	Annual	0.32	1.0	N/A
SO_2	3-hour	259.0	25.0	N/A
	24-hour	36.0	5.0	13.0
	Annual	2.3	1.0	N/A
Be	24-hour	0.0002	N/A	0.0005
Hg	24-hour	0.0003	N/A	0.25

Table 5. Maximum Predicted SO_2 Concentration for Comparison to PSD Class I Increments (ug/m^3).

Averaging Time	Maximum Impact of Proposed Project	All Increment Consuming Sources	PSD Class I Increment
3-hour	0.01	15.0	25
24-hour	0.00	4.4	5
Annual	0.12	0.68	2

annual averaging period. A more detailed discussion about the monitoring data collected is presented in Section V "AAQS Analysis" of this report.

IV. PSD Increment Analysis (NO_2, PM and SO_2)

A. Class II Area

The proposed project is located in a Class II area. This area is also designated as an attainment area for NO_2, PM and SO_2. Therefore, a PSD increment analysis is required to show compliance with the Class II NO_2, PM and SO_2 increments.

The PSD increment represents the amount that new sources in an area may increase ambient ground-level concentrations of a pollutant. At no time, however, can the increased loading of a pollutant cause or contribute to a violation of the ambient air quality standard.

Atmospheric dispersion modeling, as previously described, was performed to quantify the amount of PSD increment consumed. The modeling results, considering all increment consuming sources in the area of the proposed facility site, indicate the maximum NO_2 Class II increment consumed is 5.9 ug/m^3, which is less than 25 percent of the allowable PSD NO_2 increment of 25 ug/m^3, annual average.

The modeling results indicate the maximum PM Class II increment consumed is 3 ug/m^3 for a 24-hour average and 0.3 ug/m^3 for an annual average. These predicted impacts are below the allowable increment values of 37 and 19 ug/m^3, respectively.

Modeling results indicate the maximum SO_2 increment consumed is 334 ug/m_3 for a three-hour average, 52 ug/m^3 for a 24-hour average and 2.3 ug/m^3 for an annual average. These predicted impacts are below the allowable increment values of 512, 91 and 20 ug/m^3, respectively.

B. Class I Area

A Class I area increment analysis is required because the proposed project is located within 100 kilometerss of the Everglades National Park Class I area. Model results indicate total Class I increment consumption for SO_2 are below the Class I increments for all averaging times. The maximum 3-hour increment consumption is predicted to be 15 ug/m3 and maximum predicted 24-hour increment consumption is 4.4 ug/m3, compared to the Class I increment of 25 ug/m3 and 5 ug/m3, respectively. Table 5 summarizes the predicted increment consumption on the Class I area. The percent consumed is quite high, due mostly to other sources, but is still within the allowed increments.

V. Ambient Air Quality Standards (AAQS) Analysis

Of the pollutants subject to review, only CO, NO_2, PM, SO_2 and ozone have an AAQS. Except for ozone, dispersion modeling was performed as detailed earlier for the proposed project. The modeling results indicate that except for SO_2 the predicted maximum concentration increases for all pollutants are less than the significant impact levels defined in the State regulations. As such, no further modeling of other sources is required for those pollutants. In general, the total ambient air quality impacts are determined by adding the predicted modeled concentrations to an estimated background concentration for each pollutant. The background estimates of the CO and PM concentrations were obtained from the nearest monitoring site where the highest concentrations were recorded in 1989. The background estimates of the SO_2 and NO_2 concentrations were obtained from the applicant's air monitoring network approved by the Department. Table 6 summarizes the estimates of the predicted maximum air quality for these pollutants in the vicinity of the proposed project.

There is currently no acceptable method to model VOC's (ozone). Consequently, the control of the VOC emissions are addressed in BACT review.

Given existing air quality in the area of the proposed project, emissions from this project are not expected to cause or contribute to a violation of an AAQS.

VI. Additional Impacts Analysis

A. Impacts on Soils and Vegetation

The maximum ground-level concentration predicted to occur for each pollutant as a result of the proposed project, including a background concentration, will be below the applicable AAQS including the national secondary standard developed to protect public welfare-related values. As such, this project is not expected to have a harmful impact on soils and vegetation.

B. Impact on Visibility

The EPA Level-1 visibility screening analysis was performed by the applicant for impact on the Everglades National Park area. Because the Level-1 screening analysis exceed the visibility criteria, a Level-2 screening analysis was performed. For this study, the meteorological data from the National Weather Service (NWS) station in Miami were used to generate a frequency distribution of wind direction, wind speed, and stability occurrences based on the standardized stability array (STAR) program. The model results indicate that all values of Delta E and contrast are less than the screening criteria of 2.00 and 0.05, respectively. No significant impact on visibility is expected in this area as a result of the proposed project.

C. Growth-Related Air Quality Impacts

Table 6. Ambient Air Quality Impact (ug/m^3).

Pollutant	Averaging Time	Modeled All Sources	Estl. Back-ground	Predicted Total Impact	Florida AAQS
CO	1-hour	61	490	511	40000
	8-hour	13	286	299	10000
NO_2	Annual	55	26	81	100
SO_2	3-hour	894	139	1032	1300
	24-hour	211	42	253	260
	Annual	24	5	29	60
PM_{10}	24-hour	3.0	42	45	150
	Annual	0.3	25	25	60

The proposed project is not expected to significantly change employment, population, housing or commercial/industrial development in the area to the extent that an air quality impact will result.

D. GEP Stack Height Determination

Good Engineering Practice (GEP) stack height means the greater of: (1) 65 meters or (2) the maximum nearby building height plus 1.5 times the building height or projected width, whichever is less. One stack will be constructed serving one CT and its associated HRSG. There will be total of 4 stacks for the 4 CT's and HRSG's for the repowering project. The stacks will be located adjacent to the proposed environmental enclosure building. The height of this structure will be 22.9 meters and represents the lesser dimension of the height and width. The calculated GEP stack height is, thus, 57.3 meters. The actual stack height, 46 meters, will be less than this height. Downwash effects, if any, would occur for all wind directions, and was accounted for in the dispersion modeling.

VII. Nonattainment Area Analysis

The preconstruction Nonattainment Area Review requirements for a new source, or a modification of an existing source, includes:

- Application of LAER;
- Demonstration of a statewide compliance for multiple facility ownership;
- Emission offset requirements; and,
- Net air quality improvement.

The proposed facility is located in an ozone nonattainment area and, thus, is potentially subject to the Nonattainment Area Review process. The regulated pollutant for ozone is VOC's. The current facility-wide VOC emissions of the FPL Lauderdale site, as contained in their federal enforceable permit, is 99.9 TPY. As such, the facility is a minor VOC source. The proposed repowering project will result in an increase of VOC emissions of 99.9 TPY. Therefore, the proposed repowering project is exempt from the Nonattainment Area Review as described in Rule 17-2.510(2)(d)3, Florida Administrative Code.

Feb. 1, 1985

High SO_2 Conc. at Pinehurst during hours of 12, 13, 14 of 91, 53, 72 ppb, resp. (24 hr ave. 14 ppb running ave.)
Wind Direction during those hours measured from site 004 - Davie were 164, 115, 113, resp.

A wind shift occurred during hours 9-10, with wind directions changing from ≈ 310 to ≈ 120

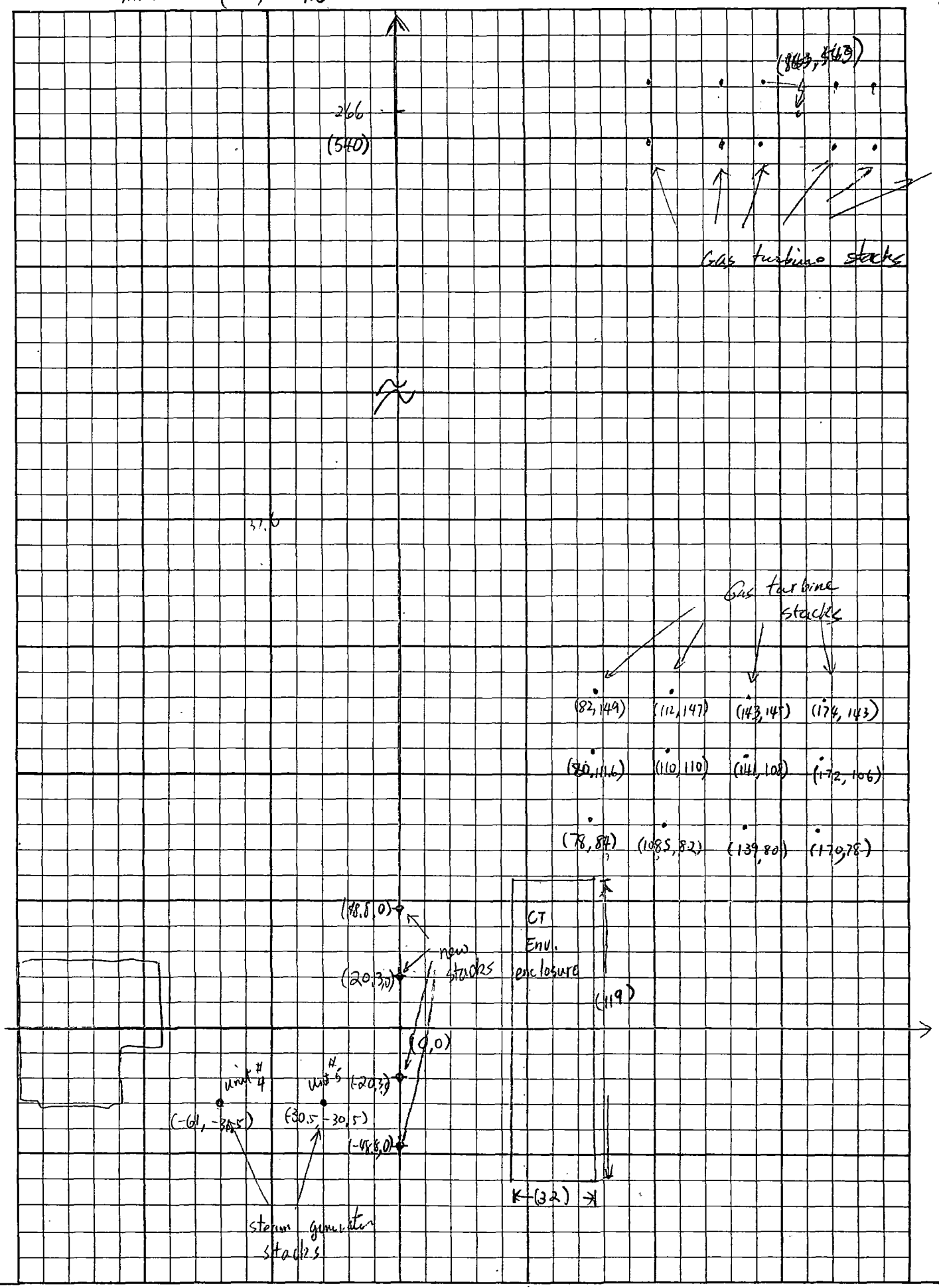
Wind speeds increase from hours 12 and before of ~ 2-2.5 mph to ~ 7 mph for hours 13 →.

July 11, 12, 1985
High SO_2 hours 15, 16 Jul 11
7, 9, 10, 11, 12, 13, 14, 15 Jul 12
24 hr avg. 16 ppb, running ave.

site 002

Wind directions for 24-hr period above.

Hour	15	16	17	18	19	20	21	22	23
Dir	113	113	113	120	106	138	127	143	126
Speed	9	10	9	6	4	4	5	4	3
Hour	00	01	02	03	04	05	06	07	08
Dir	257	274	301	343	348	353	7	44	115
Speed	2	3	3	2	2	2	2	2	3
Hour	09	10	11	12	13	14	15		
Dir	121	119	124	119	120	118	115		
Speed	5	6	6	8	8	8	7		


mm ( ) - m
266
(540)
(463, 463)
Gas turbine stacks
37.6
Gas turbine stacks
(82, 149)
(112, 147)
(143, 141)
(174, 143)
(80, 111.6)
(110, 110)
(141, 108)
(172, 106)
(78, 84)
(108.5, 82)
(139, 80)
(170, 78)
(48.8, 0)
(20, 30)
new stacks
CT Env. enclosure
(119)
(0, 0)
(-20, 30)
unit # 4
unit # 5
(-61, -30.5)
(-30.5, -30.5)
(-48.8, 0)
(32)
steam generator stacks

Summary of FPL Lauderdale Repowering Project SO_2 1985 3-Day (258, 322, & 323) Run

Soureces	Max. 3-Hr. Concen. Location Day	HSH 3-Hr. Concen. Location Day	Max. 24-Hr. Concen. Location Day	HSH 24-Hr. Concen. Location Day
New Unit (4 Stacks)	267.0 (300, 230) 323	193.5 (300, 230) 322	55.0 (5000, 230) 258	33.4 (300, 230) 312
New Unit Plus Offset	187.0 (300, 230) 323	126.0 (300, 230) 322	25.5 (146, 240) 323	20.5 (146,240) 258
Increment from Bldg DW of 12 GT's	982.0 (110, 230) 323	876.0 (110, 230) 322	312.5 (110,230) 258	191.0 (110, 230) 322
PSD Increment w/ Bldg DW	1054.1 (110, 230) 323	915.1 (110, 230) 322	320.0 (110, 230) 258	200.0 (110, 230) 322
PSD Increment w/t Bldg DW	187.0 (300, 230) 323	126.1 (300, 230) 322	25.5 (146, 240) 323	20.5 (146, 240) 258
All sources (AAQS)	1054.1 (110, 230) 323	915.1 (110, 230) 322	320.5 (110, 230) 258	212.4 (110, 230) 322

FPL LAUDERDALE REPOWERING PROJECT
SITE CERTIFICATION APPLICATION

VOLUME 2 ERRATA

Page No.	Para No.	Line No.	Comment
10.1.2-19	Attachment 1	--	Change location of outfall 001
10.1.2-20	Attachment 2	--	Add two more satellite accumulation areas
10.1.2-31	Table IV-1	1	Change "743" to "295" and Change "103" to "36"
10.1.2-31	Table IV-1	2	Change "743" to "667" and Change "333" to "100"
10.1.2-32	Table IV-1	1	Change "39" to "71"
10.1.2-32	Table IV-1	2	Change "50" to "81"
10.1.2-35	3	10	Add "0.2" after "Oil separation rate"
10.1.4-25	--	--	Item 7.C.2.C--change "Davia" to "Dania"
vii	7-3	1	Change "Concentration" to "Concentrations"
ix	2-1	1	Change "Units" to "Unit"
1-1	2	1	Change "Combustion Turbine" to "Lauderdale"
2-4	Table 2-1	5	Change "89,531.7" to "88,531.7"
2-5	Table 2-2	Note	Change "pounds per million" to "pounds per hour"
2-10	Table 2-6	--	See footnote a.
2-11	2	4	Change "CT" to "CTs"
2-11	2	6	Change "CT" to "CTs"

Page No.	Para. No	Line No.	Comment
2-11	4	2	Change "retired upon" to "taken out of service prior to"
2-11	4	6	Change "operating" to "annual operating"
2-12	Table 2-7	--	See footnote b.
2-15	Table 2-10	--	See footnote c.
2-17	Table 2-11	Note	See footnote d.
2-19	Table 2-13	9	Change "-0.0" to "0.0" in two columns
2-20	2	2	Change "Figure 2-4" to "Figures 2-4 and 2-5"
3-13	Table 3-3	7	Change "15" to "0.15;" also, see footnote e.
3-15	4	1	Change "are" to "is"
4-2	Table 4-1	--	Under fuel-bound nitrogen, change "N<0.015" to "N≤0.015"
4-2	Table 4-1	--	Change "0.015<N<0.1" to "0.015<N≤0.1"
4-2	Table 4-1	--	Change "0.1<N<0.25" to "0.1<N≤0.25"
4-3	2	6	Change "maximum heat input of" to "heat input greater than"
4-3	2	7	Change "heat input requested" to "design heat input capacity"
4-3	2	8	Change "BTU" to "Btu"
4-3	4	4	Change "1986b" to "1986"
4-8	1	2	Change "is" to "are"
4-15	1	5	Change "713" to "991"

Page No.	Para. No	Line No.	Comment
4-15	1	8	Change "3,329" to "4,624"
4-15	2	3	Change "$6,424/ton" to "greater than $4,600/ton"
4-15	3	3	Change "NSPS" to "steam injection alone"
4-15	3	6	Add "for the repowering project." after "AAQS"
4-18	1	4	Change "$6,424" to "$4,600"
4-20	4	4	Change "374.9" to "521"
4-20	4	6	Change "1,124.8" to "1,562"
4-20	5	2	Change "$13,265/ton" to "greater than $9,556/ton"
4-22	3	9	Change "13,000" to "9,556"
4-23	2	1	Change "1985, 1986b" to "1985b, 1986"
4-24	4	2	Add "alone" after "units"
4-24	4	3	Change "55" to "54"
4-25	Table 4-6	--	In Note 4, change "based 12" to "based on 12"
5-2	3	4	Change "39 $\mu g/m^3$" to "42 $\mu g/m^3$" and change "Davie" to "Pinehurst"
6-12	2	5	Change "accomodate" to "accommodate"
6-17	1	5	Change "property" to "boundary"
6-17	1	6	Change "property" to "boundary"
6-17	1	8	Change "308" to "435"

Page No.	Para. No	Line No.	Comment
6-17	1	11	Change "For directions of 10 through 160°, receptors at a downwind distance of 600 m from the repowered units were not included in the analysis because these receptors are on plant property." with "If receptors were on plant property, they were not included. For example, as shown in Table 6-10, the extent of plant property in a 50-degree direction from the property unit is 2,280 m. Therefore, receptors placed along that radial at 600, 900, 1,200, and 1,600 m were not included."
6-21	2	equation	Clarify pi symbol
7-2	Table 7-1	--	Nitrogen dioxide--change "23" to "2.3"
7-2	Table 7-1	--	Footnote b--change "Note" to "Not"
7-2	Table 7-1	--	Change "Sulfur dioxide" to "Sulfur Dioxide"
7-12	Table 7-8	11	Add "2" in PSD Class I Increment Column
7-13	Table 7-9	--	In table heading, change "($\mu g/m^3$" to "($\mu g/m^3$)"
7-14	1	2	Change "<0.15 $\mu g/m^3$ for both SO_2 and NO_x" to "<0.7 $\mu g/m^3$ for SO_2 and <0.3 $\mu g/m^3$ for NO_x"
8-11	2	4	Change "is" to "are"
8-12	2, 3	--	Move third paragraph before second paragraph
8-15	2	4	Change "NO_2" to NO_x"

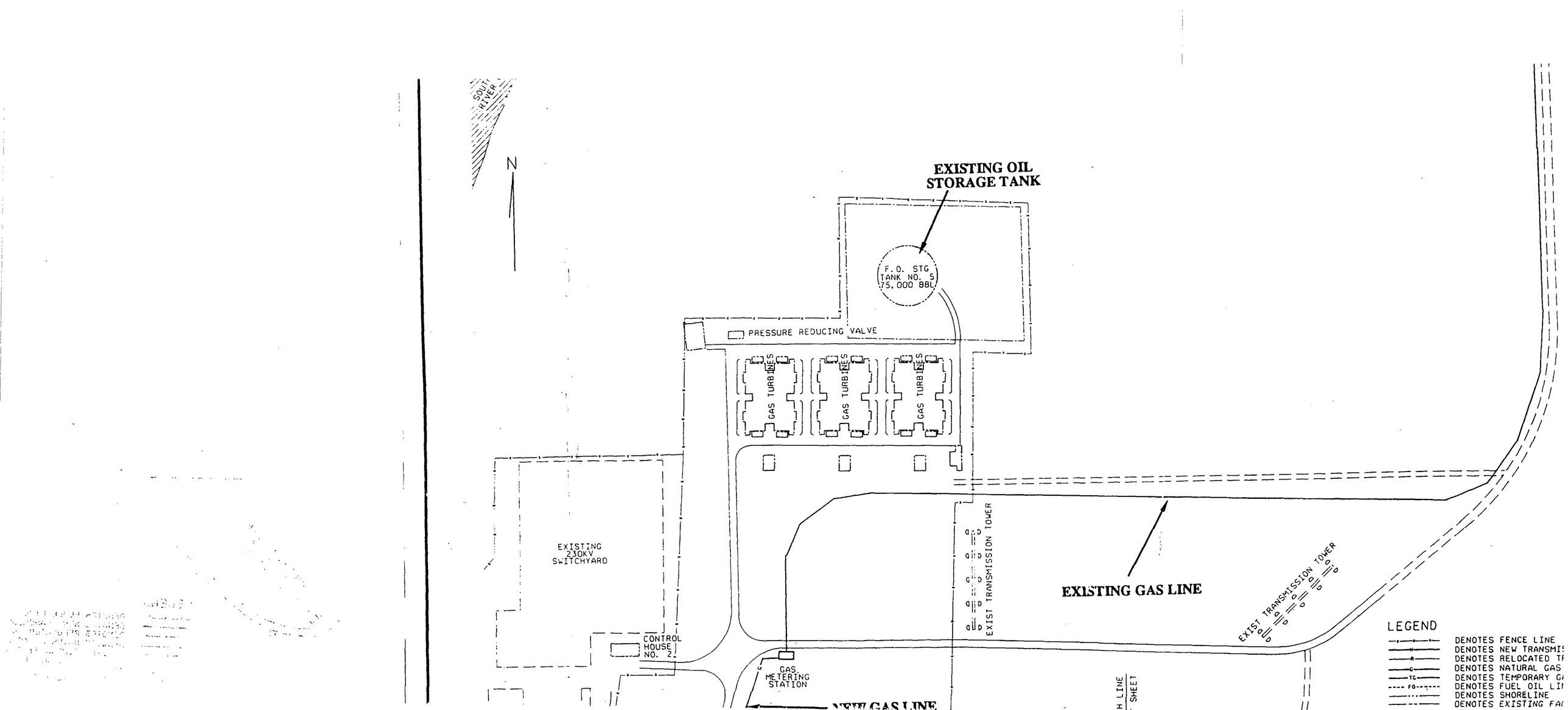
Page No.	Para. No	Line No.	Comment
8-21	Table 8-7	1	Change "35*" to "35[c]"
8-21	Table 8-7	2	Change "35*" to "35[c]"
8-21	Table 8-7	--	Add "[c]Transport time to Class I area during this condition is longer than 12 hours so the frequency for this condition is not added to the cumulative frequency summation."
10.1.7-1	--	--	Under section 4 change "30" to "5"
10.5.2-1	3	3	Change "Figure 2.3.9" to "Figure 2.3-9"
10.5.2-47 and 10.5.2-48	6	equation	Heat dissipation formula was corrected.
10.5.2-55	5	3	Change "Intracostal" to "Intracoastal"
10.5.2-56	1	2, 7	Change "Intracostal" to "Intracoastal"
10.5.2-78	3	3	Change "is" to "are"
10.5.4-5 thru 10.5.4-18	Tables 10.5.4-5 thru 10.5.4-8	--	Dissolved oxygen values corrected to reflect changes in salinity.
10.5.4-46 thru 10.5.4-64	--	--	Replace draft report with final report.

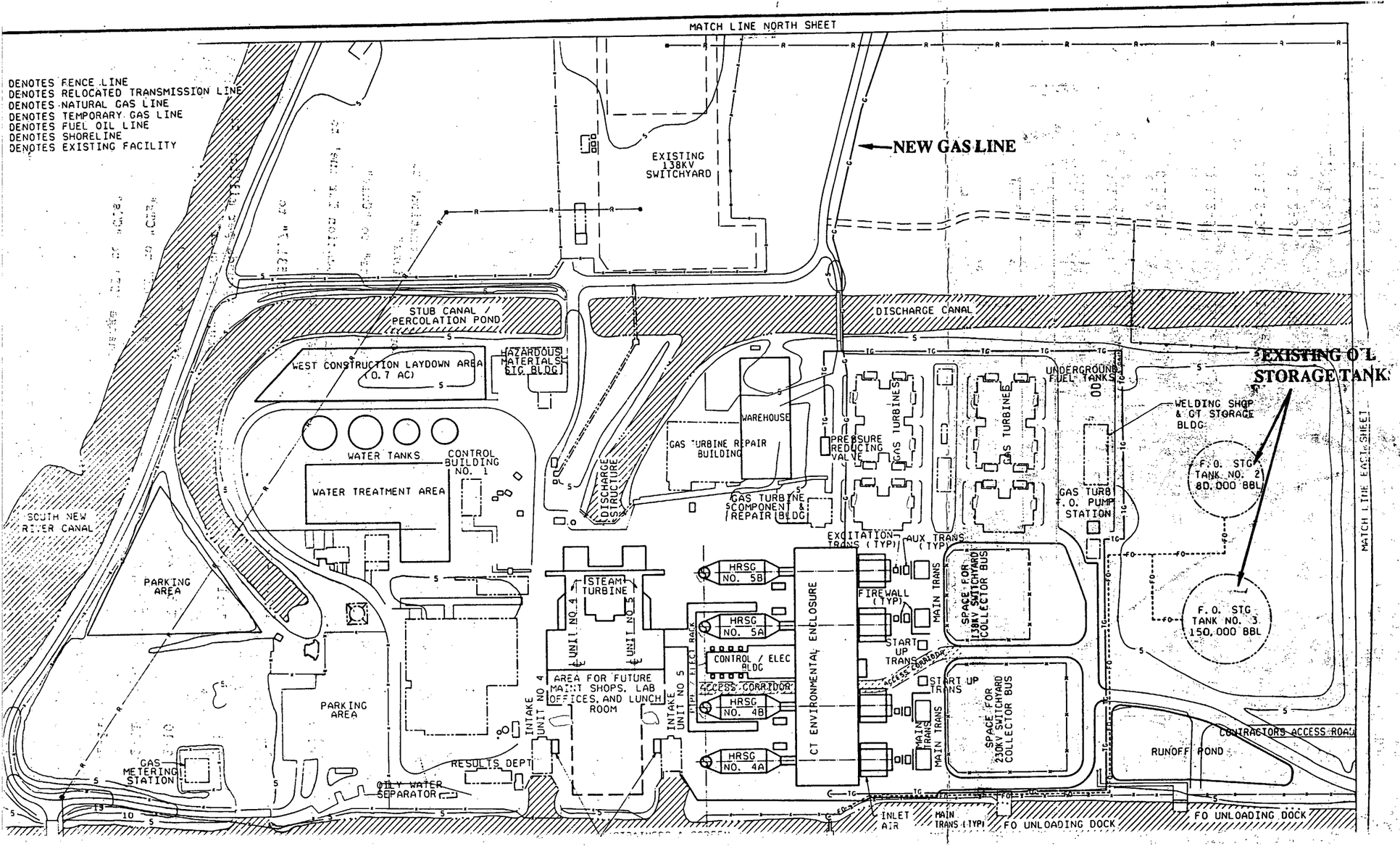
[a]CT/HRSG emmissions corrected to reflect 81.1 percent capacity factor required to keep VOC emissions to 111.0 TPY (see footnote c).
[b]Capacity factors, heat input, and VOCs (TPY) for No. 2 fuel oil and total capacity factor and VOCs (TPY) corrected to 111.0 TPY (see footnote c).
[c]1981 natural gas and No. 6 fuel oil usage rates for Unit 4 were transposed and 1977 natural gas and No. 6 fuel oil usage rates for Unit 5 were transposed. These corrections affect average natural gas and No. 6 fuel oil usage. Table 2-11 was changed to reflect this correction. Change in

Table 2-11 required that Tables 2-6, 2-7, and 3-3 be corrected to reflect slightly lower existing Units 4 and 5 VOC emissions offsets. New capacity factor proposed for repowering project when firing No. 2 fuel oil is 81.1 percent which, when combined with tank emissions, brings net VOC emission increases to 99.9 TPY.

[d]Actual representative emission rates (TPY) were adjusted to reflect corrected average natural gas and No.2 fuel oil usage (see footnote c).

[e]Potential emissions from proposed repowered Units 4 and 5 were changed to correspond to Table 2-6. Reductions from existing Units 4 and 5 were changed to correspond to Table 2-11. Net emission increases were recalculated (see footnote c).


SOUTH RIVER
N
EXISTING OIL STORAGE TANK
F.O. STG TANK NO. 5 75,000 BBL
PRESSURE REDUCING VALVE
GAS TURBINES
GAS TURBINES
GAS TURBINES
EXISTING 230KV SWITCHYARD
CONTROL HOUSE NO. 2
GAS METERING STATION
EXIST TRANSMISSION TOWER
EXISTING GAS LINE
EXIST TRANSMISSION TOWER
LEGEND
DENOTES FENCE LINE
DENOTES NEW TRANSMIS
DENOTES RELOCATED TR
DENOTES NATURAL GAS
DENOTES TEMPORARY GA
DENOTES FUEL OIL LIN
DENOTES SHORELINE
DENOTES EXISTING FAC


MATCH LINE NORTH SHEET
DENOTES FENCE LINE
DENOTES RELOCATED TRANSMISSION LINE
DENOTES NATURAL GAS LINE
DENOTES TEMPORARY GAS LINE
DENOTES FUEL OIL LINE
DENOTES SHORELINE
DENOTES EXISTING FACILITY
NEW GAS LINE
EXISTING 138KV SWITCHYARD
STUB CANAL / PERCOLATION POND
DISCHARGE CANAL
WEST CONSTRUCTION LAYDOWN AREA (0.7 AC)
HAZARDOUS MATERIALS STG BLDG
WATER TANKS
CONTROL BUILDING NO. 1
WATER TREATMENT AREA
SOUTH NEW RIVER CANAL
PARKING AREA
PARKING AREA
GAS METERING STATION
OILY WATER SEPARATOR
RESULTS DEPT
INTAKE UNIT NO 4
INTAKE UNIT NO 5
AREA FOR FUTURE MAINT SHOPS, LAB OFFICES, AND LUNCH ROOM
STEAM TURBINE
UNIT NO 4
UNIT NO 5
HRSG NO. 5B
HRSG NO. 5A
HRSG NO. 4B
HRSG NO. 4A
CT ENVIRONMENTAL ENCLOSURE
CONTROL / ELEC BLDG
ACCESS CORRIDOR
TYP. 7 EJECT RACK
WAREHOUSE
GAS TURBINE REPAIR BUILDING
GAS TURBINE COMPONENT & REPAIR BLDG
DISCHARGE STRUCTURE
PRESSURE REDUCING VALVE
GAS TURBINES
GAS TURBINE
UNDERGROUND FUEL TANKS
EXISTING O'L STORAGE TANKS
WELDING SHOP & OT STORAGE BLDG
GAS TURB F.O. PUMP STATION
F.O. STG TANK NO. 2 80,000 BBL
F.O. STG TANK NO. 3 150,000 BBL
EXCITATION TRANS (TYP)
AUX TRANS (TYP)
FIREWALL (TYP)
MAIN TRANS
START UP TRANS
SPACE FOR 138KV SWITCHYARD COLLECTOR BUS
SPACE FOR 230KV SWITCHYARD COLLECTOR BUS
ACCESS CORRIDOR
CONTRACTORS ACCESS ROAD
RUNOFF POND
INLET AIR
MAIN TRANS (TYP)
FO UNLOADING DOCK
FO UNLOADING DOCK
MATCH LINE EAST SHEET
MATCH LINE EAST SHEET